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PhD Program in Economic Sociology and Labour Studies
XXX Cohort

Across the chain.
Dock labour systems in the European ports:
A comparative analysis on two container
terminals

SPS/09, SPS/07, IUS/07, SECS-P/07, SECS-P/10, SECS-S/04, M-PSI/06

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Academic year
2016/2017

The PhD program Economic Sociology and Labour Studies (ESLS) (30th cohort) stems from the collaboration of four Universities, namely Università degli Studi di Brescia, Università degli Studi di Milano, Università degli Studi di Milano-Bicocca and Università degli Studi del Piemonte Orientale “Amedeo Avogadro”. The University of Milan serves as the administrative headquarters and provides the facilities for most teaching activities.

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Acknowledgements

The following thesis reflects the result of three years of research on port labour systems conducted in various places throughout Europe. From Naples, where I used to live before starting the PhD program, I moved to Milan. From Milan to Genoa. From Genoa to other ports/cities – Trieste, Koper, Livorno, etc. From the Italian ports to the Northern Range: Antwerp first, where I spent seven months as a visiting PhD student at the Faculty of Transport and Regional Economics. Then Rotterdam, Hamburg, Le Havre, but also London, Brussels. Now that the end of this research project is getting ready, it is appropriate to look back and to express gratitude to those who contributed in one way or another to its accomplishment.

I wish to thank all the persons met during these three years of research. Thank you to those who gave their availability during the fieldworks. Thank you to all the workers, from which I learned mostly about ports.

I could not have completed this study without the support of Sergio Bologna. Thanks to his remarks, inspiring advices, outstanding knowledge and experience, I have had the opportunity to observe the object of my study with attentiveness, care, but also without illusions. It has been a privilege for me to learn from him, to listen him, to have fertile moments of sincere exchanges, confrontations and conversations with him during the entire research. This could not have been possible without the support of Professor Paolo Perulli, who supervised me during these years, alongside with Sergio Bologna. I wish to thank him for his never invasive presence, his wise advices in the right moments, his encouragements, and his capability in getting me out of the confusion with few words.

I want to thank Professor Vando Borghi from the University of Bologna, because he believed my study made sense from the beginning and supported me when I felt lost and inadequate. I also thank Professor Devi Sacchetto from the University of Padua, for the motivations he gave me during our meetings and conferences. I owe a lot to Professor Enrico Rebeggiani from the University Federico II of Naples, from which I learned too many things to be listed here; to Professor Francesco Pirone, to Professor Lidia Greco from the University of Bari, to Lisa Dorigatti from the University of Milan, to Professor Elisabetta Della Corte from the University of Calabria, and to Michele Colucci from CNR of Naples. I want to thank Professor Mario Cardano for the methodological recommendations, the NASP, (Network for the Advancement in Social and Political Sciences), the University of Milan and the University of Piemonte Orientale, who gave me the possibility to carry out this scientific research. I want to thank all my colleagues, with which I shared the key moments of the first PhD year in Milan, as well as all my friends and comrades in this city, to which I owe much.

I wish to thank the librarians of Biblioteca Berio in Genoa and Braidense in Milan, Riccardo Degl’Innocenti and CALP (Collettivo Autonomo Lavoratori Portuali) for giving me the possibility to look at dock labour issues and port industry by another – critical – perspective. Professor Vittorio Torbianelli from the University of Trieste for the insights during my fieldworks, Professor Claudio

Ferrari and professor Elisabetta Tonizzi from the University of Genoa for their (economic and historical) viewpoints. I also want to thank the CULMV (Compagnia Unica Lavoratori Merci Varie “P. Batini”), Compagnia “P.Chiesa”, and Andrea Appetecchia, who introduced me in the fascinating world of ports, with their written and unwritten rules.

Behind this study, there are several years of independent research conducted in Naples, within the magazine of social enquiry *Napoli Monitor*, currently a publishing house. I wish to thank the editorial staff, my friends Luca Rossomando, Roberto Carro, Riccardo Rosa, Diego Paura, Salvatore Pirozzi, Giuseppe D’Onofrio and Davide Schiavon. Along this ongoing collective experience, I shared the passion of doing research, growing up and learning many things. In particular, I learned the perseverance in writing, the research tools, the rigour and the irony in working together besides the daily troubles in a city where I feel I belong, despite everything. I learned that doing research is also a political duty, a cultural issue – and *culture*, as far as I learned in Naples, means *conflict*. I have had the opportunity to publish my first book in 2016 for Monitor, after three years of research about the working conditions in one of the most ancient shipyard in Europe, located in a little city of the Neapolitan province, a territory well known for the high rates of unemployment. The impulse behind the choice of the topic addressed in the following thesis is rooted in this cultural and political experience.

A special thank goes to my precious friends Salvatore De Rosa from the University of Lund and Giuseppe Orlandini from the University Orientale of Naples. Their engagement and friendship has always been a certainty for me, and even though we are distant, I know that we are closer.

I sincerely thank C-MAT – Centre for Maritime & Air Transport Management – who provided me the possibility to attend the master specialization courses, and all the Faculty of Transport and Regional Economics of the University of Antwerp, the colleagues, the professors, and the secretary. Thanks to their human and scientific support, I experienced a different – and fruitful – working culture and research approach. They provided me the ideal environment for my fieldwork in Belgium. I want to thank in particular the colleague and companion Anton Esser for all the teachings and patience.

I wish to thank Gloria, the woman I love. I thank her for the support, and her lively, fervid intelligence, her curiosity and sensitiveness. Without her proximity, I would have gone nowhere.

I am grateful to my brother Nico, my sisters Serena and Viola, to Caterina and Mino, to the soul of my grandmothers Natalia and Felice. To my mother Lidia, who was always lovely even though I have not always been able to return my gratitude in these three years, probably because I was taken with the effort to reject, to hide or to sublimate that anger they bring in those who go away. To my father Salvatore, because he taught me that to make a hole in the wall with the drill you have to insist. It is also thanks to my family if I have managed to accomplish this journey. It is to them that I dedicate this thesis.

...Et l'on travaillerait fièrement tout le jour,
Écoutant le devoir comme un clairon qui sonne :
Et l'on se sentirait très heureux : et personne,
Oh ! personne, surtout, ne vous ferait ployer !
On aurait un fusil au-dessus du foyer...

Arthur Rimbaud, *Le Forgeron*

Introduction

In the last decades, the European ports have experienced a paradigm shift, developing in nodes within the supply chains and global production networks (Robinson, 2002). Many scholars have shared the idea that the technological revolution of the transportation of goods has taken the shape and size shown in recent years, when it provided an essential support for the economic globalization (Bologna, 2010a; Levinson, 2006; Cudahy, 2006). In this process, ports have played a crucial role. If the container embodies the constitutive revolution of the maritime-logistics chain (Meersman *et al.*, 2009), the reasons primarily concern the role of the intermodal transport as a glue between the various nodes of production networks within which a transnational firm is broken down. Ports therefore are *de facto* the junction through which the global value chains and global production networks occur. Ports (and the intermodal transport determined by the container) represent the pivotal links within the maritime supply chains and the global production networks, besides their embeddedness within specific, path dependent, spatial and institutional frameworks. The maritime-logistics chain is one of the vectors that carries things and brings value.

The theoretical approach of Global Value Chains / Global Production Networks (GVC/GPN) has provided a useful analytical framework to explain how production is organized in the contemporary economy (Gereffi, 2005). The focus of the GVC / GPNs, in short, is the accumulation mechanisms in the economic globalization. Along this stream of literature, an interesting field of debate refers to the neoliberal trajectories of the European capitalisms (Baccaro and Howell, 2017), the consequences of globalization for the national economies, the variety of capitalisms (VoC) and, in particular, the debate on the institutional convergence as result of the activity of transnational firms (Greco, 2016). In this debate, the issues to be addressed concern how economic globalization affects the capability to adapt of the national capitalisms.

Scholars of both the viewpoints (GVC/GPNs and VoC) agree on the importance of national institutions for the outcomes of economic activity, and on the existence of levels of “detachment” between national institutions and sectorial dynamics. The contrast in the debate refers rather on what to define more important, the national institutions or the systems of coordination between sectorially specific firms (Bair and Mahutga, 2012; Greco, 2016). While recognizing that national institutions influence the activities of production networks, the position of the GVC approach may support the idea of a convergence of the economic activities. Vice versa, scholars of the *Variety school* are sceptical in relation to the idea that the economies would converge towards a single model (Hall and Soskice, 2001; Sorge, 2005). In the globalized economy, those scholars state that the institutional comparative advantage will persist, giving importance to the divergence rather than the convergence (Greco, 2016).

Other studies point out that the variety according to the national context of the ways in which firms move in the market, organize themselves internally and coordinate interaction with other firms and

actors, is more relevant of the variation between global models of sectorial organization. In other words, institutional contexts are resilient to the pressures of globalization. From this perspective, firms consolidate practices of institutional shopping shifting their activities in search of the benefits that the different institutional assets can offer (*Ibidem*).

The empirical research shows contrasting results with respect to this theoretical debate (Bair and Mahutga, 2012; Whitley and Morgan, 2012; Greco, 2016). Great interest in this debate pertains the understanding of the different conditions that drive firms to respond to global competition, by adopting the same organizational models or by taking advantage of the existing institutional environment in their country of origin, or still relying on the institutional diversity offered by other contexts (Greco, 2016). In this regard, the global nature of the container shipping industry, as well as the constraints and the multi-scalar dimension of the actors involved in the port business, highlights the variety of practices to setting up dock labour according to the national regulations, the external pressures, and the global production networks within which ports and terminal operating companies are located. The empirical field of enquiry analysed in this thesis gives the possibility to grasp the nexus “firm – territory – socio-institutional context” (Greco, 2016), bearing in mind the multinational nature of the economic actors in the port sector (i.e. shipping companies, terminal operating companies, freight forwarders, etc.), the role of the public authorities, and the agency of labour across the maritime-logistics chain.

The mutual interaction between global systems of production and national capitalisms, from the theoretical perspectives of varieties of capitalisms and global value chains or global production networks, has been analysed as well adopting a comparative approach (Lane, 2008). This position suggests that the study on GPNs can be enriched by considering the insights developed by a theory of capitalist diversity (Herrigel and Wittke, 2006). In certain circumstances, indeed, the imprinting by domestic institutions significantly shapes the degree and manner in which lead firms in GPNs pursue competitive advantage in the global economy. On the other hand, firms operating in global networks tend to be shaped also by the nature of the market in which they compete. There is therefore diversity within a given model of capitalism in the way sectors and firms respond to global constraints (Lane, 2008).

All these aspects can be observed in the port segment of the maritime-logistics chain and the global container shipping industry as well with respect to the variety of port labour systems at national level. Despite the lack of empirical studies on port labour systems by these theoretical viewpoints, this study argues that the mutual interaction between global production networks and varieties of national capitalisms allows us to explain the behaviour of global port operators concerning the different labour schemes and arrangements, in relation to the constraints at national (and supranational) level. The set of constraints and regulations that influence the way labour is organized by a transnational terminal operating company in two container terminals located in different ports can be empirically studied through a multi-level comparative analysis. This in turn allows understanding whether the economic

strategies of the main players across the global supply chains affect port labour systems and arrangements in the European ports equally or differently, and whether institutional variables mediate these processes.

Yet, the following study on the changing dynamics of port labour systems in Europe is discussed in light of the alternative theoretical argumentations briefly abovementioned (i.e. neoliberal convergence and varieties of capitalisms). The empirical study here presented will contribute to this theoretical debate, being critically positioned among the interpretations of the Global Value Chains / Global Production Networks and the comparative approach of the varieties of capitalism. Strengths and weaknesses of these perspectives are explored through the comparative analysis on port labour systems in Europe, with the purpose of stimulating further this debate, by taking into account a key sector of the global economy, i.e. the port sector and the container shipping industry. This approach will let us to formulate one of the hypotheses guiding the empirical research about a progressive institutional convergence of the varieties of dock labour systems in Europe, as a result of the activity of transnational companies in the port business.

1.1. The rationale of study

The main purpose of this study is to provide a comparative analysis on dock labour systems in two European ports, focusing in particular on the container industry. Three main points form the rationale of the following study:

First, the variety of port labour systems and schemes in the European ports is currently influenced by not only the economic and social actors involved in the port segment, but also by the strategies of the (global) players along the maritime-logistics chain and the institutional actors at supranational and national level. It is acknowledged that the most significant transformations in ports, concerning dock labour (loading and unloading cargo), are driven mainly by the changing and unstable dynamics of the maritime industry and by the institutional constraints. In particular, as we shall see, two major forces affect the port sector: changes in port organizational structures as a result of privatization or deregulation processes, and the efforts of shipping companies to control the whole logistics chain. Empirical studies have shown to what extent shipping lines have sought greater integration among the players along the logistics chain in order to leverage economies of scale and gain greater control over the entire chain (Van de Voorde and Vanelslander, 2014). The significant transition occurred in the port sector, therefore, has been mainly driven by the changing dynamics in the shipping industry. Furthermore, the increasing size of vessels, the horizontal and vertical integrations and the importance of mergers, acquisitions and alliances between shipping companies have transformed the overall landscape both on the seaside and on the landside. Ports have been strongly influenced by these processes in the last decades. The strategies of the main players along the maritime-logistics chain in the search of the economies of scale have increasingly affected the role and the economic behaviour of the terminal operating companies, posing new challenges for the future of dock labour systems and port business.

Second, the main issues related to the variety of port labour systems and schemes concern the compatibility between national regulations and – neoliberal – policies and regulations at European level. The aim of the European institutions in the last years has been to liberalize port services, among which dock labour, according to the principles of the Treaty, whereas national port labour systems and schemes in Europe, besides their variety, very often go in the opposite direction.

Third, comparing – not benchmarking – port labour systems and settings in two distinct contexts is a necessary conceptual operation, which gives an idea of the common trends that the case studies selected share in light of the external pressures, the structural and material constraints. It allows further to understand how terminal operating companies in the container industry behave in order to maximize dock labour performances in light of the various labour arrangements at national level.

This research, thus, aims at analysing the impact of the market players' strategies along the maritime-logistics chain on dock labour dynamics in the last years, stressing the role of the institutional variables. The issues of dock labour systems in the European ports have been a field scarcely researched by the

maritime economists, and partially ignored by the 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 a delicate and complex topic, with conflicting interests, strong contradictions and political factors in play. In most of the cases, the economic literature on port studies does not consider labour as an analytical category. However, some precious exceptions, as we shall see, explore the issues linked to port labour systems in Europe (e.g. Notteboom, 2010; Turnbull, 2016).

Since ports have been studied by different theoretical approaches, paradigms and perspectives, the effort in the following study is to foster a multidisciplinary approach between some consolidated streams. The topic explored in this study has a theoretical and pragmatic relevance and carries a multiplicity of elements and drivers overlapping each other¹:

- Local juridical factors (e.g. national legislations and ongoing reform processes);
- 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.);
- Economic factors (market strategies of the global players, convenience of business operations for cargo handling companies);
- Competitiveness of services and ports both on the tariffs and the reliability level (quality of the operations, frequency of strikes, etc.);
- Social factors (working conditions, levels and stability of employment and remunerations, conflicts, training);
- Institutional factors (governance models, contractual relationships, management structures of dock labour pools throughout European countries).

By comparing two different cases, the thesis aims to answer the following research questions:

1. *How is the search for economies of scale achieved by market players along the maritime-logistics chain shaping port labour systems, schemes and work organizations in the European ports?*
2. *To what extent do terminal operating companies respond to the constraints driven by market players, European policies and national regulations, in order to maximize the performance of dock labour in two distinct ports/container terminals?*

In this study, it is assumed that the strategies of the market players along the maritime-logistics chain in the pursuit of the economies of scale have a strong impact on the organizational and institutional setting of dock labour in Europe. The comparative analysis explores the extent to which the responses to the external pressures present commonalities between two highly different cases.

¹ “New port workers’ skills and competences”. Working paper jointly written by the author of this thesis, Prof. Vittorio Torbianelli and Prof. Marco Mazzarino

Even though the changing image of dock labour requirements as consequence of the structural transformations in the maritime and logistics environment has not received the attention it deserves in the academic literature (Notteboom, 2010), the approach adopted and the literature review in this study enable us to articulate the following hypotheses guiding the empirical research:

1. Given the structural, material and institutional constraints partially common among the cases selected, partially specific to each of them, labour in the maritime-logistics chain remains a significant variable in value production. Nevertheless, there is a general trend towards the growth of casual labour in the port segment, namely the central link of the chain, which has not yet been liberalised.

2. The slow erosion of the institutional basis suggests an ongoing transition dictated by exogenous and endogenous pressures, which results in a progressive institutional isomorphism throughout Europe.

To a certain extent, a total confirmation of these hypotheses requires more in-depth investigations, in particular on labour regimes and arrangements along the maritime-logistics chain. However, it should be noted that the observation of the entire logistics chain characterizes the peculiar approach of this study. This approach fosters an analysis not only of the dynamic and complex structure of the maritime supply chain, but also of the background tendencies occurring in the overall dimension in which ports are situated, and hence the variety of dock labour systems. The focus on the container handling and the labour that incorporates it underlines the triple nature of the maritime-logistics chain (Meersman *et al.*, 2009), given the function of the intermodal transport unit. Consequently, this study argues that an “intermodal gaze” is required to grasp the main trends concerning labour in the pivotal link of the maritime-logistics chain. The crucial changes of dock labour dynamics in the recent years can be explored mainly by looking at the overall picture and, at the same time, by focusing on the segment of the chain under investigation (i.e. the port segment). As the term of maritime-logistics chain suggests, competition is no longer at the level of individual ports, but along the chains that connect origins and destinations of goods, involving a multitude of actors in the various segments (*Ibidem*).

The aim of this thesis is also to explain whether the market requirements can be met with equally important demands such as job stability in an increasingly uncertain scenario, fair distribution of resources, professional growth of workforce, and the capacity of fairly distributing the economic and employment effects of periodic irregularities of activity / inactivity in cargo handling. Moreover, the study aims at exploring the feasibility of “innovative” organizational models and management of labour in ports in line with the European Directives and the national regulations. This allows an analysis that keeps together in a balanced and optimized way the needs of both port operators and workers in the operational and market scenarios that will characterize European ports in the future. The wish in the following study is at least to tackle these issues by avoiding partial perspectives, typically concerned only about cost reduction and profit maximization via “free-hands approaches” of the market players involved in the port business. The empirical findings of this study wish to boost the debate towards “an ongoing discussion on the role of the human factor in the European port system” (Notteboom, 2010)

from the theoretical perspectives abovementioned, taking into account the workforce directly involved in cargo handling inside the ports, across the maritime-logistics chain.

1.2. Structure of the thesis

The thesis is structured as follows: Chapter II discusses the theoretical approach in depth. As a starting point, we provide the general analytical tool in order to identify economic phenomena in the port sector by a sociological perspective. The elaboration of the structuration theory developed by Giddens (1984), in particular the notion of *constraint*, will be illustrated. The structural and regulatory constraints to the (social) action of cargo handling companies operating in the seaports, in relation to labour, are being studied by underlining the independent role of the social institutions and the beneficial constraints in shaping the economic action (Streeck, 1997).

In a second stage, the Global Production Network / Global Value Chains and comparative capitalism approaches are critically explored in order to set up the theoretical debate in which this thesis is located. These complementary perspectives allow us to ascertain the relation between cargo handling companies operating in two distinct European ports, dock labour dynamics, and institutional assets.

After that, the conceptual framework on port labour developed by Notteboom (2010) is analysed and criticized. On the other hands, the structure of the maritime-logistics chain developed by Meersman *et al.* (2009) is illustrated and enriched with new items. Finally, the research questions, objectives and hypotheses of the study are explained in detail.

Chapter III provides an extensive literature review on port studies and port labour dynamics. First, the key definitions of the port industry are identified, with particular attention on port labour, chain actors, performance indicators and key variables involved in the container global industry. Then, the main ideas and concepts developed in the recent economic literature by scholars on seaport research and port studies are reviewed, taking into account the relevant paradigms, central areas of debate and key points raised in the most important approaches of port-economic literature. The review aims also at acquiring enough knowledge about the container industry and the port business in terms of institutional, operational and economic features.

Therefore, the research strategy, case selection and methodology applied in the analysis are discussed at the end of the chapter III. Two case studies are identified and selected through the *most different system design* criteria (Fideli, 1998). The cases identified for the cross-national comparison are the port of Genoa (Italian case) and the port of Antwerp (Belgian case) with particular attention to the container terminals managed by one global terminal operating company settled in both ports. The choice of the same terminal operating company is further oriented to identify relevant factors in the heterogeneity, similar trajectories and common processes in different territorial conditions.

The methodological itinerary of this study starts from the information gathered during the fieldwork in the European ports of Genoa and Antwerp. Data collection has been based mainly on the systematic practice of interviews with key informants, related to participant observation. In addition, different sources of information available have been used through an “iterative process of puzzling” (Blomme,

2014) and an eclectic approach to the case studies. Together with the interviews as primary data sources, and the information processed, the systematic collection of secondary data has set the profile of the cases selected for the analysis.

The empirical findings gathered during the fieldworks in the ports of Genoa and Antwerp are presented and discussed in the chapters IV and V. For each of the two cases, the following items have been described:

- Port regulation
- Dock labour scheme, pool governance and organizational structures of labour pools
- Labour organizations at workplace
- Training system
- Employment relations.

By drilling down to the container terminals of the ports selected, the Key Performance Indicator (KPI) have been further identified and analysed:

- Container terminal productivity (Gross Crane Rate)
- Cash Cost per Box (CCPB), with focus on Labour Cost per Box
- Dwell time / Vessel turnaround time
- Terminal Handling Charges (THC)
- Wages

Chapter VI provides the comparative analysis between the case studies. The empirical evidence shows how in the Belgian case shipping companies vertically integrated with global terminal operators, particularly in the container business, demand direct employment for a significant number of their own workers, whereas casual workers are increasingly deployed during periods of peak demand. This setting in principle does not differ from the Italian case. Besides the different business models, dock labour schemes and arrangements, port employers in both cases hire a large part of the dockworkers daily, via “informal agreements”, on an almost continual basis. In addition, the changing dynamics caused by exogenous factors are provoking a higher deployment of casual workers in Genoa, whereas in Antwerp this trend could further increase in the future, with the new possibility given by the ongoing port reform (after the infringement procedure sent by the European Union to the Belgian government, concerning the Belgian port labour system).

The strategic action of the main players along the maritime-logistics chain is modifying the working mechanisms of both port labour systems, altering the matching of labour supply and demand, opening up new decision-making prospects for transnational terminal operating companies. In this frame, dock labour policies to date have not been carried out, except for de-regulation processes, mainly driven at supranational level and then acquired at national level. In other words, the organizational models of labour in the ports selected seem to be undermined by the processes of globalization, cutthroat competition along the entire logistics chain, and *Europeization* of the port labour policies (Scharpf,

2010).

The comparative analysis displays to what extent the de-structuring processes of the organizational patterns are crossing the ports / container terminals analysed, besides the constraints partially common among the cases and partially specific to each of them. Significant dynamics, notwithstanding the institutional path dependencies and the specific global production networks, occur similarly in both the ports observed. The homogeneous pressures, however, engage with the history at national and local level, the institutional structures and practices that dictate the differences among the cases. This in turn reveals a process in which, as this study hypothesizes, such differences are more and more converging towards a *commonly variegated trajectory*. Beyond the different dock labour scheme and work organization, a similar division – or fragmentation – between permanent, semi-permanent and casual workforce has been observed. Moreover, the dock labour systems and schemes compared in this study are differently managed but commonly affected by exogenous and endogenous pressures along the maritime-logistics chain.

Furthermore, by looking at the port performance indicators, it has been possible to compare the terminal productivity (linked to the costs) of one cargo handling company operating in both ports. Despite the limited data availability, this comparative analysis explores how terminal operating companies behave for maximizing labour productivity in light of the dock labour schemes and regulations in two distinct environments. In short, it turns out that terminal operating companies involved in container handling apply the tariff to their costumers starting from the Cash Cost per Box as parameter. The Cash Cost per Box (CCPB) is the indicator that represents how much a container handling company spends only in terms of out-of-pocket costs for each volume unit handled. In this cost structure, labour composes typically the main value. Starting by the value of this parameter, the terminal operator applies the tariff to the shipping company in order to obtain margins.

While keeping in mind all the structural differences between the two terminals analysed, the comparison shows that the labour cost the main value, and the lower amount of CCPB in the Belgian case with respect to the Italian case is mainly – but not exclusively – due to a lower number of workforce employed to handle one container with respect to the Italian case. The amount of workforce per container handled, determined by different social relations of production in the ports selected, is the key aspect to set a proper comparison between the ports/terminals, linking the productivity indicators to the cost structure. By consequence, also the Terminal Handling Charges paid by the customers of the terminal operators, i.e. the shipping companies, in principle are higher in the Italian case than in the Belgian case. This occurs besides the difference in the business models of the multinational terminal operators in the north European ports (vertical integration between shipping company and terminal operating company) and the south European ports (pure stevedoring companies) and other specificities or features in each case (e.g. dimension of the terminals, economies of scale, etc.). Furthermore, it has been assessed the difference of the wages in both ports (and the distribution in terms of occupational contexts), which are

lower in the Italian case and higher in the Belgian case.

Lastly, the conclusions of this study provide a synthesis and a critical appraisal of the empirical results, by underlining the contribution of the following research to the economic literature on port studies and port labour issues in Europe. The theoretical approach is discussed in detail in the next chapter.

Chapter II. Across the chain: Dock labour issues in the European ports

Two main orders of issues occur in dock labour dynamics of the European ports: institutional-regulatory issues (e.g. incompatibility between supranational and national regulations) and organizational issues due to both endogenous and exogenous factors (e.g. labour pool governance and management, labour settings at workplace, ongoing changes, etc.). In this chapter, the theoretical landscape of the thesis will be developed to address a comparative study on dock labour issues in the European ports, with focus on the container-shipping sector. The purpose is to provide the appropriate toolbox in order to interpret and explain the changing dynamics of dock labour systems in the European ports in light of the maritime-logistics chain, and the strategies of terminal operating companies to maximize the performance of dock labour.

According to De Langen and Nijdam (2006), diverse theories can be applied when studying port environment. Studies of Shipping Economics and Maritime Economics are considered by Kenneth Button as an economic sector observed “with the eyes of the economist” (Button, 2005). Not only in the Institutional Economics is possible to find the best toolbox, as suggested by Button, but also the basic ideas of the Evolutionary Economics, for instance, may help to analyse the continually evolving processes of the container shipping sector, and in general the maritime shipping industry (Nelson, 2008). Evolutionary theory sees economy as always in the process of change, with economic activity usually proceeding in a context that is not completely familiar to the actors, or perfectly understood by them. The rational behaviour is bounded by this perspective, with respect to the view of the neoclassical economy (*Ibidem*).

The centrality of the maritime-logistics chain for the global economy fits with the theoretical arguments of the Foundational Economy as well, which encompasses the major sectors of the economy identified as goods and services whose production and delivery provides the essential infrastructure for everyday life of all citizens (Barbera *et al.*, 2016). This stream of research emphasizes the role of transports in a more general way and the territorial anchoring of the economy, since the activities and services that constitute it are linked to local and national contexts (Borghi, 2016).

The theoretical thinking on the territorial dimensions of a market reached its first development in the studies of the German economist Alfred Weber and other scholars who addressed the space factor as the key item for the competitiveness of a firm. These researchers, as pointed out by Bologna, could be considered as precursors of concepts such as “Globalization” and “Logistics” (Bologna, 2010: 12).

The issues related to the theoretical approach of the port studies rely on the consideration of Maritime Economics as a stream of the broader Transport Economy, which is in turn conceived as a branch of the most complex Network Economy. The use of several tools and conceptual apparatuses that these disciplines offer can help to explain a variety of phenomena related to the maritime logistics industry

(Bologna, 2010). The economics of strategy, for instance, helps to understand the consolidation processes in the shipping sector, the “reasons” behind mergers of shipping companies, or why strategic alliances in the shipping sector are becoming so important for the overall maritime-logistics chain. It also helps to understand the strategic moves of the different actors in the transport sector, through the explanations behind strategy and action, looking for a balance between theory, empirical analysis and real-world cases. The main topics are strategic alliances in liner shipping, cooperation and collusion in stevedoring and port business, etc. (Blauwens *et al.*, 2012).

In the following study, labour dynamics of the port sector are observed “with the eyes of the sociologist”, or better, “the economic sociologist”, mindful of the labour processes across the maritime-logistics chain, which are almost completely neglected in port studies and by maritime economists. The first step, therefore, is bridging these viewpoints bearing in mind the recommendation of Polanyi: “We must be careful not to subsume the idea of society into the concept of the economy; a society is a much larger domain, the economy being one component of it” (Polanyi, 1957: 60; Routh and Borghi, 2016).

Boosting the contamination among disciplines allows adding up the rigorous economic approach applied to the port studies with the richness of the sociological explanation, avoiding getting into places that have little to do with the natural habitat and the cultural background of the author of this thesis.

2.1. Action, Structure, constraints

As a starting point, the elaboration of the structuration theory developed by Giddens (1984), in particular the focus on the relation between action and structure, and the notion of *constraint*, provides the general analytical tools to interpret economic phenomena in the port sector by a sociological perspective². The thesis starts from the abstract and encompassing model developed by Giddens, applicable to every social system. In a second stage, the Global Value Chain / Global Supply Chain and Global Production Networks theories will be discussed, as well as the recent debates. After that, the conceptual framework on port labour developed by Notteboom (2010) will be analysed and criticized in light of the study on port labour dynamics and its regulations. Finally, the structure of the maritime-logistics chain developed by Meersman *et al.* (2009) will be illustrated and enriched with new items, in order to tackle port labour dynamics through an “intermodal gaze”.

One of the main arguments of the structuration theory developed in the seminal work of Giddens is the duality of the structure: all structural properties of social systems are both enabling and constraining. The rules and resources in the production and reproduction of the social action are at the same time the means of reproduction of the system itself. Through their activity, agents reproduce the conditions that make these activities possible.

The structural properties of social systems are like the walls of a room from which an individual cannot escape but inside which he or she is able to move around at whim. Structuration theory replaces this view with one which holds that structure is implicated in that very ‘freedom of action’ which is treated as a residual and unexplicated category in the various forms of ‘structural sociology’ (1984: 174)

Through the structuration theory, the contextual mechanisms affect both material and immaterial behaviour. Structures affect behaviour and vice versa. The structures are recognizable; we reproduce that structure through our actions (and vice versa). In this way, Giddens overcomes the dichotomy between structuralism and individual action, through an epistemological perspective that renounces causal principles. In the relationship between actor and structure a reciprocal interplay occurs, and not a determinist unidirectional relationship in which the second element influences the first (or vice versa). Such analytical framework implies a dynamic relationship between action and structure. If the activity of individuals appears as both structured and structuring, change and stability are considered at the same time.

Giddens pays attention to the empirical analysis of the structural constraint, to the notion of *constraint* in the social analysis and to the constraining aspects of the structural properties in the social systems. The English author scans the role of the constraints in the social actions, namely the distinctive

² For a definition of Economic Sociology see Smelser and Swedberg (2005)

features of the material constraints, the (negative) sanctions and the structural constraints. The first derives from the character of the material world and from the physical assets of the body. The (negative) sanctions stems from punitive reactions on the parts of some actors towards others. The structural constraints originate from the contextuality of action, i.e. from the ‘given’ character of structural properties *vis-à-vis* situated actors (1984: 176).

Three senses of ‘Constraint’ (Giddens, 1984)

<u>Material constraint</u>	<u>(Negative) sanction</u>	<u>Structural constraint</u>
Constraint deriving from the character of the material world and from the physical qualities of the Body.	Constraint deriving from punitive responses on the part of some agents towards others.	Constraint deriving from the contextuality of action, i.e. from the “given” character of structural properties <i>vis-à-vis</i> situated actors.

The instance illustrated in the latter case comes from the contractual obligations, in particular the labour contract (previously mentioned by Emile Durkheim). The example shows how each explanation involves an implicit reference both to the voluntary and reasoned behaviour of the agents and to its intersection with the constraining and enabling aspects of the social and material context.

“The contractual relations of modern industry face the individual with a set of circumstances which limit available options of action. Marx says that workers ‘must sell themselves’ – or, more accurately, their labour power – to employers. The ‘must’ in the phrase expresses a constraint which derives from the institutional order of modern capitalist enterprise that the worker faces. There is only one course of action open to the worker who has been rendered propertyless – to sell his or her labour power to the capitalist. That is to say, there is only one feasible option, given that the worker has the motivation to wish to survive. The ‘option’ in question could be treated as a single one or as a multiple set of possibilities. That is to say, a worker may have a choice of more than one job opening in the labour market. Marx’s point, however, is that these options effectively are of a single type. In respect of the rewards they offer to the worker, and of other features of the worker – employer relationship, all wage labour is effectively the same – and supposedly becomes even more so with the further development of capitalism. All structural properties of social systems have a similar ‘objectivity’ *vis-à-vis* the individual agent. How far these are constraining qualities varies according to the context and nature of any given sequence of action or strip of interaction” (1984: 177).

This approach is necessary when interpreting the behaviour of different economic actors involved in the port industry and across the maritime-logistics chain such as shipping companies, terminal operating companies and freight forwarders, who operate within multi-scalar, specific institutional and spatial spheres, both enabling and constraining (Jacobs and Hall, 2007). The analytical model developed by Giddens and its structural interpretation are therefore contextualized in the comparative study of port

labour systems in Europe. The phenomena observed are showed and explained from this starting point.

The structural and regulatory constraints to the (social) action of the cargo handling companies, in relation to labour, are being studied from the assumption suggested by Streeck (1997). Its claims underline the independent role of the social institutions and the beneficial constraints in shaping the economic action.³

According to this author, markets and rational economic action are embedded in constraints and institutional opportunities not created by the market itself. Moreover, socially institutionalized constraints on the rational voluntarism of interest-maximizing behaviour may be economically beneficial, despite many economists are persuaded of the opposite idea of removing social constraints on self-interested rational action, in order to improve the economic performance (the *laissez-faire* concept). To support high economic performance, Streeck argues that “a society requires a capacity to prevent advantage-maximizing rational individuals from doing things that they would prefer to do, or to force them to do things that they would prefer not to do” (Streeck, 1997: 198). Thus, the constraint of the *Social institutions* on the rational voluntarist pursuit of economic advantage, interfering with the spread and operation of *markets*, may be beneficial. For standard economics, typically rules and institutions such as contracts or competition laws are legitimate in principle only if they guarantee the continued feasibility of rational voluntarism. By comparison, the notion of *beneficial constraint* suggests that the performance of an economy may be improved by the surrounding society retaining and exercising a right for itself to interfere with the choice and pursuit of individual preferences, i.e., to *govern* ‘its’ economy” (*Ibidem*).

Beneficial constraint, therefore, is a dialectical concept that emphasizes the “conflicting cooperation” between economic and social dimensions, which excludes any long-lasting harmony between the two spheres, and acknowledges a possible decay in both. According to Streeck, it is always possible to remove the economic constraints (deregulation) as far as this practice, if excessive, is detrimental. In other words, the author proposes to apply a *Durkheimian* perspective to the economic action.

Institutions, including formal and informal rules, shape the strategic behaviour of participants (Streeck and Thelen, 2005). They are generally defined as *building-blocks of social order*: they represent collectively enforced expectations with respect to the behaviour of specific categories of actors, or to the performance of certain activities. Typically, they involve mutually related rights and obligations for actors, distinguishing between appropriate and inappropriate, right and wrong, possible and impossible actions and thereby organizing behaviour into predictable and reliable patterns (*Ibidem*: 9). Informal rules as unwritten constraints evolved in the exchanges between the various actors involved. Both formal and informal institutions are crucial in the institutional analysis, due to their influence on guiding and constraining the behaviour.

³ According to Streeck (1992), the neoclassical and economic institutions facilitate rational-utilitarian voluntarism, while the historical, political, cultural and social institutions generate, impose and enforce social obligations that rational individuals would not voluntarily and contractually take upon themselves. These Institutions make society in a *Durkheimian* sense.

2.2. Ports, Labour, Globalization

In the last decades, the European ports have experienced a paradigm shift. In broader terms, this change occurred in parallel with something else, a new measurement of distance no longer considered through kilometrical units. *Time*, in the meanwhile, becomes the new parameter to measure space. Quoting an American playwright, the authors of the Handbook of Logistics and Supply Chain Management (Brewer *et al.*, 2001) have stressed that “time is the longest distance between two places”. Bonacich and Wilson (2008) coined this paradigm shift as “logistics revolution”. Ideally, there should be no point, from production to final sale, when goods sit around waiting for further processing. The flow from sale to ordering to production to shipping and to the next sale should occur in one smooth motion (Bonacich and Wilson, 2008: 15). Circulation⁴ has become a part of the production process itself, whereas competition shifted from the firm level to the supply chain level (Allen, 1997; Bonacich and Wilson, 2008). It is the supply chain of a firm that is in competition with that of its competitors rather than the firms themselves (Christofer, 1992).

Rooted in ever changing and dynamic markets, ports started to witness a significant transition during the 1990s, developing in ‘elements in the value-driven chain system’, nodes within the supply chains and global production networks. (Robinson, 2002). Many scholars have shared the idea that the technological revolution of the transportation has taken the shape and size shown in recent years, when it provided an essential support for the economic globalization (Bologna, 2010a; Levinson, 2006). Exploring the maritime nexus of globalisation, Kumar and Hoffmann (2002) observe that transport (in particular something far less visible: the declining cost of the international transport) is one of the four cornerstones of the globalized economy (together with telecommunications, trade liberalization and international standardization).

In this process, ports have played a crucial role. If the container embodies the constitutive revolution of the maritime-logistics chain (Meersman *et al.*, 2009), the reasons primarily concern the role of the intermodal transport as a glue between the various nodes of the production networks within which a transnational firm is broken down. The intermodality, in other words, has shaped the global economy of the 21st century.

Although a large literature has devoted attention to the study of global value chains in relation to the global economy, the role of logistics and in general the container shipping industry in the context of globalization has been overlooked by this theoretical standpoint. Some scholars have been focusing on the interplay between city and port in the context of value chains (Hesse, 2010; Jacobs *et al.*, 2010) or

⁴ In the introduction of *Grundrisse* (1857), Marx states that distribution does not stand at the side of and outside production as an autonomous sphere, concluding that production, distribution, exchange and consumption, although not identical, they all form the members of a totality, distinctions within a unity.

on working conditions in the supply chain and within the production networks (Gutelius, 2015; Barrientos, 2013). From this angle, empirical studies on ports, port business and dock labour issues in Europe, on the strategic behaviour of the port actors in the container-shipping sector, and the role of the social institutions across the maritime-logistics chain, are lacking. On the other hands, port industry is an appropriate and peculiar empirical ground in which to explore how the new paradigms of global circulation and production influence labour processes.

In the following section, the Global Production Network / Global Value Chains and comparative capitalism approaches will be critically explored in order to set up the theoretical debate in which this thesis is located. These complementary perspectives, well known by the economic sociologists, provide a multi-scalar analysis, allowing further identifying the mutual interaction between global industry and national capitalisms in which multinational companies involved in the port business are embedded. These approaches allow us to ascertain the relation between cargo handling companies, labour dynamics and institutions in the globalized economy and its capitalist nature. Strengths and weaknesses emerged in the literature are discussed, enhancing the theoretical debate on the study about the impact of globalization on labour and the varieties of national capitalisms.

The analysis of the processes of globalization from the value chain perspective has been conducted since the 1990s, when the approach of the Global Commodity Chains (GCC) linked the concept of value chain to the global organization of the economy (Gereffi *et al.*, 1994, Gereffi, 2005). Between the varieties of terms used to describe the complex network of relationships forming the value chains, Gereffi highlights the concept of supply chains, which refers to the analysis of the structure of economic activities, from raw materials to the finished product⁵. The notion of global commodity chains emphasizes the governance structure within supply chains and the role of firms in setting global production and supply networks.

The main idea in this theoretical construct is that the process of capitalist accumulation is the result of the activity of a network of firms that are legally autonomous and territorially dislocated, and that cooperate functionally in the production of goods or services (*Ibidem*). An increasing number of products and services indeed are made by systems of firms organized according to a reticular model (Borghi *et al.*, 2017). In this theory, the relationship between firms and territory must to be considered as dynamic and multi-level (Greco, 2016). By focusing on the sequences of value-adding activities, from conception and production to end use, Global Value Chain analysis (GVC) provides a holistic view of global industries (Gereffi, 2005). The value chain defines the full series of activities that firms and workers perform to bring a product from its conception to end use and beyond, such as design, production, marketing, distribution and support to the final consumer (Gereffi, 1994). The activities that comprise a value chain can be organised by a single firm or divided among different firms. In the context of globalization, the activities that constitute a value chain have generally been carried out in inter-firm

⁵ See Tsing (2009) for a critical analysis of the supply chain and the contemporary global capitalism.

networks on a global scale (*Ibidem*).

Four basic dimensions are explored by GVC approach: an input-output structure, which describes the process of transforming raw materials into final products; a geographical consideration; a governance structure; and the institutional context in which the industry value chain is embedded. Gereffi *et al.* (2005) elaborate a theory that specifies the determinants of inter firm governance types. Using three independent variables – knowledge and information complexity, the degree to which this information can be codified and thus transmitted more easily between parties, and the existing capacities or capabilities in the supply base –, a typology of five possible governance forms is developed: market, modular, relational, captive and hierarchy. In this typology, as value chains move from hierarchy to market, the level of explicit coordination and power asymmetry between exchange partners increases (*Ibidem*). Yet, to date no empirical studies have explored the labour dynamics in cargo-handling⁶, stevedoring companies in the container global industry and the maritime-logistics chain by these theoretical perspectives. On the other hand, the (complex) maritime-logistics chain represents one of the key factors who boosted the development of the global value chains.

The Global Production Network approach (GPN) is conceived not as linear sequences but as highly composite networks (Henderson *et al.*, 2002; Taylor *et al.*, 2015). In the words of Dicken, GPNs involves “the fragmentation of many production processes and their geographical relocation on a global scale in ways that slice through national boundaries” (2003: 9; Lane, 2008). GPN theory emphasizes the territorial dimension of the specific locations comprising the nodes of global networks, stressing that the institutional and regulatory context, and not only firms, shape the dynamics of production systems. The central categories identified to GPN analysis are value, power, and the embeddedness of the agents and structures in particular territories (Taylor *et al.*, 2015).

It should however be emphasized again that one of the real drivers of the economic globalization and the fragmentation of the production processes on a global scale is the declining cost of the international transport⁷. In the maritime leg of the logistics chain, for instance, a Greek owned vessel, built in Korea, may be chartered to a Danish operator, who employs Philippine seafarers via a Cypriot crewing agent, is registered in Panama, insured in the UK, and transports German made cargo in the name of a Swiss freight forwarder from a Dutch port to Argentina, through container terminals that are concessioned to port operators from Singapore or Dubai. This is also the reason why, for instance, it is cheaper to ship freshly caught fish from the West Coast of the United States to China to be deboned and filleted by Chinese workers and then shipped back again, than it is to pay for the cost of that job under U.S. labour

⁶ Vanelander (2005) points out that seaport activity composes the cargo-handling product. Cargo handling is defined as “the act of loading and discharging a cargo ship”. As a synonym, the author mentions “stevedoring”. In the course of time, with evolving technologies and changing relationships within the transport chain, the content of the concept ‘stevedoring’ has broadened from the original meaning (Vanelander, 2005). As we shall see in detail, stevedores evolved towards terminal operating companies, who provide services (loading and unloading cargo ship, transshipment, storage, etc.) to shipping companies for which they receive payment. At the same time, terminal operating companies pay port authorities for a concession.

⁷ The same force is moving further the ongoing in-shoring process (Dholakia *et al.*, 2012; Liao, 2012).

regulations (Kumar and Hoffmann, 2010; Chua, 2014). Liberalization of the maritime industry has led to a dramatic reduction in transport costs. This point is important when we consider the forces behind the integration of trade and the disintegration of production in the global economy (Feenstra, 1998). In this picture, ports (and the intermodal transport determined by the container) represent the pivotal links within the maritime supply chains and the global production networks, besides their embeddedness within specific, path dependent, spatial and institutional frameworks. As previously emphasized, it therefore becomes an important field of enquiry, to be explored taking into account the insights of these theoretical perspectives. Beyond finance, the vector that holds this complex mechanism, which carries things and brings value, is the maritime-logistics chains. Ports are *de facto* the junction through which the global value chains and global production networks arise. At the same time, as we shall see, the attempt to map the value chain of the maritime-logistics sector is not an easy task, although it is necessary to tackle this field of enquiry by this perspective.

Vanelander observes that the container-handling product as such does not exist, but it is composed of many products, that can be processed sequentially as well as simultaneously, which makes container handling a multiproduct business (Vanelander, 2005). The container is at the same time transport, storage and management unit (Notteboom and Rodrigue, 2008). The competitiveness of GPNs is mainly determined by the performance of the highly dynamic logistics networks as they link production, distribution and consumption (Hesse and Rodrigue, 2004). Notteboom and Rodrigue stress that GPNs have made many manufacturers consider global logistics strategies rather than simply relying on conventional shipping or forwarding activities. Most actors in the transport chain have responded by providing new value-added services in an integrated package along the supply chain. Thus, it has become widely acknowledged that the functional integration of commodity chains goes beyond the function of manufacturing, but also includes governance and transportation (Gereffi and Korzeniewicz, 1994; Gereffi, 2001; Chopra and Meindl, 2001; Appelbaum, 2004; Rodrigue, 2006; Notteboom and Rodrigue, 2008).

When embedded within GPNs, the container becomes a production unit since it carries all the inputs of manufacturing as identifiable and manageable batches. Production and distribution thus become a matter of ensuring that containers – mobile inputs – reach the proper locations within a specified time range. Containerisation also levelled the competitive playing field for global manufacturing. Manufacturers who previously had limited access to the global market because of remote locations and lack of transport infrastructures realised that the ubiquity of the container as a global transport product is linked to a whole new set of opportunities. Through containerisation, all competitors have potentially the same level of access to an efficient and global freight distribution system through port facilities (Notteboom and Rodrigue 2008: 158).

Bonacich and Wilson underline that the changes emerged by the ‘logistics revolution’ have shaped the conditions of the labour force throughout the global supply chain as well, in terms of increasing contingency, weakening of negotiating power, racialization and deterioration of labour standards

(Bonacich and Wilson, 2008). In particular, the nature of dock labour functioning and the dock labour schemes within the nodes represented by ports have been constantly under tension in the last years, being influenced by the strategies of the market players along the maritime-logistics chain. Frequently under pressure, in turn terminal operators and cargo handling companies have managed the labour settings and the social organization at workplace differently in each context throughout Europe, according to the national regulations. This is one of the main points of the following thesis – both theoretically and empirically. By focusing on the global container industry, and beyond the different contexts, the strategies of terminal operating companies to maximize the performance of dock labour systems within the European ports oscillate between the internalization of certain activities and the use of complex forms of outsourcing, given the institutional constraints partially common among the cases, partially specific to each of them. As Van De Voorde and Vanelslander (2014) have pointed out, terminal operating companies are faced with the dilemma between production or purchase, in what is known in the economic literature of the transaction cost approach as “make-or-buy decision” (Coase, 1937; Williamson, 1975). Along this line, Browne and Allen (2001) have explored how logistics decision making and globalisation are affecting outsourcing strategies. It should be added that terminal operating companies in the European ports face this dilemma in light of the institutional constraints.

Certain limitations and strengths of the respective constructs abovementioned (GVC and GPNs) have been recognized by some authors, together with the attempt to integrate the labour process in the context of globalized production (Taylor *et al.*, 2015). These authors explore the interplay, theoretically and empirically, between the labour process and Labour Process Theory, on the one hand, and GVC on the other. According to these scholars, “GVC governance excessively narrows the analysis of chain dynamics to dyadic linkages in a value chain, neglecting how these linkages are embedded within the logics of global capitalist political economy. Further, the greatest weakness of the GVC remains its relative neglect of labour, both as a source of value or even as an object of chain dynamics” (Taylor *et al.*, 2015: 8).

The strengths of GPN lie in its broader scope, its multi-level scalarity, its spatial sensitivity and its attempt to understand the dynamics of power relations between firms and other social actors. The GPN has acknowledged the importance of labour among the territorial factors that structure the global production networks (*Ibidem*). Yet the inclusivity of the GPN concept runs the risk of being a ‘theory of everything’ (Taylor, 2010; Thompson *et al.*, 2015). In short, these scholars claim that GVC and GPN theorizing and research, notwithstanding the distinctions between them, generally understated labour as analytical category, while conversely Labour Process Theory generally eschewed the significance of these global frameworks (Taylor *et al.*, 2015).

With its origins in a Marxist understanding of the nature of work under capitalism, the focus on the labour process has provided a fruitful ground of enquiry (Braverman, 1974; Taylor *et al.*, 2015). A key proposition of the scholars wishing to develop a critical appraisal of sociology of work and employment

is that market mechanisms alone are inadequate to regulate the labour process and to ensure that a surplus is generated. Core labour process theory has been concerned with exploring the dynamics of control, consent and resistance at the point of production. One limitation of this approach underlined by Taylor *et al.* (2015) is the non-explicit connection between the dynamics of workplace transformation, political economies and shifting regimes of accumulation. In this respect has to be read the effort to find a dialogue with the theoretical viewpoints of GVC and GPNs. Rather than being seen as sequences of technical functions, production processes are first of all social production processes. As such, it is crucial to analyse how the workforce is produced and reproduced, as well as the features that allow the embedding of the workforce within the networks (Greco, 2016).

Notwithstanding the tendency to neglect labour as analytical category (more evident in GVC than in GPN approaches), the implications of reorganizing production for labour, the challenges it faces, and the responses that seem to be outlined, have been recently explored using the contribution of the GVC / GPNs viewpoints (Greco, 2011; Azmeh, 2014; Greco, 2016; Borghi *et al.*, 2017). An inspiring study emphasizes, through the perspective of the GVC, how the global expansion of capital does not proceed as an abstract pursuit of the economic efficiency, but largely relies on social, cultural and political variables (Borghi *et al.*, 2017). If the GVC approach aims to study contemporary capitalism by analysing the structures underlying it, stressing the processes and dynamics of accumulation, it is possible thus to examine the challenges and obstacles that the transformations in place pose to the regulation and representation of labour (*Ibidem*).

The important points are that the value chain approach identifies the asymmetrical nature of the relationships that characterize the global economy, and that it becomes relevant to investigate the forms of social relationship at the heart of these chains (Selwyn, 2008; Borghi *et al.*, 2017). Starting with the analysis of the organization and governance of the production networks, with an emphasis on the power relations and on the modalities with which they coincide with the participation of firms, workers and territories, the GVC perspective allows investigating the processes of economic globalization and the implications for the social and organizational foundations of economic activities (*Ibidem*). In this framework, labour studies have emphasized the dynamics of weakening and strengthening of labour agency. Regulatory and social reproduction modalities, working conditions, class relationships, gender, composition of workforce, etc. still have a specific influence on the configuration of production and labour processes on a global scale (*Ibidem*).

In contrast with the neoclassical perspective, the expansion of GVC has been accompanied by differentiations and inequalities between the actors involved, at different levels and in different areas. The need to consider, in addition to economic upgrading, the social upgrading, namely the process of improving the rights and conditions of workers and the quality of their exploitation within globalized production processes, has come into the debate of globalization as well. In many cases, global processes have led to a 'race to the bottom' through which competition between firms and territories has resolved

into a challenge to the compression of costs⁸ (Greco, 2016). The new structure of the global economy would have led to deteriorating working conditions, the involvement of vulnerable workers, but also the segmentation of labour markets, while in the advanced countries the debate underlines the loss of jobs and the divestment of entire economic sectors (*Ibidem*).

Beyond the limitations and the strengths, the perspectives of GVC/GPNs are complementary to the huge literature on the variety of national capitalisms (VoC), which provided an institutional rather than organizational interpretation of the economic globalization (Greco, 2016). The study of the global economy indeed has been declined through different levels and units of analysis (Gereffi, 2005). At the macro level, the presence of supranational organizations and actors that set rules for the global economy is observed (*Ibidem*). At the micro level, many theories related to the economic sociology inscribe the global economy in their framework (Borghesi and Magatti, 2002), but differ according to how this is defined (as a system that models the behaviour and motivation of the actors within it, or as an arena where national actors interact and influence each other). It is worth mentioning an inspiring literature on resistance to globalization processes and a series of researches that point out micro-macro connections, such as case studies on working conditions in relation to the institutional changes (Doellgast, 2010, Doellgast and Greer, 2007; Greer and Doellgast, 2013).

At the meso level, scholars who observe national states as the main analytic units are related to the literature on the Variety of Capitalisms (Hall and Soskice, 2001). The approach of the *Varieties School* has provided many answers with theoretical and political implications. Starting from a series of empirical studies on the historical evolution of national capitalisms, this approach is one of the most prominent analyses opposed to the orthodox ideas on globalization, in a climate prone to theorizing processes of neoliberal convergence at global level (Peck and Theodore, 2007).

⁸ See Silver for a critical appraisal about the notion of 'race to the bottom' (2008)

TABLE 1: COMPARISON OF VARIETIES OF CAPITALISM AND GLOBAL PRODUCTION NETWORKS

<i>Dimension</i>	<i>Varieties of Capitalism</i>	<i>Global Production Networks</i>
Theoretical orientation	Institutional analysis	Organizational analysis
Unit of analysis	Countries	Interfirm networks
Empirical focus	Advanced industrial economies/ capitalist democracies	Linkages between developed and developing countries
Methodological preference	Rational actor; multivariate analysis	Comparative/historical analysis across industries, firms, countries
Research style	Quantitative, cross-national; country case studies	International industry-based field research; political economy interpretations
Ideal types	Liberal and coordinated market economies	Producer-driven and buyer-driven commodity chains
Main challenges/ collective action problems	Coordination problems in developed countries	Industrial upgrading in developing countries
Key concepts	Institutional complementarities	Lead firms; economic rents; learning through networks

Source: Gereffi, 2005

The paradigm division suggested by Gereffi (2005) observes the two broad literatures of the Varieties of Capitalism and the Global Production Networks (table 1). Contrary to the institutional perspective, the organizational approach tends to analyse firms' behaviour in the context of the global economy. Both approaches tend to focus on governance structures, but the goals and contents differ. Using the comparative design, the approach of the variety of capitalism looks in particular at the institutional complementarities in the economies of the advanced countries. By contrast, the perspective of global production networks emphasizes the connections between developed and developing countries created by multinational companies and firm networks. Here, governance is exercised by lead firms in the global production (*Ibidem*).

The Variety of Capitalisms approach has been associated over the years with a growing number of arguments on the embedding of firms' behaviour and other economic actors in a set of institutional spheres. At the same time, those scholars who have raised some questions about the appropriateness of this approach criticize the bipolar vision (Coordinated versus Liberal market economies), the methodological nationalism and the tendency to a static, transversal comparison between capitalisms of advanced economies. (Peck and Theodore, 2007). In this regard, Streeck suggests a longitudinal historical approach, able to focus on the commonalities of the national versions of capitalism rather than its varieties (Streeck, 2012). Pontusson (2005: 164) points out that the VoC approach has undoubtedly a lot to say about the varieties and yet it has little to say about capitalism.

By moving from a constructive criticism to the approach of the Variety School, the economic geographers Pech and Theodore (2007) propose a common ground of discussion from the perspective

of the spatial differentiation of the contemporary capitalism. In this regard, the authors convey the concept of “variegated capitalism”, focusing on the convergence processes, with the idea of identifying areas of exploration capable of communicating with the consolidated approach of the varieties school, with which the economic geography shares several theoretical points of reference, methodological affinities and overlapping empirical concerns (*Ibidem*).

The debate on capitalist variety has been concerned with the problem of how an emphasis on institutional constraints can be reconciled with an understanding of ongoing processes of change enhanced by global integration (Yamamura and Streeck, 2003; Crouch, 2005; Morgan *et al.*, 2005; Sorge, 2005; Streeck and Thelen, 2005; Deeg and Jackson, 2007; Hancke *et al.*, 2007, Lane, 2008). This work has focused predominantly on change processes internal to political economies. As Lane highlights (2008), the drivers of change are often vaguely referred to as the ‘pressures of globalization’, and the way domestic firms’ global networks may create such pressures on home country institutions has received shallow attention. Even when external pressures are identified, the actual interaction of global actors and national institutions has not been studied in depth. Little attention (with the exception of Whitley, 1996, 2001; Sorge, 2005) has been devoted to an examination of the reverse process of influence (Lane, 2008). The focus of the debate has been mainly on the possible adaptation of the institutional arrangements of national economies with the ongoing changes, while less attention has been paid to the coordination strategies of the firms internationally oriented, and the way firms from different institutional contexts can influence the processes of economic globalization (Gereffi, 2005; Greco, 2016).

To sum up, the theoretical approach of GVC provides a useful analytical framework to explain how production is organized in the contemporary capitalism. The main concern of the GVC / GPNs approaches is the accumulation mechanisms in the globalized economy, which has a capitalist nature. Globalization in this thesis is defined as “the compression of time and space”, as Harvey suggests (1989). Global value chains have substantially developed from the possibility to transfer instantaneous information via digital technology. Sending and receiving instantaneous information is one of the key items of Globalization, while the global carriers along the maritime-logistics chain bring containers – through the help of IT systems – relentlessly, across the hubs and links represented by ports. The crucial point is the instantaneous control and the time-space compression that makes all this possible. “If the word ‘globalization’ signifies anything about our recent historical geography, it is most likely to be a new phase of exactly the same underlying process of the capitalist production of space” (Harvey, 1989; Harvey, 2002: 54). The Varieties of Capitalism approach, though appropriate, rigorous and meaningful, does not address these mechanisms in depth.

An interesting field of debate refers to the consequences of globalization for the national economies, the variety of capitalisms and, in particular, the debate on the institutional convergence as result of the activity of transnational firms (Greco, 2016). In this debate, the issues to be addressed concern how

economic globalization affects the capability to adapt of the capitalisms and the consequences on the different models. Economic sociology in this regard has been prudent in the non-critic assumption of a progressive institutional convergence, emphasizing the independent role of the social institutions in shaping the economic action (Borghini and Magatti, 2002). Notwithstanding the evident complementarities between these two perspectives with regard to the study of the global economy, the dialogue has been limited (Greco, 2016).

The debate on the convergence of national economies towards a common pattern would lead to the decline of the variety of capitalisms. Scholars of both the viewpoints (GVC/GPNs and VoC) agree on the importance of national institutions for the outcomes of economic activity, and on the existence of levels of “detachment” between national institutions and sectorial dynamics. As already mentioned, the contrast in the debate refers rather on what to define more important, the national institutions or the systems of coordination between sectorially specific firms (Bair and Mahutga, 2012; Greco, 2016). While recognizing that national institutions influence the activities of production networks, the position of the GVC approach may support the idea of a convergence of the economic activities. Vice versa, scholars of the Variety school are sceptical in relation to the idea that the economies would converge towards a single model (Hall and Soskice, 2001; Sorge, 2005). In the globalized economy, those scholars state that the institutional comparative advantage will persist, giving importance to the divergence rather than the convergence (Greco, 2016).

Other empirical studies point out that the variety according to the national context of the ways in which firms move in the market, organize themselves internally and coordinate interaction with other firms and actors, is more relevant of the variation between global models of sectorial organization. In other words, institutional contexts are resilient to the pressures of globalization. From this perspective, firms consolidate practices of institutional shopping shifting their activities in search of the benefits that the different institutional assets can offer (*Ibidem*).

Nevertheless, the empirical research shows contrasting results with respect to this theoretical debate (Bair and Mahutga, 2012; Whitley and Morgan, 2012; Greco, 2016). By comparing the case of German and American automotive industry, Herrigel and Wittke for instance affirm that their efforts in the contexts observed cannot be considered identical, even in the presence of similar difficulties in building and governing the growing articulation of production processes (2006). This evidence challenges the thesis of the homogeneity of entrepreneurial strategies and vice versa supports the hypothesis of the institutional diversity of capitalism. However, the authors emphasize the degree of autonomy and creativity that firms of the two contexts possess with respect to their respective national institutions. Ultimately, it emerges that firms behave as dynamic actors seeking new and different options, including the various national contexts, of which they are able to modify the same institutions (Whitley and Morgan, 2012; Greco, 2016).

This theoretical debate is a fertile ground for future research in the field of GVC. As Greco observes,

great interest pertains the understanding of the different conditions that drive firms to respond to global competition, by adopting the same organizational models or by taking advantage of the existing institutional environment in their country of origin, or still relying on the institutional diversity offered by other contexts (Greco, 2016). In this regard, the global nature of the container shipping industry, as well as the constraints and the multi-scalar dimension of the actors, highlights the variety of practices to set up dock labour according to the national contexts, the global pressures, and the global production networks within which specific ports – and terminal operating companies – are located as links. The field of enquiry analysed in this thesis give the possibility to grasp the nexus “firm – territory – socio-institutional context” (Greco, 2016), bearing in mind the multinational nature of the economic actors in the port sector, the role of the public authorities and the agency of labour across the maritime – logistics chain.

Lane analyses the mutual interaction between global systems of production and national capitalisms, adopting a comparative approach, from the theoretical perspectives of varieties of capitalisms and global value chains or global production networks (2008). Her work has focused empirically on two industries – clothing and pharmaceuticals. Firms in these two sectors fragment the value chain differently, depending also on their original location (UK, United States and Germany), as the cross-national comparison highlights. The position of Lane is located between the theoretical interpretations of the GPNs/GVC and comparative capitalism approaches, suggesting that the study on GPNs can be enriched by considering the insights developed by a theory of capitalist diversity (Herrigel and Wittke, 2006). In certain circumstances, the imprinting by domestic institutions significantly shapes the degree and manner in which lead firms in GPNs pursue competitive advantage in the global economy. On the other hand, Lane argues that firms operating in global networks tend to be shaped also by the nature of the market in which they compete. There is therefore diversity within a given model of capitalism in the way sectors and firms respond to global constraints (Lane, 2008). Her analysis of global networks of firms from different national origins invite closer attention to the varying balance between viewing firms as autonomous, strategically oriented actors, and as shaped by their institutional environment. How different social and economic contexts shape that balance is also a crucial point underlined in this seminal work (*Ibidem*).

To conclude, firms are influenced at various geo-political levels and multi-level institutional constraints interact with strategic choice: these aspects can be observed in the port segment of the maritime-logistics chain and the container shipping industry as well. Despite the lack of empirical studies about dock labour in the container business by this viewpoint, the mutual interaction between global production networks and varieties of national capitalisms allow us to explain the behaviour of global terminal operators concerning their articulation of value chains and the organizational model of labour in relation to the constraints at local level. The set of constraints and regulations that influence the way labour is organized by a transnational terminal operator in two container terminals located in

different ports can be empirically studied through a multi-level comparative analysis. This allow to understand whether the economic strategies of the main players across the global supply chains affect the work structure in the European ports equally or differently, and whether institutional variables – national and supranational – mediate these processes. It becomes important, therefore, to compare the strategies of a transnational terminal operating company to maximize the performance of dock labour in terms of productivity and flexibility – with respect to the costs –, focusing at the same time on the main commonalities rather than the superficial differences between the labour regimes in two European ports located in distinct geographical contexts.

2.3. A conceptual framework on port labour

As we have already seen in the previous sections, ports are territorially embedded in institutional, path dependent frameworks, both enabling and constraining. On the other hand, they are links within the maritime supply chain and the global production networks; therefore, they are settled on multiple spatial scales within the globalized economy. Yet the dichotomy also could be applied to the dockworker, who usually handles global cargo, but at the same time is locally situated and socially embedded. As we shall see, this is one of the reasons why ports are places of big clashes and conflicting interests, whereby the equilibrium between market requirements and labour regulations is often delicate. The key to understand the transformations of dock labour systems in the European ports leads to a perspective that highlights the interaction between economic and institutional mechanisms within the global production networks and the role of the social actors invested in these phenomena (Gereffi, 2005).

With some important exceptions (Isfort, 2012; Walters e Wodsworth, 2016; Della Corte, 2002; Turnbull, 2006; Bologna, 2017), the existing literature on dock labour is dominated by juridical disciplines, whereas the scientific debate on the maritime-port sector, predominantly economic⁹, does not takes labour too much into account (Cullinane and Talley, 2006; Grammenos, 2002).

A first input for the “ongoing discussion on the role of the human factor in the European port system” comes from the report of Theo Notteboom (2010), prepared for the European Sea Ports Organization (ESPO)¹⁰, an independent lobby for seaport interests at European level, consisting of port authority representatives from Europe’s major ports. Notteboom suggests that there is room for more economic approaches to the organization of dock labour in light of changing market requirements. Besides the pure economic perspective, the report is a useful and appropriate starting point through which addressing the dynamics of port-related work in the European container terminals and the social processes triggered. Furthermore, the framework allows setting the perimeter of our field of enquiry, in order to understand, in a first stage, dock labour and the relation with port competitiveness and port reform as well. The report aims for a balanced approach taking into account considerations and developments related to the general employment impact of ports as well as those at the level of dock labour. In this section, the conceptual framework will be analysed.

According to Notteboom, seaports create employment impacts in four ways: direct, induced, indirect and related jobs. Direct employment includes cargo handling services, ship operations, nautical services, and other jobs dependent upon seaport activity. Direct jobs comprise dockworkers, ship agents, pilots,

⁹ A detailed literature review on port labour will be provided in the next chapter.

¹⁰ Based in Brussels, the European Sea Ports Organisation was created in 1993; it ensures that seaports have a clear voice in the European Union. ESPO represents the common interests and promotes the common views and values of its members to the European institutions and its policy makers. Its mission is to influence public policy in the European Union “in order to achieve a safe, efficient and environmentally sustainable European port sector, operating as a key element of a transport industry where free and undistorted market conditions prevail, as far as practicable”. ESPO membership consists of port authorities, port administrations and port associations of the seaports of the European Union and Norway. www.espo.be

tugboat operators, freight forwarders, employees of port authorities, warehouse operators, terminal operators and stevedores, railroad, barging and trucking companies. Indirect jobs refer to the links with other economic sectors and the spatial interactions with large logistics and economic poles outside port areas. The international nature of seaport activities, the features of global productions networks and global supply chains produce the extension of the employment effects of port activities typically from a local level to a regional or even supranational level (Notteboom, 2010).

Notwithstanding the automation processes along the transport chain, the call of a vessel in a port still requires the involvement of many companies and the related workforce. However, cargo-handling operations lie at the core of the activities into ports. Cargo handling creates jobs at terminal and stevedoring companies in the form of dockworker and management / administrative positions. Notteboom does not enter into the details of the organizational models at workplace and the linkages between white and blue collars in cargo handling operations. The author claims that dock labour force typically represents a modest portion of total direct jobs in a quite number of ports. The Belgian author states also that dock labour system has an important role to play in this context.

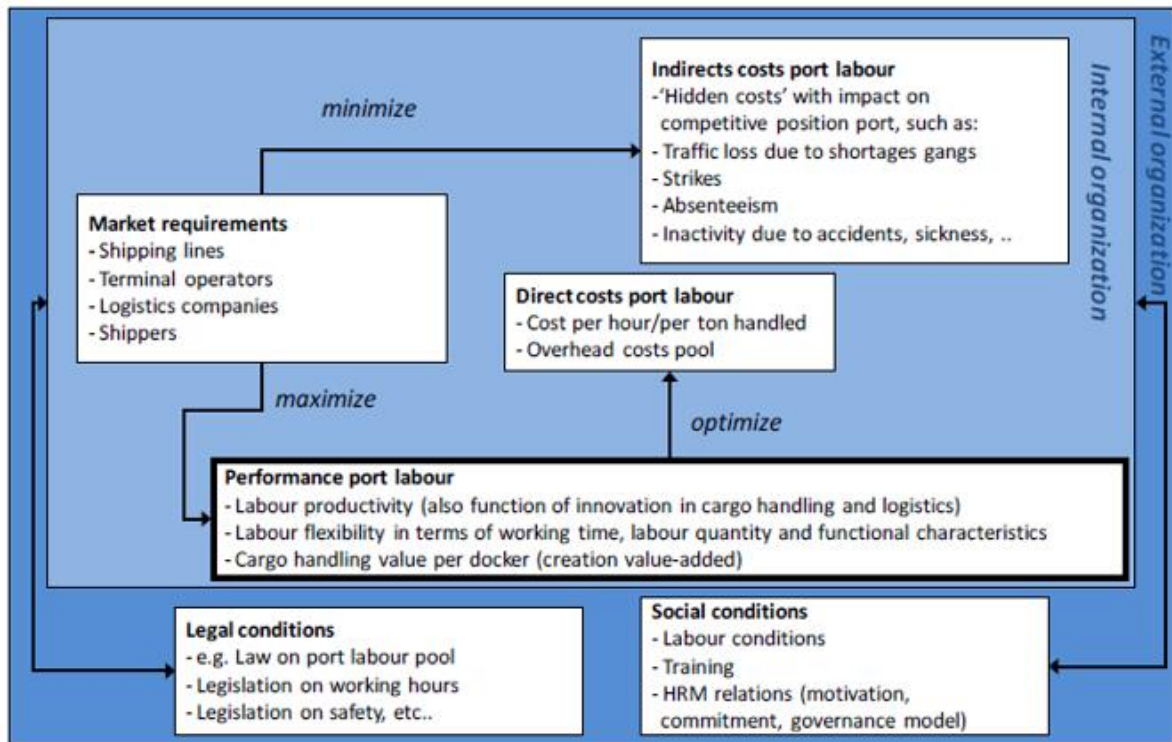
The appropriate technique for analysing the economic impact of a particular port activity is determined by the characteristics of the activity and the region being analysed, and by the purpose of the analysis. The limited availability of data is also an important factor to take into account in this field. Measuring the employment impact of ports is not an easy task, since detailed figures are not available. It is also hard to define how much of the consumption activities and multiplier effects can be attributed to the existence of the port. The difficulty of the comparison between ports, according to the Belgian author, is due to the large variety of methodologies in Europe on the definition of the types of impacts¹¹. Despite the lack of standardized methodology, some common conclusions state that the employment effects of ports are significant. In many ports around Europe local direct employments effects of port activity are stagnating or decreasing due to a combination of deindustrialization, containerisation and the increasing use of automated port handling systems and technology; more and more jobs are created outside the port area due to port regionalisation processes (Bologna, 1998; Notteboom, 2010).

Emphasizing the variety of dock labour systems in Europe, the conceptual framework of Notteboom focuses on the market pressures from the main port actors (figure 1). Shipping companies and other players impose several requirements on ports and terminals based on the needs of the supply chain. Ports and terminal operators have to meet these requirements if they want to stimulate economic growth within the port and the hinterland. According to the author, the requirements of the market players identified in the framework come down to a maximization of the performance of dockworkers in terms of productivity and flexibility, an optimization of the direct costs of port labour as a prerequisite, and a

¹¹ The most commonly techniques used to calculate the economic and employment effects of port activity are the multiplier analysis, the input output analysis and the integrated modelling techniques. Socio economic impact indicators, such as employment and value added, are often used in the framework of evaluation of infrastructure projects in European ports (Notteboom, 2010).

minimization of the indirect costs such as shortages, strikes, incidents, etc. This internal organization takes place within a wider setting of legal and social conditions. The legal constraints are embedded in the appropriate port labour regulation, legislation, and labour regulations in general. According to Notteboom the theme of social conditions, including labour relations, is complex, difficult to delineate and hard to measure (*Ibidem*).

FIGURE 1: FRAMEWORK FOR THE ORGANIZATION OF PORT LABOUR



Source: Notteboom 2010

The framework illustrated, although meaningful, presents some limitations for a more detailed comprehension of the labour dynamics in the European seaports. In order to provide further insights, four main limitations have been identified:

1) The perimeter of the framework is well delimited, but the links between the main items of the internal and the external organizations are presented in a deterministic way. In most cases, reciprocity among the items occurs (from the internal to the external and vice versa). The market-driven approach does not correspond to the real setting of the port business, which is also driven by social and institutional constraints.

2) The framework allows defining the context, but its broad purpose produces a shallow overview with few empirical evidences in support¹². Again, the maximization of port performance very often deals with institutional, material and structural constraints.

¹² The author draws upon mainly on the empirical evidences in Belgian ports. An overview on labour organizations in the ports of the Northern range is provided in the report as well.

3) The question of the social and institutional conditions, though mentioned, is not sufficiently elaborated, and the justification of the difficulty in the measurement is not satisfactory. It should be noted that, if the “measurement” of such variables is the obstacle, qualitative methods can overcome these problems with the same rigour provided by other methodological tools. The multimethodological approach, indeed, is not rare in the port and transport economics, given the peculiar features of such field. The ongoing discussion on the role of human factor in the European port system deserves an approach far more in-depth. The direct impact of the social and institutional contexts on the overall picture needs more attention, whereby the external organization interferes directly and strongly with the internal labour regimes and arrangements. Social and institutional factors indeed play a substantial role.

4) 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 of the market are particularly influent, as we shall see, namely the owners of the goods, the forwarders, and of course the shipping companies. Terminal operators depend on the decisions made by those three parties, but at the same time, they are obliged in long period investments (Meersman *et al.*, 2009). Moreover, the consolidation processes, vertical integrations, increasing vessel size, etc., have produced a new scenario, which sharply influence the relationships among the economic actors (e.g. among shipping companies and terminal operators) and labour dynamics. It is therefore partially appropriate to put all the chain actors at the same level, since each market player has divergent interests, influencing the internal – and the external – organization of port labour in different ways.

Whereas the pace of change differs between European ports, Notteboom observes that there is a general trend towards open and autonomous labour pool systems, with the increasing role of temporary employment agencies, and the general tendency or pressure from the side of the port operators to flexible labour. According to the Belgian economist, the general nature of dock labour and labour relations is similar throughout Europe, but the organization of port labour and the associated dock labour systems vary considerably in the European ports. In other words, the way the elements in the conceptual framework are combined in a port labour system differs among ports (*Ibidem*). Yet, there are no empirical comparative studies about these changing processes. Comparative analysis linked to the sociological and economic aspects of dock labour systems and functioning in the European ports are still absent, and the impact of the strategies of the main players across the logistics chain on the structure of dock labour has not yet received the attention it deserves. The objective difficulty of a comparative analysis in port business can be faced scientifically, for instance by starting from the multinational nature of the economic actors involved. The framework provided by Notteboom, although inspiring at a first stage of analysis, alone is not sufficient to explain the changing dynamics of dock labour settings related to the complex structure of the maritime-logistics chain. The challenge, thus, is to explore both the labour dynamics and the overall structure within which dock labour is embedded.

Nevertheless, the Belgian author defines clearly the items at the heart of the performance of the dock

labour system, which are at the core of the conceptual framework. Labour productivity in ports is a complex issue and cannot be narrowed down to the output per man/hour or tons per gang shift, since these indicators do not reflect the technology used to handle the cargo. *Benchmarking* dock labour performance thus requires indicators, which combine handling rates with the technology used. Haralambides complicates the frame (1995) suggesting looking at the ‘output per man/hour produced with a certain stock of fixed capital of a given technology and operational characteristics’. Despite the economic approach of these authors, it is worth to observe that by the viewpoint of the market players these aspects are relatively simple. Typically, every (multinational) firm operating the stevedoring industry continuously benchmarks labour performances between terminals throughout regions (e.g. container terminals managed in the European ports). It should be noticed that, since the entry of multinational cargo handling companies in the European ports, one possible strategy to benchmark dock labour performance, if benchmarking performances is the aim, is to take into account the Key Performance Indicators used by the same cargo handling company in different contexts. It is acknowledged that the same cargo handling company applies homogenous indicators and criteria.

Notteboom observes rightly that labour productivity cannot be treated in isolation as it is linked to a number of factors such as technology and innovations in cargo handling. If a technical innovation allows reducing the workforce per gang, for instance, then the terminal operator will only benefit from the labour costs savings if the gangs are indeed reduced in size. If such a reduction is not possible within the contours of the collective bargaining of the port labour system, then the stevedoring company will be far less eager to introduce technological innovations, which may pose competitive disadvantage compared to other ports (*Ibidem*). This example – probably taken from the case of the port of Antwerp – suggests that in both cases it is important to link to the analysis always the volumes handled and the typology of cargo.

Professional training, career opportunities and experience levels are also essential in achieving a high labour productivity. Many ports have a number of occupational categories of dockworkers combined with clear rules regarding the flow from one category to another higher category. The productivity of the dockworker is linked to the societal status as well. High wages and a performance based bonus system should stimulate labour productivity and job loyalty, according to Notteboom. In addition, the author suggests that labour productivity should always be analysed in relation to the labour costs. Finally, existing industrial relations between employers and employees also affects productivity (*Ibidem*).

At workplace, labour productivity is also influenced by the gang system, the recruitment mechanism and the dispatching systems. According to Notteboom, an objective comparison of labour productivity among ports is hardly possible due the existing diversity (Notteboom, 2010). A high productivity per vessel-tonnage loaded and unloaded per shift is not always associated with a high productivity per dockworker-tonnage loaded and unloaded per shift, as the outcome is strongly dependent on the size of

the gang and the number and type of cranes and other equipment deployed to handle the vessel. Nevertheless, this study will demonstrate that an objective comparison of labour productivity among terminals, and in particular among container terminals, is difficult but not impossible, given the setting of the comparative design. Drewry, the leading independent provider of research and consulting services to the maritime and shipping industry, examines the terminal's performance and capacity through specific criteria of analysis, with the purpose of benchmarking the container terminals worldwide (2014). Directly or indirectly, this is also related to work organization at quayside and labour arrangements. It is also crucial to understand which kind of cargo is handled: the variety of goods loaded and unloaded in a port determines also a set of peculiarities linked to labour settings, productivity, gang system, skills, technical innovation, etc.

Concerning flexibility of dock labour, Notteboom suggests that there are many aspects to consider. First, there is flexibility in working hours. The Belgian author distinguishes between passive and active flexibility. The former implies that the employer establishes schedules taking into account the legal provisions and breaks, holidays, etc. The latter gives a lot of initiative to the employee. Flexibility in terms of the total labour quantity refers to the possibility to adapt the size of the workforce to the amount of work that needs to be done. In terminal operations that increasingly suffer from peaks in cargo handling demand, such as the container handling, this kind of flexibility is crucial for a good business operation (Notteboom, 2010). The important aspect underlined is that one of the main incentives behind the establishment of dock labour pools in quite a number of ports is exactly to guarantee this kind of flexibility. In principle, Employers and employees should jointly determine the size of the dock workforce based on current and future needs. There is also another important dimension linked to this type of flexibility: the possibility to recruit workers outside of a dockworkers pool, for instance via temporary labour offices when there are shortages (*Ibidem*). This aspect however depends on the existing labour regulations at national level.

A third type of flexibility refers to the operational deployment of dockworkers or the extent to which dockworkers can be used for different types of tasks (multi-skilling or multi-tasking). When dockworkers are assigned to specific job categories, such flexibility is only guaranteed when a system of qualifications based on certification or training allows dockworkers mobility between categories. When dockworkers strictly adhere to their specific professional category then the multi-skilled nature over the categories is typically low. This can lead to discrepancies whereby shortages in one category cannot be compensated by surplus in other higher ranked categories. The multi skilling flexibility of a dockworker can also relate to a particular professional category (*Ibidem*).

Finally, there is flexibility in the assignment of gangs, the size of the gangs and the shift system. Obviously, the employers benefit the most when they have the widest possible freedom in switching gangs between vessels during a shift, to vary the size of the gangs to match the desired productivity per hour and to deploy every dockworker to work in the most appropriate shift. In practice, there are clear

limits to such forms of flexibility, according to a fair labour regulation. Notteboom recognizes that there are human and social boundaries, legal provisions on working and resting times and the provisions stipulated in local dock labour schemes. The flexibility of a dock labour system can be evaluated in absolute terms, (how often are shortages in gangs recorded) or in relative terms (compared to benchmark ports). The most straightforward way to increase flexibility, according to the author, is to increase the remuneration of dockworkers by raising base wages or, more commonly, by installing bonus systems linked to flexible tasking and irregular working hours (*Ibidem*). Nevertheless, these issues have to be defined typically with trade unions via collective bargaining agreements and additional, decentralized contracts at company level.

To sum up, numerical flexibility refers to the ability of the employer to change the number of workers available to match anticipated and actual demand. Functional flexibility refers to range of skills possessed by the workforce and the ability of the employer to deploy workers on different tasks as the process of un/loading dictates. Temporal flexibility refers to the availability of labour at the times when needed.

It should be noticed that the author, among the different aspects of flexibility taken into account, does not consider both the perspective of the workforce and its composition. Cargo handling in ports requires a flexible point, but how the workers involved respond to flexibility, for instance of the working hours, perhaps in light of an increase of volumes and the pace of work, is not questioned. On the other hand, it is widely acknowledged that the operations of cargo handling in ports led to arduous work. Instruments for increasing productivity such as the performance based bonus system or other incentives are not allowed in certain ports – such as the port of Antwerp, widely taken as example by the author – for safety reasons, as well as multi-tasking and multi-skilling. Meanwhile, this is not the case in other European ports, such as Genoa. However, it should be emphasized that an ongoing discussion on the role of the human factor in the European port system without the viewpoint of the actors directly involved is not only misleading, but will take a very limited perspective. It is necessary to take into account labour agency and, methodologically and empirically, dealing with the workforce involved.

The requirements of the market have an impact on what is expected from dock labour in terms of performance. In the overview of the main market developments and the associated implications on port labour requirements, it is underlined that any attempt to improve ship-cargo handling might face resistance from the labour side, since any adjustment in the manning requirements (e.g. composition of the gang) may serve at the same time to eliminate some of the existing workforce. If new technology is introduced, the terminal operator will typically try to compensate a part of the capital investments by lowering the number of dockworkers in a gang or the number of gangs per vessel. Notteboom states that the introduction of new technologies requires appropriate changes in workforce planning (*Ibidem*).

To sum up, the conclusions in the report prepared by Notteboom for ESPO are the following:

European ports are important generators of employment at the local, regional, national and even

European level. Seaports create direct port employment through cargo handling services, ship operations and services, industrial activities and government agencies. Ports activities are responsible for a wide range of indirect employment effects, through the linkages of ports with other economic sectors and the spatial interactions with large logistics and economic poles outside port areas.

Measuring the employment impacts of ports is not an easy task. At present, benchmarking or comparing employment impacts of European ports is extremely difficult given the large variety in methodologies applied and a general lack of port-relevant economic input-output data at the macro-economic scale. Still, the fragmented results in European ports underline the significant direct and indirect employment impacts of ports.

While the economic effects of ports are far-reaching, cargo handling operations lie at the core of the *raison d'être* of ports. The efficiency and effectiveness, with which loading and discharging activities take place in a port, are important to the port's competitiveness and its ability to generate wider economic effects in terms of employment and value-added creation. Dock labour systems have an important role to play in this context.

Since the 1960s, most ports have witnessed a decrease or a stagnation of the number of dockworkers. The key issues that often appear in labour reform processes relate to the definition of dock labour, the legal status of the dockworker, the functioning of labour pools, practical arrangements at the work floor and the categorization and qualification of dockworkers.

Ports can depend on a dock labour scheme based on a centrally managed pool of registered dockworkers. The use of registered dockworkers through a pool can be mandatory or not. This obligation can be *de facto* or imposed by law. While the pace of change differs, there is a general trend towards open and autonomous pool systems with back up of temporary employment agencies and a general tendency or push from the employers' side towards continuous working, flexible start times and variable shift lengths.

One of the foundations for categorization of dockworkers is the division between permanent and non-permanent workers. Labour schemes often include a 'continuity rule' via the principle of 'repeat hiring'. Such arrangements created quasi-permanent or semi-regular dockworkers. Some labour systems rely on a system of job categories of workers, with varying degrees of labour mobility between categories. Other employment systems are based on job qualifications, allowing a (casual) dockworker to be deployed for any dock work as long as he has the right qualification(s).

Social dialogue through effective bodies of joint consultation at the level considered appropriate by the social partners (e.g. regional, national) is considered as the key to a sustainable relation between employers and trade unions. Social dialogue is about maximizing the potential for mutual gains by addressing the concerns of all rightful stakeholders involved.

Finally, training is essential in achieving a high labour productivity and safety record. Training is also considered as a key element in achieving better social conditions and in enhancing the social status

of dockworkers, professionalism, motivation and commitment (Notteboom, 2010).

This inspiring report shows that dock labour issues offer plenty of challenges for further research, mainly with respect to the requirements of the global supply chains and its impact on labour dynamics. Nevertheless, many studies do not tell us what the European port environments are producing in social terms, and not only by a pure economic perspective. How the search of economies of scale by the players along the maritime-logistics chain is shaping dock labour schemes and work organization in different contexts, and what is the role of the institutional variables, is the aim of this study, jointly with the purpose to compare labour settings in light of the external pressures, by dealing with the workforce involved.

2.4. The complex structure of the maritime-logistics chain: supply chain perspective

In the following section, the structure of the maritime supply chain developed by Meersman *et al.* (2009) is illustrated and integrated with additional items. The premise of this approach relies on the purpose of comparing dock labour schemes and settings by considering both the variety of labour regimes within the maritime-logistics chain and the overall frame within which dock labour in particular is embedded. The perspective of this analysis allows grasping the common trends, taking into account the management of the chain, the relation between global factors and logistics labour, and the power relationships across the chain. From this angle, not only a general overview of dock labour dynamics across the chain can be sketched, but also an outline of the interdependencies, tensions and connections between each leg and the central nodes (*chokepoints*, to say it with Chua¹³) can be envisaged. By focusing on dock labour in the European port sector and the container handling, through this viewpoint is further possible to link some trends that are crossing the entire chain. This approach offers the possibility of verifying the hypotheses of the thesis, defined in the next section. The observation of the entire logistics chain fosters an analysis of the complexity of the supply structure of goods, its multi-scalarity, its dynamism, and the labour that incorporates and crosses it.

The significant transition occurred in the port sector has been mainly driven by the changing dynamics in the shipping industry. The increasing sizes of vessels, the horizontal and vertical integrations and the importance of mergers, acquisitions and alliances between shipping companies have transformed the overall landscape both on the seaside and on the landside. Ports have been strongly influenced by these processes in the last decades. The strategies of the main players along the maritime-logistics chain in the search of the economies of scale have increasingly affected the role and the economic behaviour of the terminal operating companies, posing new challenges for the future of the port business.

Van de Voorde and Winkelmanns (2002) consider three types of competition in the port business:

1. Intra-port competition, between operators within a given port with regard to a specific traffic.
2. Inter-port competition, between operators from different ports, within the same range, serving more or less the same hinterland.
3. Finally, 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 by Meersman *et al.* (2009). According to these authors, compared to the past, competition takes place along the logistics chains that connect origins to destinations, involving a

¹³ Chua C. (9 September 2014). "Logistics, capitalist circulation, chokepoints". *The disorder of things*. <https://thedisorderofthings.com/2014/09/09/logistics-capitalist-circulation-chokepoints/#more-9011>

multitude of actors, and not only shipping companies or ports. These latter represent the central link of the chain. The interest of the maritime economists remains the 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. Ports will try to become a node in the most successful logistics chains to increase their market share and improve their economic impact. Current port competition takes place predominantly at this level, as the term of maritime-logistics chain suggests (*Ibidem*). The vitality of the ports therefore is affected not only by the requirements of shipping lines or by the infrastructures, but is shaped by a variety of market requirements that cross the entire chain.

A maritime-logistics chain and the current configuration of the port competition are formed by three integrated dimensions: the maritime activities, goods handling in the port area, and hinterland transport services. The formation of chains, on the other hand, depends on maritime connections, cargo handling operations and distribution to the hinterland. Essentially, large seaports require these three elements to be competitive, including adequate connections with the hinterland (Meersman *et al.*, 2010). As already emphasized, ports have experienced a paradigm shift in the last years, when they became links within the supply chains and global production networks. Containerization, linked to the economic globalization, represented the emblem of this change. The focus of this thesis, indeed, is the container handling process.

Two major forces identified by the maritime economists affect the port sector: changes in port organizational structures as a result of privatization 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 their totality (Van De Voorde *et al.*, 2014).

Despite the different purposes of the authors, from this perspective is possible to analyse the complex structure of the maritime supply chain and, with some additional items, the visual angle of the labour required for the handling of goods along the chain. From this point 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, whose structure is represented in figure 2.

The main actors are the cargo owners / shippers, the shipping companies, intermediaries such as the agents and the forwarders, terminal operating companies into the ports and hinterland transport companies. Some of these actors are particularly influent, namely the owners of the goods, forwarders and shipping companies. The terminal operating companies depend on the decisions made by those three parties, but at the same time, they are obliged in long period investments (Meersman *et al.*, 2009).

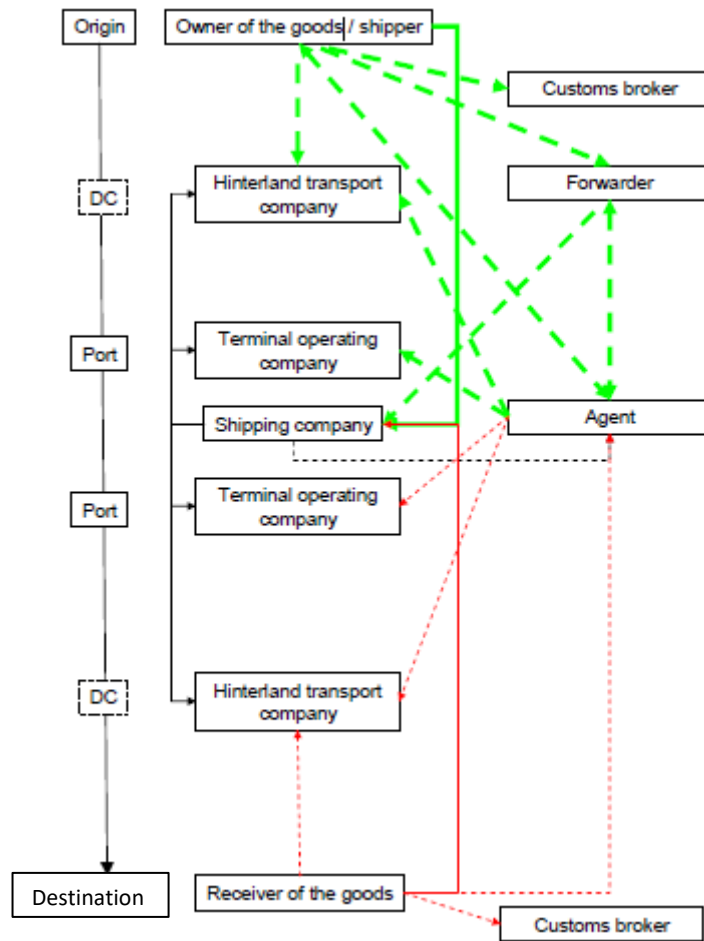
The dotted lines in the figure indicate alternative options to direct paths that could be undertaken involving one or more intermediaries. The owner of the goods or shipper will choose a shipping company with or without the forwarder's mediation, as shown in bold lines. In the reverse case, marked with non-bold lines, the receiver of the goods will make that choice. In turn, the shipping company will

opt for a specific route and then for a port of call in collaboration with the shipper or not. Upon arrival at the port, with or without an agent's mediation, the shipping company will choose the terminal operator. The final stretch of the route requires the choice of the logistics operator and intermodal transport in the hinterland, which can be decided by the shipper (in bold) or the receiver of the goods (not in bold), or can be taken over by the shipping company¹⁴. Distribution centres, in dotted boxes, can be used in the land stretch. The main issue is to organize this complex context so that market forces can ensure the flow of unhindered goods through the logistics chain in the most efficient way (*Ibidem*).

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 organize this complex playing field such that the market forces can guarantee an unhindered flow of goods through the logistics chain in the most efficient way. As 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 (Valleri and Van de Voorde, 1996). 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.

¹⁴ The hinterland of a port is the area from which the goods come and at the same time the area where goods are transported through the port. When the maritime leg of the supply chain is managed directly by the shipping company, it is referred to as "carrier haulage"; when is handled by freight forwarders and shipping agents it is referred to as "merchant haulage".

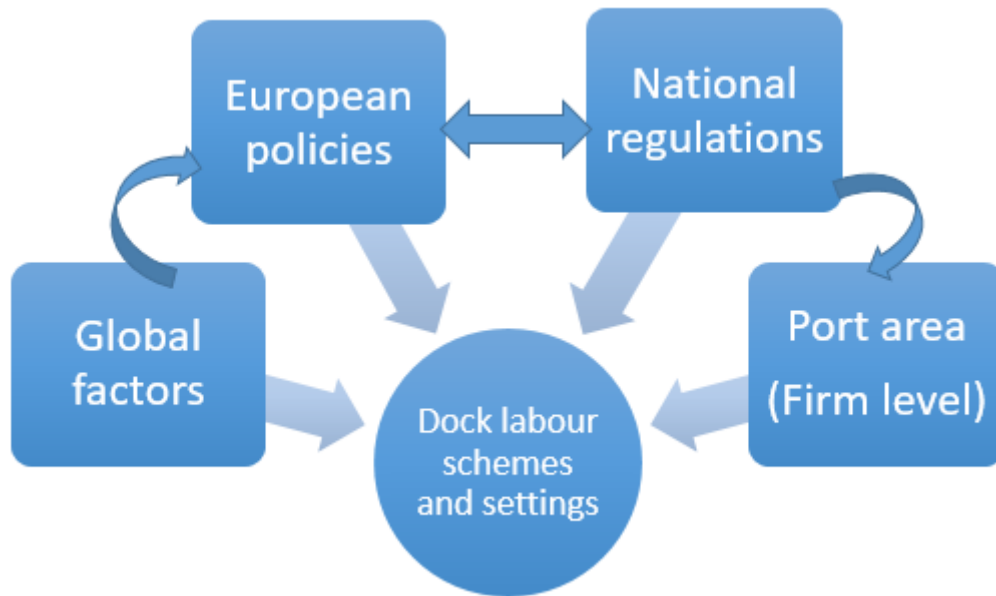
FIGURE 2: STRUCTURE OF THE SUPPLY CHAIN



Source: Meersman *et al.*, 2009

The structure of the maritime-logistics chain should be enriched with additional elements, in order to introduce the questions of how labour incorporated within the logistics chain, and in particular within a specific leg – the container handling in the port segment –, is changing. In accordance with the approach adopted, is therefore appropriate to place into the analytical framework abovementioned exogenous variables (e.g. global factors, European regulations) and endogenous variables (e.g. national regulations, dock labour systems). The comparative analysis of dock 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 organizational structure of the terminal operators at workplace (figure 3). The integration of these items allows us to highlight some preliminary observations, before presenting the research questions, objectives and hypotheses of this thesis.

FIGURE 3: COMPARING DOCK LABOUR DYNAMICS. A MULTI-SCALAR APPROACH
(Own composition)



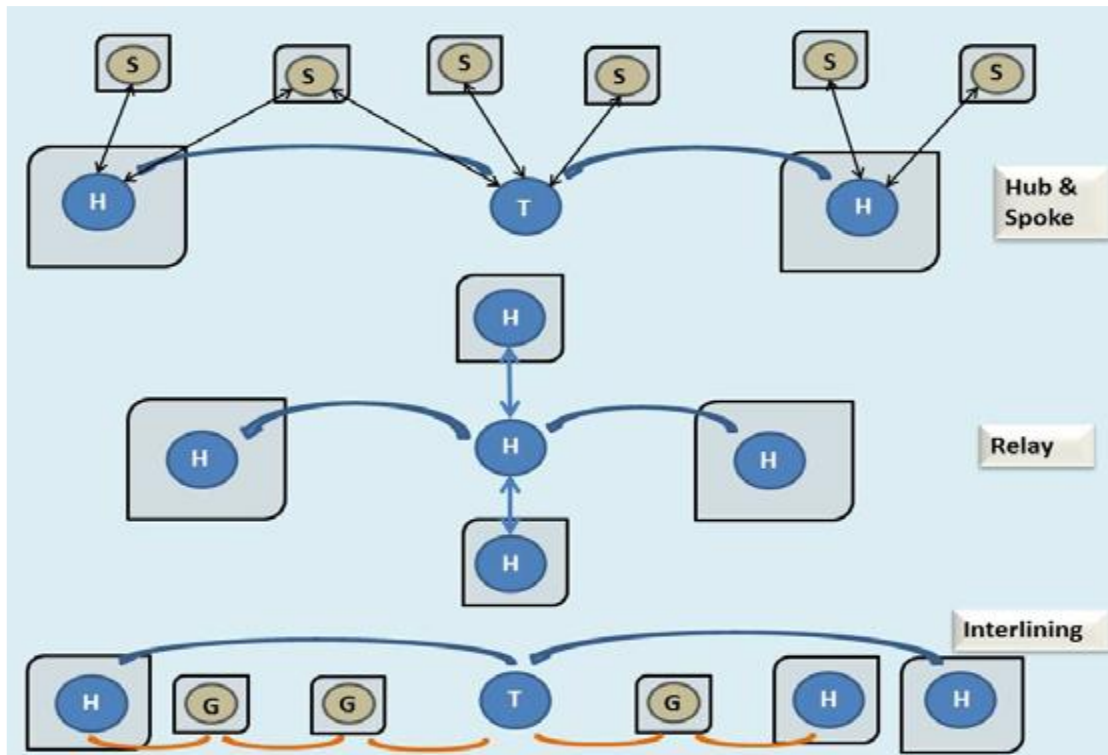
Along the logistics chain, a variety of labour regimes is taking place, a heterogeneous composition of workforce with different features, contractual conditions, and positions occupied in the various segments. In order to avoid rough generalizations, labour changing processes (and the intensity of conflicts as well) should be defined in detail, placing them within the overall structure. Focusing on details is a necessary exercise, for instance to detect where and to what extent the pressures and tensions occur in a specific leg of the chain. In the strict sense, logistics deals to the management system whose main objective is to reduce the costs of storage and distribution of goods. The appropriate definition of *physical internet* emphasizes the close relationship between logistics and the digital economy through the support of Information Technology (Bologna, 2016). From here is appropriate to start studying the structural logics and operating mechanisms of port labour systems. Although logistics has become a privileged access point for the critical analysis of contemporary capitalism, economic sociologists seem to ignore it. A “logistical gaze” (Mezzadra and Neilson, 2013), though necessary, is not enough alone to understand the complexity of the structure behind this word. An “intermodal gaze” is therefore considered as more appropriate for both the analysis of labour regimes along the maritime-logistics chain and the port labour systems in the port sector.

The efficacy of using logistics as the lens through which to interpret the present must be associated with in-depth studies that observe labour within the logistics chain in its complex composition. For this purpose, it is useful to know the articulation of the chain, the synergies implemented, the value creation, appropriation and extraction from the logistics workforce. This approach should methodologically question those who are directly involved – the maritime-logistics workforce – without underestimating the social role of the economic actors and the structure of the supply chain within which they act.

From the perspective of the logistics chain, it is possible to observe the institutional dynamics, both at national and supranational level. The cases of the European policies in the port sector, where the forms of protection from external tensions to which dock labour is subjected are conceived as “restrictions” to the free market, according to the principles of the Treaty, are crucial. For the European institutions, the goal is to liberalize the last knot that remains to be dissolved in the maritime-logistics chain: the central one. The debate between Social partners at European level deals with the polarized vision of protection and restrictions to the free market as well. Some analysis on the compatibility between national dock labour schemes and European policies (Verhoeven, 2011; Turnbull, 2010, 2016) show how delicate is the equilibrium between market requirements and fair labour regulations in the port sector. The International Labour Organization and the European Commission have faced problems related to dock labour schemes, but there is more room for scientific studies about these issues, that assess empirically the social and economic benefits of such dynamics. It should be observed that the ongoing liberalization processes of the institutional settings in the maritime-logistics chain could be seen as a gradual transition of modern capitalism, which, from *Durkheimian* institutions, leads to the *Williamsonian* institutions (Streeck, 2009; Borghi *et al.*, 2017). To say it with Streeck (2009), if the *Durkheimian* institutions exercise a public authority, *Williamsonian* institutions are conceived by market players to increase the efficiency of trade and transaction costs.

The fragility of the transport chain incorporates the bargaining power of the logistics workforce (Bologna, 2016). The typical example is the transshipment system. In the maritime leg of the logistics chain, the economic globalization and the increasing size of vessels have imposed a structure of the liner service based on the development of some hub ports for the transshipment of cargo (Rodrigues *et al.*, 2015). The figure 4 illustrates the main transshipment systems: *hub & spoke* refer to the transshipment of cargo from mother vessels to feeder one, *relay* from east-west route to north-south routes, *interlining* among different liner services (*Ibidem*). The transshipment service structure affected both the maritime and port stretches: shipping companies focused the traffic on the main routes, while main ports have developed – touched by the main routes – together with “ancillary” ports, in which international traffic is provided by smaller vessels. The transshipment revolution since 1990s and the increasing size of vessels increased the rigidity and therefore the fragility of the maritime-logistics chain (*Ibidem*).

FIGURE 4: TRANSHIPMENT STRUCTURE
 (Source: Rodrigues *et al.*, 2015)



Note: circles represent ports; rectangles represent hinterlands; H represents main ports; S represents spoke ports; and T, transit ports.

In the literature on supply chain management, the concept of *disruption* refers to any major breakdown in the production or distribution nodes that comprise a supply chain, from natural to human factors such as labour strikes. Disruption causes can have a wide range of impacts on the maritime supply chain. Specifically for transportation networks, these impacts can be very negative. Although stakeholders continuously strive for solutions, the magnitude of these impacts is correspondingly set to grow. Major transport gateways such as ports are generally considered to be critical infrastructure (Liu and Lam, 2012), given that due to their key roles they are particularly vulnerable to disrupt supply chains in case of any interruption to their smooth functioning. The power relationships between dock workforce and transnational cargo handling companies along the transport logistics chain should be read in light of these aspects as well.

The real force of the economic globalization, as previously mentioned, is the declining cost of international transport. In the maritime leg of the logistics chain, liberalization and globalization of the maritime industry have led to a drastic reduction of the costs. However, scientific studies have not shown the pressures or tensions along the central nodes and the social costs of the economic strategies across the maritime-logistics chain. The increasing size of vessels in the Container shipping sector, for instance, has strong effects on terminals and hinterlands, in terms of profitability, fierce competition, investments,

labour peaks, pace of work, congestion, etc.

In a competitive scenario like that of the global container industry, the increasingly concerted efforts of the actors to tighten their grip on the maritime-logistics chain translate into forms of horizontal integration through mergers, acquisitions and alliances between shipping companies, or vertical integrations through acquisitions of terminal operating companies by shipping companies (Cullinane and Wang, 2012). These dynamics are increasingly affecting port labour systems and the organizational structure of port operations of terminal operating companies: the port sector is in fact directly affected by the maritime sector, since port activity and services are characterized by a derived demand from freight transport.

The work organization in container terminals and dock labour schemes are strongly influenced by global factors and by European regulations. The result of the consolidated strategies of shipping companies produces pressures on the container terminals that constrains towards an increasing flexibility in terms of irregular working hours, casualization of labour pools in quite a number of European ports, multi-tasking, shift systems and gang size.

The ever-increasing role of interim agencies and the slow erosion of those structures that have formed over time to protect working conditions in ports suggest a shift dictated by endogenous and exogenous pressures that cross the entire chain, in particular the cargo handling in the port area. Working conditions in the European ports are influenced by the strategies of a multiplicity of actors across a variety of spatial scales, with a cascading effect that from the global container shipping industry leads to the social organization of labour at quayside. The institutional transition process seems to support such dynamics, calling into question the interplay between national labour regulations, social role of transnational companies, and European regulations.

Dock 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 allow investigating the relationship between global factors, European regulations and labour in the port segment, with particular attention to the container handling. This approach offers the possibility to formulate the hypotheses, beyond the structural and institutional constraints commonly shared in the cases selected.

From this peculiar perspective, it is further possible to assess how logistics workers fulcrum of power has changed over last years – moving across the chain –, where are situated the main tensions, and why the rise of conflicts is taking place in specific legs of the chain. The strategies for the search of the economies of scale and the oligopolistic consolidation of the shipping/logistics industry, together with an imbalanced bargaining power between the main market players, reveals an unprecedented scenario, with new challenges for the actors involved. The overall landscape both on the seaside and on the landside has been affected by such dynamics. It is acknowledged that nowadays for instance,

dockworkers and their unions are negotiating not only with the terminal operating companies, but also with their customers and shareholders.

On the other hand, it is important to highlight the increasing fragility and rigidity of the transport chain, previously illustrated. In light of this, the logistics workforce plays a central role in the global supply chain. Although stakeholders continuously strive for solutions to render their supply chains leaner, for instance through the 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 dependent variable of production, but also as an active social actor. The relationships between workforce and transnational companies along the maritime-logistics chain should be read by 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 the European ports. The challenges for the future of dock labour systems in Europe should be faced as well by looking across the overall logistics chain, without losing sight of the complex structure within which labour is embedded. Therefore, this thesis tries to overcome the limits in the conceptual framework of Notteboom previously described, by emphasizing and applying an “intermodal gaze”, which is required for interpreting labour dynamics in the maritime-logistics chain, in particular with respect to port segment and container business. Putting dock labour within this analytical framework is a necessary strategy to grasp the key aspects of the specific segment taken into account in the following study.

2.4.1 Labour and conflicts in the maritime-logistics sector

The selection of the following cases has been done after a detailed analysis of the specialized press review and newsletters; other evidences were collected during the fieldwork¹⁵ in two European ports (Genoa and Antwerp). The profile of each case is quickly presented in a sequence aimed at mapping the geography of the variety of contiguous as well as distant working regimes throughout the logistics chain as a whole.

The 17th September 2016, a demonstration took place in Piacenza, northern Italy, after the death of Abd Elsalam Eldanf, an Egyptian fifty-year-old porter swept up by a truck outside the Gls warehouse of Montale¹⁶. Among the protesters, a migrant workforce committed from 2008 together with the independent unions in struggles over the Veneto, Lombardy, Emilia Romagna, and Piedmont warehouses¹⁷. The night of September 14th, at the gates of the warehouse, Abd Elsalam was protesting with a group of workers to whom the contract had expired. The reason of the picket was a deal signed by the contractor of labour force Seam Srl, belonging to the subcontractor consortium Natana Doc, service provider at Gls. In Italy, third-party logistics in 2016 reached a turnover of eighty billion euros¹⁸.

By the end of May 2017, the European Commission will present a package of rules that should address the gap between countries such as Poland, which benefit from low road transport costs, and those such as France and Germany. The latter are implementing measures (countered by the European Union itself), such as the ban on weekly rest in the cabin and the obligation to adjust to the minimum national wages for foreign truck drivers¹⁹. Italian trade unions have also launched a strike, announcing pickets outside the port gates. According to the statements of the union leaders, these new rules enhanced will legalize social dumping²⁰.

In March 2017, the dispute in Spanish ports came to a turning point. After the infringement procedure sent by the European Commission to Spain related to the monopoly issues of the dock labour scheme, the consequence was a port reform proposal quickly submitted by the government, without any negotiation, rejected by the parliament on 16th March. A few months after the defeat in parliament, a new port reform proposal in line with the requirements of the European Commission was submitted again and approved by the majority. The Spanish port unions announced a series of strikes. The

¹⁵ This box is part of a more extensive chapter written by the author of this thesis for the book “Choke Points: Logistics Workers and Solidarity Movements Disrupting the Global Capitalist Supply Chain” (2018), to be published by Pluto Press, and edited by Jake Wilson and Emmanuel Ness. The Italian version will be published on the Italian Journal *Sociologia del Lavoro* in 2018.

¹⁶ General Logistics System, acronym of Gls, a global transport company with headquarters in Amsterdam. <https://www.gls-italy.com/>

¹⁷ See Sacchetto and Semenzin (2016).

¹⁸ Debernardi D. (11 November 2016). “Logistica conto terzi conferma la crescita”, *TrasportoEuropa* <http://www.trasportoeuropa.it/index.php/logistica/archivio-logistica/15541-logistica-conto-terzi-conferma-la-crescita>

¹⁹ “Violeta Bulc anticipa provvedimenti UE su autotrasporto” (27 April 2017), *TrasportoEuropa* <http://www.trasportoeuropa.it/index.php/home/archivio/9-autotrasporto/16387-violeta-bulc-anticipa-provvedimenti-ue-su-autotrasporto>

²⁰ There are no recent studies on working conditions in the trucking sector. See Crespi (1986), and Conway Z. (15 march 2017) “Ikea drivers living in trucks for months”, BBC News, <http://www.bbc.com/news/business-39196056>

economic blackmail that Europe turns to Spain is quantified in a fine of 15 million euros, with the addition of a daily penalty of one hundred and fifty thousand euros to be paid until the reform of the port labour is not realized. In the meantime, solidarity has come from ports all over the world. To avoid interruptions, Maersk diverted container ships from Algeciras (Spain) to Tangier (Morocco) and from Barcelona to Fos-Marseille (France), although French dockworkers refused to unload those ships. Belgian dockworkers affiliated to the ITF (International Transport Workers' Federation) and ETF (European Transport Workers' Federation) protested on the dockside in Antwerp against the arrival of the world's second biggest container ship, the Maersk Madrid, in solidarity with their Spanish colleagues, who took action against the port reform, after the ship had diverted from Algeciras and unloaded in Tangier²¹.

Belgian ports have also had outstanding accounts with the European Union for reasons similar to those of Spanish ports²². Belgium has been subject to an infringement initiated by the European Commission since 2014 because of the scheme regulating the port labour system since the 1970s, incompatible with the principles of the European Treaty on freedom of establishment and freedom to provide services (Article 49 of the TFEU), as in Spain. After several months of contract talks, a compromise was reached in 2016, when social partners proposed a port reform to the European Commission to be implemented in the coming years. The delicate point is to trigger a gradual process of change through negotiations, without strikes. A shutdown in a Belgian port like Antwerp, a logistics hub, second in Europe for volumes of cargo handled, would cause a huge amount of unwanted effects for stakeholders, namely terminal operating companies, shipping lines, logistics providers, freight forwarders, other multinational companies of the petrochemical cluster within the port area, hinterland transport companies, etc. After a long wait, the solution proposed by the Belgian government was positively assessed by the Commission in the middle of May 2017 and the infringement procedure was withdrawn. However, as we shall see, what seems to be the end of a path is the beginning of a new phase for the European ports²³.

In 2016, an unprecedented number of mergers, acquisitions and alliances occurred in the shipping sector. In the same year, the South Korean shipping company Hanjin declared bankruptcy, creating the biggest economic failure in the history of the maritime industry. These processes have changed the structure of the market, while the profitability figures of the key players are questioning their market strategies²⁴. The shipping companies, to cover up, put pressures along the entire logistics chain.

²¹ ETF (European Transport Workers' Federation). "ITF/ETF dockers take actions to back Spanish colleagues". <http://mail.statik.be/t/ViewEmail/r/0A2C2C54BBB162082540EF23F30FEDED/A4DBAF6EBADB6BDD6B5BE456C00C2519>

²² This specific topic will be addressed in detail in the chapter about the Belgian case

²³ ETF (European Transport Federation, 12 may 2017). "Open letter to Transport Commissioner on the reality of port work". Dockers' section news. <http://mail.sttik.be/t/ViewEmail/t/51A4091EACF64A742540EF23F30FEDED/A4DBAF6EBADB6BDD6B5BE456C00C2519>

²⁴ See the annual report of AP Møller Mærsk. Press releases (8 February 2017). Annual report 2016. <http://www.maersk.com/en/the-maersk-group/press-room/press-release-achive/2017/2/annual-report-2016>

In the winter of 2007, a Philippine sailor, Glenn Cuevas, was crushed to death by an eight-tonne container on a flagship in Antigua and Barbuda moored in the port of Rotterdam. The tragedy occurred while the crewmembers were lashing the containers. The sailor's death brought attention again to the working conditions of seafarers and the dangers of the semi-legal procedure of self-handling, an ever more common practice of lashing and unlashng goods on moored berths to crew sailors. Although the phenomenon is increasing due to commercial pressures, these tasks are traditionally made by dockworkers, and not by sailors, for safety reasons²⁵.

Hundreds of workers belonging to ITF and ETF affiliates have protested at the beginning of December 2016 outside of Unifeeder's logistics offices in Denmark against self-handling. The union inspectors found that Unifeeder ships did not use organized lashing gangs in the European ports.²⁶ The action was part of the campaign led by the unions to claim lashing for dockworkers, in compliance with the collective agreement of the ITF, which states, "lashing and securing operations on board of the ships are matter of dockworkers, and the crewmembers should not be asked to carry out this task. Shipping companies, captains and officers who request seafarers to conduct lashing and unlashng operations without permission violate this contract."

²⁵ A study on the working conditions of the seafarers has been conducted by Sacchetto (2009). A movie of Axel Koenzen, *Deadweight*, faces the topic of *self-handling* (2016)

²⁶ ITF (International Transport Workers' Federation). "Reclaiming lashing". <http://www.itfglobal.org/en/transport-sectors/dockers/in-focus/reclaiming-lashing>

2.5. Research questions, objectives and hypotheses

As already mentioned in the introduction, the main purpose of this thesis is to provide a comparative analysis on dock labour dynamics in the European ports, focusing in particular on the container industry. The research aims at analysing the impact of the market players' strategies along the maritime-logistics chain on dock labour systems in the last years, stressing the role of the institutional, material and structural constraints. The objectives of this empirical inquiry are the following:

1. To analyse the linkages between the strategies of the major players along the maritime-logistics chain and port labour systems in two highly different ports, questioning whether these strategies are affecting dock labour systems and arrangements equally or differently;
2. To investigate the role of the institutional variables – both national and supranational – in the mediation of these processes and towards isomorphic trends.

By looking at the interplay between shipping companies and terminal operating companies in two different port regions, the thesis aims to answer the following research questions:

How is the search for economies of scale achieved by market players along the maritime-logistics chain shaping port labour systems, schemes and work organizations in two distinct European ports?

To what extent do terminal operating companies respond to the constraints driven by (global) market players, European policies and national regulations, in order to maximize the performance of dock labour in two distinct ports/container terminals where the pool system applies?

In light of the recent scenarios, the interpretation of these changing trends will give some insights for cargo handling companies, national and European authorities, and the representatives of the workforce engaged in the smooth, seamless movement of goods, in the European ports, across the chain.

It is assumed in this study that the strategies of the market players along the maritime-logistics chain in the pursuit of the economies of scale have a strong impact on the organizational and institutional setting of dock labour in Europe. The comparative analysis will demonstrate the extent to which the responses to the external pressures by the terminal operating companies involved in the container shipping sector present similarities between two highly different ports. The process generated by the strategies of these actors sanctions a shift that calls into question the role of the institutional variables.

The approach adopted in this thesis gives the possibility to verify the following main hypotheses:

1. Given the structural, material and institutional constraints partially common among the cases selected, partially specific to each of them, labour in the logistics chain remains a significant variable in value production. Nevertheless, there is a general trend towards the growth of contingent labour concerning the goods handling in the port area, namely the central link of the chain.
2. The slow erosion of the institutional basis suggests an ongoing transition dictated by exogenous and endogenous pressures, which results in a progressive institutional isomorphism. Therefore, European ports are characterized by a progressive institutional convergence of the varieties of dock

labour systems, as a result of the European policies and the economic strategies of transnational companies in the port business.

The observation of the entire logistics chain fosters an analysis not only of the dynamic and complex structure of the maritime supply chain, but also of the background tendencies occurring in the overall dimension in which ports are situated, and hence dock labour systems in particular. In addition, the focus on the container handling and the labour that incorporates it underlines the triple nature of the maritime-logistics chain, given the function of the intermodal transport unit previously mentioned. Consequently, an “intermodal gaze” is required to grasp the main trends concerning labour in the pivotal link of the maritime-logistics chain. In other words, it is about to observe the jungle within which the dense and heterogeneous bushes of the ports stand, with their specific features, trying to observe and explain the crucial changes of dock labour dynamics in the recent years.

Focusing on the issues of dock labour in the European ports will produce meaningful information about a field scarcely researched by the maritime economists, and partially ignored by the economic sociologists. Besides being a fascinating world, it is a delicate topic, with conflicting interests among stakeholders, unresolved path dependent problems, unclear differences and trajectories, ambiguous organizational patterns, strong contradictions, ongoing reform processes, political factors in play and divergent perspectives between the chain actors.

Nevertheless, the issues of dock labour systems and of the mode of labour management employed in the handling operations are a topic of primary interest in the ongoing debate between the public and private actors involved at international, national and European level. In this regard, the posture of the researcher for the following research, although engaged in the field, has been mainly oriented in a “zoom in – zoom out” approach, in order to avoid biases and follow the objective feedback, giving account of the reality questioned on the field. As Boudon suggests (1984), scientific activity is not about explaining the real, but answering questions about the real (Cardano, 2011).

On the other hand, questioning the positioning of the researcher has been a significant tool for recognizing its cognitive limits during the research. However, the subjective position of the author in this thesis is theoretically founded, and starts from the consideration of the crucial role of dock labour in such a landscape.

It has been acknowledged during the fieldwork, that the topic faced in this thesis has a theoretical and pragmatic relevance and carries a multiplicity of elements and drivers overlapping each other:

- Local juridical factors (e.g. national legislations and ongoing reform processes);
- 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.);
- Economic factors (market strategies of the global players, convenience of business operations for cargo handling companies);

- Competitiveness of services and ports both on the tariffs and the reliability level (quality of the operations, frequency of strikes);
- Social factors (working conditions, levels and stability of employment and remunerations, conflicts, training);
- Institutional factors (governance models, contractual relationships, management structures of the dock labour pools throughout European countries).

Nevertheless, the future development of the European ports and the challenges of change brought about by the advancement of new technical and operational models cannot ignore the aspect of dock labour arrangements and the organizational mechanisms needed to ensure its proper functioning and evolution.

Besides the assumption that dock labour systems and settings in the European ports have been influenced by the strategies of the global market players along the logistics chain and institutional actors, the rationale of the study starts from the statement that the main issues linked to dock labour concern the compatibility between national regulations and supranational policies. Comparing dock labour dynamics, beyond the objective difficulties underlined in the literature, gives an idea of the common factors related to the port labour systems with respect to the ongoing changing processes.

The empirical findings of the following comparative research are discussed in light of the theoretical argumentations tackled in the previous sections, who sees two alternative and opposed interpretative models (i.e. neoliberal convergence and varieties of capitalisms). By the perspective of the contrast between homogenization and differentiation processes, it is reasonable to expect “convergent varieties”, namely that the push of homogeneous market and institutional pressures end up producing institutional isomorphism in the various dock labour systems throughout Europe.

The aim of this thesis is therefore to explain whether the market requirements can be met with equally important demands such as job stability in an increasingly uncertain scenario, fair distribution of resources, professional growth of workforce, and the capacity of fairly distributing the economic and employment effects of periodic irregularities of activity / inactivity in cargo handling. The analysis of these dynamics should bring in principle benefits also to all stakeholders and social partners involved in the sectoral social dialogue at European level, whose objective should be to provide the same playing level field between the EU Member States.

The thesis aims further at exploring and assessing the feasibility of “innovative” organizational models and management of labour in ports in line with the European policies and the national regulations. This allows an analysis that in principle keeps together in a balanced and optimized way the needs of both port operators and workers in the operational and market scenarios that will characterize European ports in the future scenarios. The overcoming of the contrast between the closed labour pool monopolies and that of the total freedom of use of the workforce, for instance, may occurred with the establishment of intermediate institutions, also in form of public private partnership, but this depend on

the common goals of both public and private actors involved in the port business, at national and supranational level. With this thesis, the wish is at least to tackle these issues by avoiding partial perspectives, typically focused only on laissez-faire approaches, cost reduction and profit maximization – neglecting cost socialization. The empirical findings of this study, finally, wish to boost the debate towards “an ongoing discussion on the role of the human factor in the European port system” that theoretically, methodologically and empirically, takes into account the workforce directly involved in cargo handling inside the ports, towards the neoliberal convergence across the entire chain.

Chapter III. Inside the port: Dock labour systems and the container shipping industry

The lack of a homogeneous framework for analysing dock labour issues in the European ports with focus on container handling has required a preliminary literature review characterized by a “bird’s-eye view”. In this stage, the aim has been to analyse the main ideas and concepts developed in the recent economic literature by scholars on seaport research and port studies (in parallel with the review of the theoretical approach illustrated in the previous chapter). In order to achieve this goal, a structured review of the existing academic literature on ports, dock labour dynamics and container industry has been carried out at the beginning of the research, taking into account the main paradigms and definitions, central areas of debate and key points raised in the most relevant theoretical approaches of port-economic literature. The purpose at this stage was to set the basis, to identify the background, the main features and key issues of port studies in general through a coherent overview of the research field. The criteria of selection of the sources were defined throughout the research, jointly with the fieldwork periods in two European ports. Besides the few sociological studies about this topic, a more in-depth review of the literature has been done in mid path of the research, during the visiting period at the University of Antwerp (Belgium), in the department of Transport and Regional Economics (TPR).

Although in both cases the aim of the review was to master the subject, and to assess how and whether previous research has approached the same field of enquiry, the literature review in mid path aimed mainly at acquiring enough knowledge about the container industry and the port business in terms of institutional, operational and economic features. The attendance of the advanced specialisation courses in Port Economics and Business, and Maritime Supply Chain at the Centre for Maritime and Air-Transport Management of the University of Antwerp (C-Mat) crystalized the knowledge acquired and the perimeter of the main topics covered during the two stages of literature review.

The huge and heterogeneous amount of material required sharp criteria of selection since the first stage. Use has been made of university libraries in Europe, a detailed press review from the specialized newsletters, scientific literature, readings of handbooks, dissertations, articles and journal papers, various specialized documents and reports, conference presentations, etc. With some important exceptions, the review considered the literature published mainly during the period 2000 – 2017, without underestimating the equally significant previous studies.

Moving within this period, attention has been paid to the different – and overlapping – research themes, recent trends and issues in the maritime-logistics chain in particular, following the main keywords – dock labour organization in Europe, port performance measurements, port policy, management and regulation, port innovation, port governance, port competition and competitiveness, port reform, port productivity, etc. Consequently, a critical appraisal as prerequisite of the review established the most relevant questions in this spectrum with respect to dock labour dynamics,

circumscribing gradually the field of inquiry in light of the comparative analysis on dock labour systems. The studies of the port literature provided insights about the specific role of the European port labour system, in spite of the fact that it remains a neglected field of enquiry in the framework of port studies. Indeed, the review of the economic literature reveals that the changing image of dock labour requirements as consequence of the structural transformations in the maritime and logistics environment has not received the attention it deserves (Notteboom, 2010). For this reason, the review of the literature has been always linked with the fieldwork, the collection of data, information and documents directly related to the topic and the research questions of this study.

Since ports have been explored by different theoretical approaches, paradigms and perspectives, the effort has been constantly to foster a multidisciplinary approach between some consolidated streams, finding links between various fields, bridging the relevant issues pointed out by the maritime economists with the conceptual contribution of the economic sociologists.

Although some topics from the literature have been already faced in the previous chapters, the following sections are dedicated to a more structured review of the literature about ports and dock labour dynamics in particular, with the related definitions, actors and key variables involved.

3.1. Key definitions

Ports have been defined in a variety of ways over time (Van de Merbel, 1998; Brennan, 2001; Yahalom, 2002; Vanelslander, 2005). Bologna identifies ports as “structures of services” (2010), whose function is to be system integrators, not merely a service to the ship (Bologna, 2013). Sea-going vessels are involved anyhow, beyond their variety in size and structure.²⁷ Vanelslander (2005) gives a detailed overview of port definition, observing that every particular definition depends on the perspective from which one starts. From the cargo handling perspective – the focus of this thesis – Flere highlights that ports are linked from the beginning to ship-to shore or ship-to-ship transfer: “A port exists to provide terminal facilities and services for ships, and transfer facilities and services for waterborne goods and/or passengers” (1967: 3; Vanelslander, 2005). *Seaport* is only one of the port types, defined by Branch as “a terminal and an area within which ships are loaded with and/or discharged of cargo, and includes the usual places where ships wait for their turn or are ordered or obliged to wait for their turn, no matter the distance from that area. Usually, seaport has an interface with other forms of transport and in so doing provides connecting services” (Branch, 1986: 1; Vanelslander, 2005). This study focuses mainly on dock labour dynamics in this category of ports. As Vanelslander highlights, in the last part of this definition the connection with the hinterland adds the distribution function to Flere’s explanation. Seaports indeed have usually a larger hinterland²⁸, while inland ports have much smaller hinterlands. However, Vanelslander highlights that the distinction between seaports and inland ports is the location, at sea or not. Seaports usually handle the largest share of a region’s, nation’s or continent’s trade, boosted by the intermodal transport, who increased radically the port’s market perspective (Vanelslander, 2005). In addition, the increase in the hinterlands produced more competition between ports.

Henk defines an *inland port* as “a site located away from traditional land, air and coastal borders. It facilitates and processes international trade through strategic investments in multimodal transportation assets and by promoting value-added services as goods move through the supply-chain” (2003: 13; Vanelslander, 2005). The latter part of the previous definition also applies to seaports, whereas the difference is in the first part, since sea ships cannot reach inland ports. However, certain ports fit also in the definition of inland port despite they are seaports. Although they are located far away from the waterfront, sea-going vessels can reach them, like the port of Antwerp, Hamburg, etc. (*Ibidem*).

Trujillo and Nombela (1999: 4), underline some preparatory seaport activities needed: “An efficient seaport requires, besides infrastructure, superstructure and equipment, adequate connections to other

²⁷ The ship, according to Foucault, is the *heterotopy* par excellence. In the definition of Foucault, heterotopies are counterplaces, a kind of utopias actually realized in which real places are simultaneously represented, challenged and subverted; sites located outside of each location, although they can be actually located. These places are the heterotopies. Heterotopia has the power to flout, in one place, several spaces, different places that are incompatible with each other (Foucault, 1994).

²⁸ The author takes the example of the port of Antwerp, whereby shipping companies serve ship commodities collected from or to be distributed to a hinterland comprising a lot more than just Belgium (Vanelslander, 2005).

transport modes, a motivated management, and sufficiently qualified employees”.

Large seaports are characterized by the maritime leg (location on the shore and / or the capacity to handle ocean-going vessels), the goods handling function in the port area, and the distribution function, including hinterland connections. As it has been already underlined in the previous chapter, modern seaports are more and more complex entities, important nodes in the maritime-logistics chain and global production network. A large amount of actors interacts in a variety of ways and the coordination of their activities is crucial to guarantee a smooth and efficient flow of goods. The key players are shippers, shipping companies, intermediaries such as agents and forwarders, terminal operating companies, hinterland transport providers, and the workforce involved along the chain, among which the dock labour force.

It is not always possible to ascertain unequivocally for each economic actor what precisely their input and output status is, as there are many inevitably company specific factors to take into account. Traditionally, the strongest players within the maritime supply chain have been the shipping companies (Vanelslander and Van de Voorde, 2014). Shipping companies are large, strategically important customers of seaports. They attract traffic and industrial activity to the port, and they are attracted by such industrial activity.

Terminals are the physical locations that are used as a unit for cargo handling activity. In this thesis, container terminals will be analysed in detail. Vanelslander (2005) uses the terminal definition adapted from port of Miami (2004):

“One or more structures comprising a terminal unit, and including, but not limited to wharves, warehouses, covered and/or open storage space, cold storage plants, landing and receiving stations, used for the transmission, care and convenience of cargo in the interchange of same between land and water carriers or between two water carriers”.

Another definition is given by Steenken *et al.* (2004). Terminal is “an open system of material flow with two external interfaces”, where the interfaces are quayside (or waterside, with (un-)loading of ships) and land-side (or hinterland, with (un-)loading of trucks and trains), and where containers are stored in stacks (Vanelslander, 2005).

The *cargo-handling product* is defined by Paelinck as “the act of loading and discharging a cargo ship” (Paelinck, 2001: 11; Vanelslander, 2005). The author defines as synonym the concept of *stevedoring*, which has broadened from its original meaning in the course of the time. Vanelslander (2005: 10) points out that until the mid-1900s, there used to be a distinction between the actual (un) loading (done by stevedores) and warehousing. Nowadays, both are comprised in what is called stevedoring or cargo handling, and paid for as part of the same product. Cargo handling involves (un)loading cargo, storing it and delivering it to or receiving it from a hinterland mode. In case of transshipment, inter-modal delivery / receipt as a second move is replaced by a supplementary ship (un)loading move. Three distinct main cargo-handling products can be distinguished (*Ibidem*):

- Outbound-cargo handling (unloaded from vessels).

- Inbound-cargo handling (loaded onto vessels).
- Transshipment-cargo handling (unloaded from one vessel and loaded onto another).

The *port product* may be regarded as a chain of interlinking functions, while the port as a whole is in turn a link in the overall logistics chain (Suykens and Van de Voorde, 1998). Jansson and Shneerson (1982) distinguish the entire process of cargo throughput in a port into seven main sub-processes:

1. Passage of a ship through the approach channel and subsequent mooring at the quay;
2. Discharge of the cargo from the ship's hold onto the quay;
3. Moving of cargo from the quay to transit storage;
4. Transit storage;
5. Moving of cargo from transit storage to loading platform;
6. Loading of cargo onto hinterland transport vehicle;
7. Departure of the land vehicle from the port area.

There are other additional functions, including customs inspection, warehousing in the port, and cargo preparation, but these are supplementary rather than intrinsically part of the transfer between sea and land (Meersman *et al.*, 2010). Jansson and Shneerson observe the capacity constraints in terms of size of the elements in the chain structure and the implications on other elements' efficiency and effectiveness. Usually, not all elements in the seaport have similar capacities (Vanelslander, 2005).

The definition of *container*, which represents the type of commodity studied in the following thesis, is provided by Paelinck and pointed out by Vanelslander as well (2001: 16; 2005). A container, distinguished from general cargo, dry bulk and liquid bulk, is "a van, flat rack, open top trailer or other similar trailer body on or into which cargo is loaded and transported without chassis aboard ocean vessels; a large rectangular or square container/box of a strong structure that can withstand continuous rough handling from ship to shore and back. It opens from one side to allow cargo to be stacked and stowed into it". Containers are the fastest growing cargo type (Vanelslander, 2005).

TEU stands for Twenty-Foot Equivalent Unit. It is the standard unit for describing a ship's cargo capacity (e.g. a container ship of 14000 TEUs), or a shipping terminal's cargo capacity. TEUs are used also for the statistics of the container transit in a port. The dimensions of one TEU are equal to that of a standard 20' shipping container. Two TEUs are equal to one FEU (Forty-foot-equivalent unit). To calculate how many TEUs a container is, the actual length in feet has to be divided by twenty. In terms of costs, reference is often made to costs per TEU, which mean that these costs will double for 40-foot containers.

The *container shipping sector* is defined by Sys (2010) as the major segment of the liner shipping industry. It is a maritime industry, international if not global in scope. This industry operates vessels transporting containers with various but standardized dimensions / sizes, regardless of the contents. Whether filled or not, these container vessels are put in service on a regular basis and often according to a fixed sailing schedule, loading and discharging at specified ports.

3.2. Ports' literature review

Studies about ports do not belong to a specific discipline. A terminology provided by Woo *et al.* (2011) has been adopted to categorise the disciplinary features of port research, which are multidisciplinary, interdisciplinary and transdisciplinary. In multidisciplinary research, the subject being studied is approached from different angles, using different disciplinary perspectives. Interdisciplinary research leads to the creation of theoretical, conceptual and methodological identity. Transdisciplinarity refers to a process in which convergence among disciplines is observed. Several disciplines are often present in this research field. The difference is whether integration is accomplished (Woo *et al.*, 2011).

Beyond the distinction between Shipping Economics and Maritime Economics as autonomous field of investigations, since 1991 the International Association of Maritime Economists (IAME) certifies the autonomy of the discipline. A review presented at the annual conference of IAME in 2009 and illustrated by Bologna (2010) summarizes the huge and variegated economic literature on port business. The taxonomy classifies the content of published research in Port Economics, Policy and Management (port studies) published from 1997 to 2008 in the following (strictly related) research themes (Pallis *et al.*, 2011):

1. Terminal Studies;
2. Ports in Transport and Supply Chains;
3. Port Governance;
4. Port Planning and Development;
5. Port Policy and Regulation;
6. Port Competition and Competitiveness;
7. Spatial Analysis of Seaports.

The following review draws upon this classification. In the first category, the most relevant studies take terminals as the unit of analysis. A number of researchers (Heaver, 1995; Slack, 2007) have suggested that the terminal is the most important focus of competition rather than the port. In the stream of terminal studies reviewed by the authors, either the economics of the operations or the economics and management of the cargo handling companies involved are analysed. The core topics addressed are related to the method of efficiency, the measurement of performance of seaport terminals, the new strategies of terminal operating companies (TOCs). Data envelopment analysis (DEA) has been the most applied quantitative method to measure terminal efficiency. The application of quantitative techniques to examine the implications of infrastructure reveals the tight relationship between ports and rail industry as a key factor of terminal productivity. Other studies in this category investigate the interplay between the dimension of terminals and productivity, the significant effect of market exogenous differences on the throughput of terminals managed at similar level of efficiency, and the links with governance models and port reform (*Ibidem*).

Bologna (2010) observes that the last year of such review of port studies is 2008, whereas in late 2008 a rapidly emerging credit crisis originating in the US took place, affecting the world trade and the port business. Container throughput figures of European Container ports in 2009 were 10% to 20% lower compared to 2008 (Notteboom, 2010).

Although terminal studies have been analysed in the economic literature, there are some open questions emphasized by the author of this review: an abundant literature exists on container terminals, while other types of terminals have received less attention (Pallis *et al.*, 2011). The reason lies on the fact that container shipping has been the fastest growing sector of the maritime industry during the last decades, and the maritime transport sector, in particular through its mass application of the container since the late 1980s, has been a key facilitator of the process of global economic integration.

Pallis *et al.* (2011) state that there is room for further methodological advances for the measurement of the terminal efficiency, especially in relation to other relevant production factors, like labour. Along this line, the authors of the review stress the under-researched field of the specific role of “port labour and the human factor in terminal operations” (*Ibidem*). The exception mentioned is the study of Gosh and De (2000) about the role played by port performance indicators and labour endowment in determining port traffic in a comparative static framework. However, these studies take a partial perspective of labour dynamics. Labour, when considered, is conceived as pure commodity, dependent variable of production. It should be emphasized that the following thesis considers the category of labour (or better, “port labour and human factors in terminal operations”) also as a “fictitious commodity”, as it has been defined by Marx and Polanyi (1959; 1957). In a seminal study about worker movements and globalization, Silver observes that in different ways these authors both claim that labour is a “fictitious commodity”, and that any attempt to consider humans as a commodity “just like any other” can only lead to deeply felt remarks and to forms of resistance (Silver, 2003: 21)²⁹.

The research on the topic of innovation in seaports aimed at understanding patterns and characteristics, success factors and failure factors, taking into account the context of the respective challenges which prevailed when they emerged, and the goals they were planned to serve (economic, social and environmental). An international research involving many universities in Europe questions how innovation enables to answer the key challenges of the ports industry (Arduino *et al.*, 2013). The main objectives are to determine discrepancies in terms of innovation between various regions across the globe, to test whether innovation success is company-specific or rather context-specific, to develop indicators of how well the port industry behaves in terms of innovation level, both in time and in comparison to other economic sectors, and to check for trends in port-related innovation. Sys *et al.*, (2015) suggest that terminal operating companies should invest in R&D and innovation, and jointly

²⁹ Beverly Silver's volume originally went in print in the spring of 2002, before a wave of agitations carried out by port workers invested in the fall of the United States in the autumn of that year. Even in this case, it would be worth taking into account these recent conflicts, which also underline another central topic discussed in her study: the strategic position in which workers in the transport sector have been and continue to find themselves. (Silver, 2003: XIV)

collaborate among them with more openness, transparency and trust. The meaningful notion of *co-innovation* relies on a “new form of innovation whereby the various stakeholders jointly acquire new expertise and create opportunities in the supply chain for new partnerships. In the long term, this will lead to a balance between costs and profits as well as a greater competitive advantage” (*Ibidem*). In line with Schumpeter (1947), innovation should be defined in terms of not only costs and profits, but also as a social phenomenon, that shapes the economic development (Fagerberg, 2003). The term “innovation” indeed refers to a complex process in which institutional and socio-relational factors occupy a prominent place (Ramella, 2015). In the economic literature on innovation in port studies, scholars pay less attention to the innovative organizational models of labour for instance, emphasizing the role of technological changes in the sector as innovation factors. It should be however underlined that the future development of ports and the challenges of change driven by the advancement of new technical and operational models cannot ignore the aspect of port labour systems, and the organizational mechanisms needed to ensure its proper functioning and evolution.

The role of ports in Transport and Supply Chain has been a relevant theme in the port literature. The topics addressed relate to shipping networks and its implications for ports. Robinson (2002) stressed that existing paradigms no longer provide adequate insights about the pervasive restructuring of supply chain and the logistics pathways in which ports are embedded. Ports must be analysed as elements in value-driven chain system, they should deliver value to shippers and third-party service providers. Such view promoted many studies towards the port-hinterland relationship, emphasizing the complexity of the variables involved. By this perspective, many studies underline the crucial role of the port environment, the integration of the port along supply chain by one hand, and intermodality by the other. Supply chain requirements have influenced the port regions and inland transport systems in terms of land management (Hesse, 2006). In order to cope with growth volumes, ports rely on intermodal solutions via rail corridors and inland ports. De Langen highlights (2007) the areas where ports compete fiercely, namely the “contestable hinterland”, while other scholars examined the regional implications of global maritime integration, as well as the absence of such integration (Ducruet, 2009).

Analysing the approach of supply chain management, Bologna (2010) explains how the tendency of accepting the port as element of a value driven chain system is difficult to assess. It is not simple indeed to find reliable criteria of evaluation of the port performance, the actors involved, the distinction of the activities along the chain and the contribution they give to the creation of value added. The main criterion seems to be the transport chain cost structure (Vanelslander, 2005).

Bologna takes the example of the port of Genoa (Italy): how is it possible to study the economic impact of the port in terms of supply chain without taking into account the observation of the area of Milan³⁰ as well (and the region of Lombardy), which is directly involved in the process? How to assess the value added by the actors across the chain, how to distinguish the numerous activities related to the

³⁰ See the study about the logistics region of Milan carried out by Dallari and Curi (2009)

freight transportation? Studies who addressed these issues had as (limited) spatial horizon the port city (Wang *et al.*, 2007; Notteboom *et al.*, 2009a), but is quite clear the involvement of a broader territory. The significant role of the hinterlands for ports has become an important structuring element in the European transport network (Bologna, 2010). In this regard, Notteboom and Rodrigue (2008) argued that the future (which is our present) is likely to bring attempts to cope with three particular geographical scales: the continental level; the regional level, which rely to the modal shift strategies; and the local level, like the on-dock rail or barge facilities to a nearby inland terminal.

In sum, scholars have paid attention to an increasing number of studies about the role of ports in transport and supply chain, a research stream who focuses mainly on value chains and supply chain instead of specific ports of these chains (Pallis *et al.*, 2011).

The focus of studies in the theme of port reform is relevant for the following thesis. Port governance models and structures have been addressed in many countries. The evaluation of specific country level port governance policies aimed at assessing results in general economic terms (Haralambides and Behrens, 2000), or specific aspects such as port legislation (Everett, 2003). With respect to port labour, Talley (2002) studied the impact of deregulation on dockworkers earnings, Saundry and Turnbull (1999) the contractual insecurity during the globalisation, Turnbull and Sapford (2001) analysed dockworkers union bargaining power in Europe and at global scale. The interest in the relevant role of technological changes has been analysed by Miller and Talley (2002), whereas Ircha and Balsom (2005) studied the ways to enhance port training and education.

The World Bank port reform toolkit (2007) provides an analysis of the port management structures and the ownership models. In this study, a number of factors affecting the way ports are organized, structured and managed have been identified:

- The socio-economic structure of a country (e.g. market economy, open borders);
- Historical developments;
- Location of the port (e.g. within an urban area, in isolated regions); and
- Types of cargos handled (e.g. liquid and dry bulk, containers)

Four main categories of ports have emerged over time. They can be classified into the following models:

- Service Port;
- Tool Port;
- Landlord Port;
- Fully privatized port or Private service port.

These models are distinguished by how they differ with respect for public, private or mixed provision of services, local, regional or global orientation, ownership of infrastructure (including port land), ownership of superstructure and equipment, and status of dock labour and management (*Ibidem*).

In Europe, the main model is the Landlord port, which is characterized by a mixed character and aim

to have a balance between public (port authority) and private (port industry) interests. The exceptions are currently the UK ports and the port of Piraeus (fully privatized), in which the focus of shareholders is on private interests. In the mixed public-private orientation of Landlord ports, the Port Authority acts as regulatory body and as Landlord, while port operations are carried out by private companies. Port authority is defined by De Monie (2004) as a body with statutory responsibilities that manages, exploits and develops a port’s water and landside domain, regardless of its ownership or legal form.

Examples of Landlord ports are Rotterdam, Antwerp, Genoa, and other European ports. Today the Landlord port is the dominant port model in larger and medium sized ports. In this model, infrastructure is leased to private operating companies and/or to industries. The private port operators provide and maintain their own superstructure including buildings (e.g., offices, warehouses, Container Freight Stations, workshops). They also purchase and install their own equipment on the terminal grounds (e.g., quay cranes, transtainers) as required by their business. In Landlord ports dock labour is generally employed by private terminal operators, although in some ports part of the labour may be provided through a port-wide labour pool system, as it will be explained in detail. Table 2 summarizes the public or private sectors with which various responsibilities typically lie under the four basic port management models (World Bank port reform toolkit, 2007).

TABLE 2: BASIC PORT MANAGEMENT MODELS

Type	Infrastructure	Superstructure	Port Labour	Other Functions
Public Service Port	Public	Public	Public	Majority Public
Tool Port	Public	Public	Private	Public/Private
Landlord Port	Public	Private	private	Public/Private
Private Service Port	Private	Private	Private	Majority Private

Source: World Bank

In this field of study, Notteboom and Winkelmanns (2001a) analysed the paths for Port Authorities (PAs) to face the challenges posed by the structural transformations in logistics. In a port strategy approach, they suggest a shift of scope of PAs, which should go beyond that of the traditional Landlord, and developing the port related value added logistics activities, the information system and intermodality. Along the same line, De Langen (2004) considers seaports as ‘clusters’ of economic activities. Through the theory of collective action, he examines cluster coordination and assesses empirically the quality of collective action regimes. The same author draws an analysis of conflicting interests in seaports (De langen, 2007). Various stakeholders influence port development and have different goals. All these conflicts arise because the interests of some stakeholders are not aligned with the main interest of the actors in the port, namely the economic development of the port clusters. The author identifies five relevant conflicts of interests, all in contrast with port development: environmental protection, urban development, labour conditions (including wage, job security, union power), and the

overall economic development versus port development.

Challenges in the field of port governance relate to a better understanding of the governance or port systems, rather than of specific major ports. In this stream, another challenge relates to labour dynamics and safety related issues as well: “With labour reorganization as a key governance theme in several ports, a more focused and inter related research agenda is wanted” (Pallis *et al.*, 2011). Foremost, new theoretical insights need to allow comprehensive assessments of specific governance regimes.

Verhoeven (2010, 2015) develops a conceptual framework based on a literature review of port authority functions, which identifies the principal governance-related factors. The Belgian author promotes the corporatization of the port authorities; he examines the role of port authorities, identifies trends in port management and governance and explores the economic impact of port management reform, with particular attention on the European policy initiatives.

The ESPO Fact-finding reports analyses the trends in the European port governance (2016). In the study, it emerges that historical and institutional context of reforms matters, and that several factors determine the complexity of port reform processes. The economic objective of reforms, in general, is to improve the competitiveness of ports. However, seaports remain under a public hybrid nature of port authorities’ ownership, despite they are moving towards further corporatisation. Nevertheless, port authorities have economic and non-economic objectives, while the main port services are in private hands. (*Ibidem*)

Competition, pricing, market access, financing, environmental, safety and security related policy practices are in the stream of Port Policy and Regulatory issues, the second most popular theme of port studies and the most fragmented, according to the review of Pallis *et al.* (2011). Here scholars focused typically on the national and supranational level, despite the lack of coherence in the institutional issues. Several port studies deal with the themes of port competitiveness and competition as well, distinguishing between three broadly defined methods: surveys, analyses of efficiency and productivity based on port data, and modelling. They have all added to the understanding of port competition and competitiveness, but the latter is conceived as the most promising research path (*Ibidem*).

Van Hassel *et al.* provided recently an important contribution, modelling the complete maritime logistics chain (Van Hassel *et al.*, 2016). Focusing on container handling, the model can determine the competitive power of a port (or set of ports) in a complete logistics chain. From a point of origin (e.g. port of Hong Kong) to destination, the cost can be calculated (maritime and port cost per TEU) as well as the total chain cost per container (*Ibidem*).

Notteboom (2012) emphasizes how container port hierarchy and competition in Europe has become highly complex and dynamic due to structural changes in logistics economic, institutional and regulatory settings. European ports are increasingly functioning not as individual places that handle ships but within supply chains and networks, as we already know. Market players show an increased network orientation and aim to maximize network effects and synergies. Since the strong market related incentives for

maintaining a relatively high cargo concentration level in the container sector, the container handling market remains far more concentrated than other cargo handling segments in the European port systems. Co-modal bundling effects, connectivity effects and aggregated service quality effects at specific gateway ports mean that a natural gateway for a certain hinterland region is not necessarily the port closest to that hinterland region (Notteboom, 2012). It should be reminded that a *port cluster* groups ports in each other's vicinity with common geographical characteristics, while a *port range* is typically a group of ports located along the same coastline or with a large common hinterland. The link with the logistics chain, for instance, consists in observing that ports can be highly cost effective in the cargo handling from ship to quay, but can lose all the advantages when the hinterland connections are poor.

Hence, the seaport-hinterland interaction plays an increasingly important role in shaping supply chain solutions of shippers and logistics service providers. The contribution pointed out by scholars in studies about port developments and logistics dynamics in Europe, is that the competitive battle among ports will increasingly be fought ashore. Hinterlands, for instance, play a crucial role, since they are the backbone of ports' cargo bases (Notteboom, 2008). Hinterland of a port is the areas from which cargos originates, as well as the areas where cargo moving through the port is destined. Hinterland connections are thus a key area for competition and coordination among actors. In the empirical literature on port choice decisions, it emerges that hinterland accessibility is the key factor for port choice (besides geographic location, inland distance to/from port, hinterland transit time, inland transport cost). However, Meersman *et al.* (2009) observe that the literature about port competition focuses mainly on the competing ports and their facility investment, while limited studies on the role of hinterland accessibility have been carried out. De Langhe *et al.* (2012) underline that, concerning port competitiveness, good hinterland connections are crucial. The authors provide a framework to make decisions about hinterland connections.

Port competition however remains an important topic in Transport Economics and Port Studies, due to derived effects in terms of employment and investment. While the existing literature on the subject strikingly tends to regards ports as rather homogeneous entities (Meersman *et al.*, 2009), in practice it is increasingly apparent that ports are far from homogeneous environments³¹. Meersman *et al.*, (2009) develop a typology of port competition on which this thesis draws upon, as already illustrated in the previous chapter, based on the observation that ports demand a more disaggregated approach, by looking at the overall maritime-logistics chain. Competition nowadays unfolds not only between ports, but also between entire supply chains (Meersman *et al.*, 2009). The authors assess the role of a number of factors that affect port competition as well, such as changes in world trade, market structure changes on the side

³¹ Verhoeffs (1981) considered four levels of competition: Competition between port undertakings focuses on activities of specific service providers in a port such as towing, stevedoring, warehousing etc. Competition between ports for traffics in a certain range. Competition between port clusters which are groups of ports in each other's vicinity with common geographical characteristics. Competition between port ranges which group ports located along the same coastline or with a large common hinterland.

of shipping companies and terminal operating companies.

Notteboom (2010) has explained why the contemporary European port environments changed drastically throughout the last years:

First, the number of member States of European Union increased from 15 in the mid of 1990s to 28 at present.

Second, the Europe-Far East trade became the most important international trade route during the second half of 1990s. The China factor reoriented the focus of many container ports toward the east. This implied a shift from the Atlantic rim to the Suez route, thereby opening windows of opportunity for the Med to play a more important role in accommodating international trade flows.

Third, the deployment of large container vessels only started in 1996 with the introduction of Regina Maersk. Such vessel development has increased pressures on nautical access profiles and port turnaround times.

Fourth, the door-to-door philosophy has transformed a number of terminal operators into logistics providers. In addition, logistics service providers, shipping lines and terminal operators have gone through an unprecedented wave of consolidations. This has led to powerful global terminal networks, carrier groups and third-party logistics service providers. This process was further boosted by vertical integration strategies of many market players contributing to the emergence of megacarriers. As a result, European seaports increasingly have to deal with large port clients who hold a strong bargaining power, vis-à-vis terminal operations, inland transport operations – and port labour force (Notteboom and Winkelmanns, 2001a; Olivier and Slack, 2006). The purchasing power of the large market players, reinforced by strategic alliances between them, is used to play off one port or group of ports against another.

Fifth, the European port system has witnessed an influx of global terminal operators since the mid-1990s. Global companies have entered the European container handling business (DP World from Dubai, PSA from Singapore, APM terminals from Denmark and Hutchinson Port Holdings from Hong Kong). The European entry of large terminal groups has been supported by lower entry barriers (De Langen and Pallis 2005).

Sixth, European port system has witnessed significant advances in inland transportation. Modal shift and co-modality policies have been implemented by supranational, national and regional governments aimed at stimulating the use of barges, rail and shortsea shipping. The European Commission has set a policy objective to remove any remaining administrative and customs obstacles towards the creation of an EU maritime space (European Commission, 2009; Notteboom, 2010).

Main changes have taken place in port governance around Europe as well. Port authorities have gained a more autonomous status via commercialization, corporatization and privatization processes (Notteboom and Winkelmanns, 2001b). Drastic port reform schemes in countries such as France, Italy, Spain and many east European countries took place. The European Commission has taken steps towards

a European port policy (Verhoeven, 2010). The European Commission attempted to come to a directive on the access to port services. While the attempts failed, it has created a European perspective on port and transport policy issues, in particular in relation to port pricing and financing, market access, environmental regulation, social dialogue and development of the trans-European transport network (TEN-T).

The abovementioned changes highlighted by Notteboom in the port environment have influenced, to a greater or lesser extent, the competitive landscape, enabling newcomers to enter the port business, potentially affecting port hierarchy in Europe. It should be noticed that while these processes reshaped port scenarios and shipping industry, the juridical, organizational and structural features of port labour systems in Europe changed as well. Some of these trends have been addressed in a more exhaustive way in the economic literature on ports, and will be tackled in detail.

The trend and the effects of increasing size of vessels has been one of the main issues addressed by scholars in the last years (Sys *et al.*, 2008; Bologna, 2010, 2017; Van Hassel *et al.*, 2016). The main studies 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 the consolidation processes in the shipping industry, etc. Van Hassel *et al.*, (2016) explore the impact of scale increase of container ships on the total generalised chain cost. Observing the entire structure of the maritime supply chain already mentioned, the authors question how the increase of container ship size influences the cost ratio between the different chain elements (maritime, port and hinterland legs). The methodology is based on the application of the developed port model for two existing container loops (Asia – Europe and U.S. – Europe). The authors conclude that the total generalised chain cost will decrease if larger ships are deployed. In the Far East – Europe loop, the decrease in chain cost is large when most of the generalised chain cost is determined by the maritime part of the total chain. Moreover, the impact of scale increase has different effects on different routes. It is therefore necessary to treat each liner route separately. Finally, the importance of the location and the availability of hinterland connections of a port towards its hinterland will increase (*Ibidem*).

Few studies have addressed the impact of mega-ships in terms of social costs or negative externalities – e.g. congestion in the hinterlands – or concerning dock labour settings – e.g. peaks and downs in container handling operations. A recent study commissioned by the International Transport Forum³² about the impact of mega-ships 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 container business has consequences for the rest of the transport chain (ITF, 2016). Big container ships require infrastructure adaptations and productivity levels that increase costs for port

³² ITF is an intergovernmental organisation with 54 member countries with the objective of helping shape the transport policy agenda on a global level.

operators, port authorities and other stakeholders in the supply chain. Moreover, mega-ships cause peaks in ports with consequences on labour organization, and put a strain on hinterland transports. The report of ITF questions whether further increases in ship size result in disproportionately higher port and hinterland costs, what are the impacts of mega-ships for the whole transport chain, and what could be done to optimise the use of mega-ships and mitigate negative impacts. The study faces these questions through a detailed assessment of the consequences of mega-ships for the different parts of the transport chains: maritime transport, ports, terminals and hinterland transport. Moreover, the report observes that whereas containerization has regularized port labour, mega-ships have determined more flexibility. More peaks mean more flexible labour, so more flexible labour time and pools or other mechanisms probably resulting in more labour costs (ITF, 2015). The empirical evidence emerged from the following research confirms these trends, by highlighting how the pressure coming from the needs of the shipping companies is transforming not only the technical configuration of container terminals, but also the working practices, the mechanisms of the labour pool and the degree of flexibility implemented by the terminal operating companies. The impact of mega-ships on the container terminals has generated an increase of the concentration 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 dock labour pool itself. On the other hands, the main solutions to the unrestrainable increase of the ship size (and the imbalanced bargaining power determined by the alliances) 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 allows beneficial outcomes for the overall management of the supply chain. The idea of “market freedom” and *laissez-faire* is critically engaged in this thesis. At the same time, the political approach of the European Commission in this regard does not seem to tackle these issues by setting up common standards.

The increasing size of vessels has had strong effects on the market structure as well, in terms of oversupply, decreasing freight rates and profitability. On the other hands container terminals managed by terminal operating companies, being constrained to follow the pace of an apparently unlimited growth, have been affected by the structural overcapacity, congestion, decrease of the operational time, fierce competition. The studies who assess the impact of mega-ships emphasize the pressures on the terminals and the obligation towards the investments in new facilities and infrastructures (Sys *et al.*, 2008). This concern encompasses also port authorities, policy-makers, etc. The issues linked to the impact of the mega vessels on ports and terminals have shown how tight the link between shipping industry and 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 *et al.*, 2009; Vanelslander & Sys, 2014; Alexandrou *et al.*, 2014; Bologna, 2010; 2017; Rodrigues *et al.*, 2015; Vanelslander, 2005). Besides the impact of mega-ships, the empirical studies show the extent to which, in the concentration process of the trade, shipping companies aim to a greater integration among the actors along the logistics chain. Their aim is to exploit the economies of scale, to optimize and to gain control over the entire chain (Van De Voorde *et al.*, 2014). In the last 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 optimization 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, the market players have also initiated vertical integration in what is clearly a rapidly evolving market. Primarily, many shipping companies have become involved in vertical integration movements. In this regard, Heaver *et al.*, (2001) and more recently Vanelslander and Van de Voorde (2014) underline how the port and the maritime industry have undergone a dynamic evolution in the last years. The former authors discuss in detail the various forms of cooperation, concentration and integration in the maritime industry. Vanelslander and Van de Voorde illustrate the 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 (*Ibidem*). It emerges that 14 of the top 20 shipping companies in the container market are involved in port terminal operations (situation in January 2014).

Some shipping companies such as Maersk, MSC, CMA CGM, Cosco and China Shipping, have even established a terminal operating subsidiary. It is clear in the analysis that maritime and port industry is subject to fundamental change initiated by, among others, players from within the maritime logistics chain. Vertical cooperation and integration movements are an important part of this process. Shipping company through vertical integration has 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 productivity level of the different links is modified. However, Fremont observes that the continued growth of world trade and the parallel increases in the size of ships accentuates the apparent differences between the alternate strategies: one to emphasize scale economies, the other to offer direct services (Fremont, 2007).

The horizontal cooperation between shipping companies and the market concentration trends have produced more cooperation also among terminal operating companies, who established their own global networks. Port authorities, for their part, saw their role reduced to the granting of concession contracts to the terminal operating companies (Vanelslander and Van de Voorde, 2014).

The port sector in Europe has to deal with the process of mergers and acquisitions between shipping lines. This process produces an imbalanced bargaining power between the actors involved in the port activities, as well as an abuse of the market power (Meersman *et al.*, 2009). Moreover, these trends have an impact on competition regimes and both the social and economic regulation as well. Suykens and Van de Voorde (1998) summarize a number of socioeconomic and technological pressures that induced governments to introduce organizational changes to seaports. The rise of a global economy forced container-handling activities to increase productivity in order to remain competitive. The deregulation wave occurred in container handling operations produced a shift from a public towards a private system. The goal of deregulation has been to stimulate competition in order to improve the productivity and efficiency in the port sector (*Ibidem*).

From an economic point of view, port regulation was mainly justified by the argument that the port industry had the characteristics of a natural monopoly with large sunk infrastructure costs and economies of scale. However, the possibility of unbundling port services increased competition in the port industry and changes the role of the regulator (Van de Voorde and Winkelmanns, 2002). The coordination of all the privatized port activities in such a way that goods move smoothly from the ship to the hinterland and vice versa questions the degree of decisional and financial independence, and the involvement of port authority in management and operations.

Verhoeven (2009) observes that port policies and regulations are two side of a coin. Policies set out the overall aims and goals, while regulations ensure compliance and certain behaviours. Its focus is on the government of public policy and regulation³³, which can be issued at various levels:

- Local level (city, municipality or port authority)
- National / regional levels (country / federal state or land, departments, regions)
- Supranational level (European Union)
- Intergovernmental level (e.g. IMO – International Maritime Organization, and ILO – International Labour Organization, UNCTAD – UN Conference on trade and development).

Vanelslander (2005) emphasizes the intervention of a large number of policy levels in the cargo handling environment, not always with the same interests and therefore not always acting in similar directions. Government impact on ports has always been considerable, mainly due to their macroeconomic relevance, although there have been national gradations in government intervention (*Ibidem*). Verhoeven highlights the reasons for public intervention in ports, which can have an economic or social nature. Competition policies lie on existing dominant positions and abuse (monopoly policies), new dominant positions (mergers and acquisitions), and restrictive practices (e.g. price agreements, dumping). The economic regulation deals in particular with the abuse of market power, the management with public goods, and the externalities such as noise, air emissions, waste, congestion, etc. The

³³ Public regulation comprises 'hard' legislation and 'soft' rules'.

structural regulations refer to the functional separation of certain activities or companies, while the economic policies and regulations concerning the role of port authorities deal with the market access to port services, concession policies, the organisation of port labour, port infrastructure development and planning, port financing, and trade facilitation. Non-economic policies lie on the environment, safety of port operations and port workers, safety on vessel movements in ports, security, and social regulations such as working conditions in ports, equal opportunities, etc. (Verhoeven, 2009).

In the international forms of cooperation such as the intergovernmental bodies, participating states do not confer decision-making powers upon supranational institutions, while supranational bodies made by participating states confer some of their decision-making powers upon supranational institutions they have created (*Ibidem*). As we shall see, the European Union combines elements of both forms, but has the strongest supranational component in the world. European policies indeed have a high impact on ports policy and regulation, in particular with regard to dock labour schemes at national level³⁴.

To sum up, the economic literature shows that competition and regulation in seaports are strictly related. Port sector has been subject to a wave of privatization and deregulation with consequences for competition within as well as outside the sector – across the chain. At the same time, the sector faces increased cooperation and merger activities driven by the search for scale economies and control over the logistics chain by the main players. Moreover, policy factors influence cargo-handling conditions. Governments and related institutions can have a substantial role in affecting the supply and demand conditions at container terminals (Vanelander, 2005).

The competition regime and the consolidation processes in the shipping industry are under observation by the authorities at national and supranational level, whose role should be to avoid distortions. The European antitrust rules, for instance, provide the legal framework for the competitive balance, but also policies such as the maritime block exemption regulation play an important role, allowing several requirements for profitability and stability in the shipping sector, according to the claims of the global carriers (Rodrigues *et al.*, 2015). Antitrust measures, for instance the Port Package (European Parliament and Council, 2001), may affect supply and demand conditions, as Vanelander points out (2005).

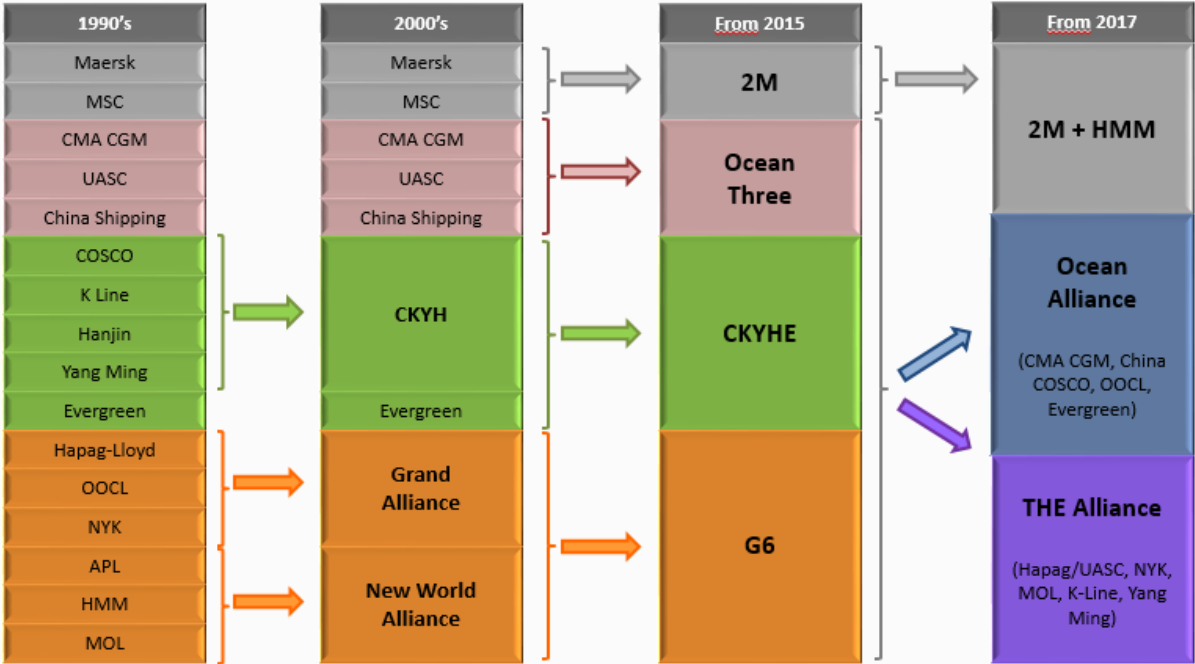
The European Commission however has recently extended the validity of the existing legal framework exempting liner-shipping consortia from EU antitrust rules until April 2020, after having concluded that the exemption does not distort competition. The maritime consortia block exemption regulation allows shipping lines with a combined market share of below 30% to enter into cooperation agreements to provide joint cargo transport services (so-called “consortia”). Such agreements allow liner-shipping carriers to achieve economies of scale. The Commission has exempted such agreements from the prohibition of anticompetitive agreements in Article 101 of the Treaty on the Functioning of

³⁴ According to the European Commission (1997: 19) “Port services have traditionally functioned in isolated frameworks, protected by exclusive rights and / or legal or de facto monopolies of public or private nature”.

the European Union (TFEU). For consortia and alliances exceeding the market share threshold established in the block exemption regulation, “it is the responsibility of the companies themselves to make sure that their agreements comply with Article 101 TFEU³⁵”.

Nevertheless, in the economic literature, the shipping sector and the container handling are referred to as a global market that takes the form of an oligopoly: a few main global players handle a substantial share of capacity in the main trades (Vanelslander, 2005; Sys, 2009). The container shipping sector is currently dominated by shipping companies that have created three major strategic alliances over time, as the figure 5 shows.

FIGURE 5: FROM 16 SHIPPING LINES IN THE 1990s TO THREE LARGE ALLIANCES IN 2017



Source: PSA Antwerp

As illustrated, the main customers of the port sector become more and more concentrated. During the year 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, which is described as the largest bankruptcy in the ocean freight industry. From April 1, 2017, the ocean carriers have formed three new alliances that represent 77.2 percent of global container capacity and 96 percent of all East-West trades’ container capacity. The 14 largest shipping companies make up 73.1 percent of the market share, and almost all of them belong to alliances. As of July 2016, the world’s shipping alliances were the following³⁶:

³⁵ Antitrust: Commission extends validity of special competition regime for liner shipping consortia until April 2020 (24th June 2014). *European Commission Press release*. http://europa.eu/rapid/press-release_IP-14-717_en.htm

³⁶ Shipping alliances: new mergers (August 2016) <http://www.icontainers.com/us/2016/08/11/new-alliances-shipping-line-mergers/>

- 2M Alliance: Maersk and MSC
- Ocean Three Alliance: CMA CGM, UASC, China Shipping
- G6 Alliance: NYK Line, OOCL, APL, MOL, Hapag-Lloyd, HMM
- CKYHE Alliance: K Line, COSCO, HANJIN, Evergreen, Yang Ming

This will be the composition of the alliances after April 2017:

- 2M Alliance³⁷: Maersk, MSC
- Ocean Alliance: CMA CGM, China Shipping, APL, OOCL, Evergreen
- THE Alliance³⁸: K Line, Yang Ming, HANJIN, MOL, Hapag-Lloyd, NYK Line, UASC

As the changing processes occurred in the last decades, the alliance reshuffle has an impact on ports in terms of throughput, capacity, cost structure, bargaining power, profitability and labour settings. Yet, there is room for other scientific studies about each of these issues, enabling in-depth analysis on the effects of such dynamics in the port sector.

In a recent study³⁹, the global shipping consultancy Drewry compared the port coverage, frequency and speed of the new alliances. Central China will have the most weekly departures from the Far East, followed by the Hong Kong/Taiwan/South China region, North and Southeast Asia. In Europe, Rotterdam will be the busiest port with 21 inbound calls each week, followed by Antwerp (19 calls). In France, Le Havre is the main port of call, while Germany's calls will be split equally between Bremerhaven and Hamburg. In the United Kingdom, Southampton leads closely with Felixstowe (10 and 9 inbound calls). London Gateway obtained its first deep-sea connections with the choice by THE Alliance to use it for two Asia-North Europe services and two transatlantic loops.

2M has more port calls in the West Mediterranean with 25 inbound calls, versus 19 from Ocean and 16 from THE Alliance. Thirteen West Med ports will receive alliance ships with the most frequently served being Valencia (10), Barcelona (8), Genoa (8) and La Spezia (7). In the East Med/Adriatic, there will be 42 inbound calls each week, spread across 19 ports. According to Drewry, Only a handful of ports will get more than two calls each week, with Piraeus being the busiest one with seven calls.

Drewry has also examined the correlation between carrier terminal ownership and the choice of port calls by the three liner alliances. The results show that the choice of port of call do not correspond with the carrier terminal ownership interests. Even when a shipping line has a significant stake in a terminal, this does not mean that the port is selected. For gateway ports, carriers have to bear in mind the port preferences of shippers, for example. However, for the choice of transshipment hub, the correlation is also weak in a number of cases. This analysis demonstrates that shipping lines are not entirely in control of their own destinies when it comes to port choices, as partner lines in their alliances may have

³⁷ HMM was initially set to join 2M Alliance but their entry has since been rejected. The trio will instead engage in a 2M+H partnership.

³⁸ THE Alliance has signed an agreement for an initial five years. It is set to be one of the leading networks in the container shipping industry. It combines around 3.5 million TEU or 18% share of the world's container fleet capacity.

³⁹ "Drewry: New Alliance Networks-Winners and Losers" (13th march 2017) <http://worldmaritimeneews.com/archives/214907/drewry-new-alliance-networks-winners-and-losers/>

conflicting port choice preferences and particular idiosyncrasies. Moreover, even if alliance partners have corresponding port preferences, there is still potential for conflict at the terminal level if more than one line in an alliance has interests in different terminals in the same port (*Ibidem*).

The issue of port competitiveness has been relevant in the recent years, due mainly to the scenario after the economic crisis in 2008, who produced a decrease of turnover in the main ports, not only in Europe (Aronietis *et al.*, 2010; Meersman *et al.*, 2016; Parola *et al.*, 2016). By evaluating the strengths and weaknesses of ports, a study about port choice from a chain perspective identifies the factors who affect ship operators' port choice criteria in the port of Antwerp, Rotterdam and Hamburg. In addition, the role of the other decision makers, namely freight forwarders and shippers, is stressed (Nazemzadeh and Vanelslander, 2015). The authors of this study rank the main influential factors from the port costumer's viewpoint. The empirical results of this research about port choice show how relevant the following factors are for ship operators, in order of importance: port costs, geographical location, quality of hinterland connection, productivity, and capacity. The analysis confirms that port costs play the most important role in port selection process by all three groups of players.

According to Rodrigues, Ferrari and other maritime economists, the drivers of the strategic alliances between ocean carriers depend on the capital-intensive nature of this industry and the financial pressures (Rodrigues *et al.*, 2015).

Concerning the *efficiency-related drivers*, alliances allow shipping lines to deploy bigger ships and experience cost savings. As already mentioned, these forms of horizontal cooperation strengthen the bargaining power of the global carriers against terminal operators and port authorities (Heaver *et al.*, 2001).

With respect to the *market-related drivers*, a good frequency of maritime service is crucial for achieving a significant market share. Therefore, shipping lines offer at least one weekly departure from each port called on a service route (Parola *et al.*, 2014). On the other hand, this imposes on carriers a heavy commitment in terms of number of ships deployed.

Regarding *knowledge-related drivers*, alliances may provide opportunities for carriers to work closely with the selected partners and to gather confidential information about market conditions and main competitors. Finally, shipping lines may be able to obtain information about the strategies of the partners, which are also their rivals (Midoro and Parola, 2013; Rodrigues *et al.*, 2015).

Terminal operators may service several shipping companies, but shipping companies may call at different terminals in the same port. In case of vertical integration between shipping companies and terminal operators, the result is the control over the terminals in terms of capacity, reliability, costs and vessel schedule.

Notteboom and Rodrigue (2011) emphasize the developing global networks in the container terminal operating industry. Focusing on the internationalization process in the port operation industry, the authors observe the emerging corporate geography in the container terminal sector with issues related

to the similarities or differences among terminal locations, the processes leading to the expansion of these holdings and the interactions they maintain as nodes within the global freight distribution system.

In line with the definition of global port operators in Bichou and Bell (2007), global terminal operators are defined as multinational companies involved in international port terminal operations with a view of establishing globe spanning network services. The authors demonstrate that global container terminal operators show varying degrees of involvement in the main cargo handling markets around the world. In the typology and market positions of global terminal operators developed by the authors, stevedores are the port terminal operators that consider port operations as their core business, and expanded into new markets to replicate their expertise in terminal operations and to diversify their revenue geographically. PSA (Port of Singapore Authority) is the largest global terminal operator coming from a stevedore background. Stevedoring companies have expanded into new locations. This involves mergers and acquisitions of existing terminals or the construction or expansion of new terminal facilities. Pursuing a strategy based on organic growth is generally the most obvious strategy available to container terminal operators. Traditional stevedoring companies opted for horizontal integration in part to counterbalance the consolidation trend in liner shipping (Notteboom and Rodrigue, 2011).

Another typology of global terminal operators is the maritime shipping company who invest in port terminal facilities (e.g. APM Terminals sister company of Maersk lines is the largest global terminal operator coming from a maritime shipping background). The last typology is the financial holding.

In Europe the top five leading terminal operators handled an estimated 75% of the total European container throughput in 2008 compared to less than 50% in 1998 (*Ibidem*). The major terminal operators have a strong globally oriented portfolio. Like many multinational companies, global terminal operators are market seekers. The corporate geography of container terminal operators underlines that they have played an active role in the standardization of management practices among different port locations.

Vertical and horizontal integration in terminal and shipping industry 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 model, which is linked with terminal performance. Organic growth as well as mergers and acquisitions of existing facilities were common strategies, in which terminal operators differ little from their manufacturing and retail counterparts in view of globalization (*Ibidem*).

According to Notteboom and Rodrigue, the fast pace of growth, mergers and acquisitions in recent years underlines that the industry may be close to achieve a level of maturity. If this is the case, the corporate geography of global terminal operators will shift from a system where the dynamics were oriented towards expansion to a system oriented towards rationalization, performance improvements and the search for niche markets. (Notteboom and Rodrigue, 2011)

From the literature review, it turns out that the topic of horizontal integration between terminal operators is also important. Terminal operators and ports faced the strategies pursued by the ocean carriers through forms of cooperation among them, mainly at regional level, in order to counterbalance their strengthened bargaining power (Van de Voorde and Vanelslander, 2009). However, container-handling companies have been involved in various forms of cooperative expansion. Vanelslander (2005) tries to assess the benefits from mergers and acquisitions, to what extent economies of scale occur, how these depend on container-handling conditions, and how mergers and acquisitions may generate economies of scale in container handling. Focusing on the economics of the cargo-handling business from the point of view of expansion, the author assesses that there are economies of scale in cargo handling, that economies of scale differ according to the operational context, and that cargo-handling efficiency can in particular be gained through cooperation (*Ibidem*). Depending on the specific setting, economies are larger or smaller; they increase in terminal capacity and in quay crane size, while they decrease with labour flexibility. There may be economic, financial and market effects on container handling conditions and economies at container terminals, involving synergies and efficiencies. The terminal economies of scale are affected by many influencing factors that contribute to the size of terminal economies, grouped in four dimensions: policy factors, scope factors, chain factors and terminal-specific factors (*Ibidem*).

The horizontal integrations involve terminal operators and port associations as well. As pointed out, these forms of cooperation have so far only partially limited the increasing market power of the biggest ocean carriers and the global strategic alliances (Musso *et al.*, 2000). Shipping alliances are more and more able to influence the changes in landside operations. With their volumes, they have power over ports and can force them for more favourable conditions and services. In addition, the size of alliances allows them to negotiate better handling charges (*Ibidem*). Furthermore, the development of additional horizontal integration between terminal operators has to deal with not only commercial and economic implications, but also juridical issues linked to the competition regime in the port sector. Still, this unbalanced relation of power suggests the need to take into account a greater role of the legal constraints and the social institutions at national level.

Regarding 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, in line with Castells and the shift from the *space of places* to the *space of flows* (2002), it should be underlined mainly the reverse process – from ports as *places* to ports as *spaces*.

An enduring well-established literature in port geography exists as well on the spatial development of seaport systems in relation to maritime and hinterland networks. In this field, the focus of cargo concentration and deconcentration in port systems is crucial. Empirical evidences demonstrates the difference between some port systems and ranges which are getting more concentrated, whereas others

are evolving to a more evenly distributed system.

The models on port systems spatial development remained virtually unchanged since the understanding of the spatial dynamics in port systems pointed out by Notteboom and Rodrigue (2005). The authors contributed to change the models on port systems spatial development introducing the ‘port regionalisation’ concept, a process where efficiency is derived with 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 linkages between the nodes of the networks. In this regard, Rimmer and Comtois (2009) argue that port regionalisation⁴⁰ phase is nothing more than decentralization.

Adding to the debate of what is a spatially relevant unit of analysis, Slack and Wang (2002) studied the emergence of regional ports and the increase of their competitiveness when located near dominant port. They argue that the interactions between Port Authorities, terminal operating companies and shipping lines lie at the heart of a deconcentration process.

Spatial port studies in recent years have undergone a fundamental epistemological shift in the conceptualization 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 focus on developments in maritime and or hinterland networks, and the ways they shape the spatial hierarchy of port systems. Effects of spatial changes on port cities have received attention as well. Ducruet and Lee (2006) bring the discussion of the port city to a global level by measuring the Relative Concentration Index (RCI) of port city functions in the context of globalization.

Despite the caution in treating these findings, the authors of the classification conclude the review on port studies underlining some crucial challenges with respect to the organization of research in port economics, policy and management (Pallis *et al.*, 2011) Themes and methods on port research demonstrate that this research field is fragmented and lack coherence. The number of comparative studies on ports around the world using the same methodology is limited. Moreover, compared to other disciplines, port researchers face a lack of data availability. The gaps in statistical power, as well as the reliability of statistical data and maritime trade statistics, are too large to be ignored.

⁴⁰ Bologna addressed a similar topic (1998)

3.2.1. Port geographies

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. However, several questions remain unanswered. Notably, a mapping on dock labour systems, labour dynamics and conditions throughout the European ports, is still lacking in the literature.

Wilmsmeier and Monios apply a critical and radical perspective to the analysis of port operations (2015). By drawing upon 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. Port devolution and development cannot be understood in the absence of a critique of their capitalist context (*Ibidem*).

Based on a pluralistic approach, the paper of Ng, Ducruet, Notteboom *et al.* (2014) analyses these issues, as well as the changing waves and development of port geography. In addition, Slack and Notteboom highlight the implications of port governance and management by the perspective of port geography (*Ibidem*).

Port governance and management has been indeed one of the more important research topics over the last decades in port geography. The work of port geographers and their co-researchers from other disciplines is important, since much of the research is empirical, and some theoretical and conceptual implications emerge, not only for port geography itself, but also for the broader discipline of human geography.

Prior to the 1980s, ports in most parts of the world were administered by public authorities and financed by public funds. Due to the dominant governance model, ports were considered as homogeneous entities. However, in the 1980s, this picture of governance began to change. The growing tendency of the neoliberal ideology among policy-makers coincided with a growing research interest in port governance models, as Notteboom and Slack underline (*Ibidem*). The World Bank supported this trend and published the Port Reform Toolkit abovementioned, focusing on port governance reform.

Since the 2000s, the attention has clearly shifted from descriptive studies on port reform processes towards analysis of the outcome of reform implementation and the role of port authorities under the new governance setting. Ports now face new challenges in responding to local funding priorities and planning. In this regard, the privatization of ports has failed to achieve widespread acceptance. Rather the Landlord model is now found around the world.

This process has generated a great deal of interest by port geographers since 2000. Some has been directed at the expansion of the terminal operating companies, both regionally (Notteboom, 2002), and globally (Slack and Fremont, 2005; Olivier *et al.*, 2007; Notteboom and Rodrigue, 2012).

Port reform and devolution became a global process, giving rise to empirical research using broad samples (Baird, 2002). 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 globalization and the neoliberal ideology are tending to homogenise space, institutional factors are giving rise to local diversity” (Slack and Notteboom, 2014).

According to the 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 (*Ibidem*). However, in port geography, very few researchers have made the links explicitly. In a similar way, the urban impacts of port reform have been largely absent from port governance research in port geography.

Port development processes show certain degrees of contingency, where strategies and actions of market players and other stakeholders might deviate from existing development paths (Notteboom 2009b). Both path dependency and contingency explain why port systems around the world do not develop along similar lines or follow the same sequence of stages.

A further paper of 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 dependence in seaport governance. Using theoretical insights within the Economic Geography, they try to rebuild the theoretical and empirical connections between Transport and economic Geography.

Starting from the concept of path dependence and lock-in, they argue that port authorities in their attempt to develop new routine to cope with external challenges are often constrained by their governance structure and or institutional environment. They apply the theoretical concept of institutional plasticity to highlight how port actors strategically stretch existing institutional arrangements to their purpose, without breaking out the dominant development path. They discuss two cases, both focusing on publicly owned port authorities. Focusing on the interaction between institutional environment, governance structure and the dynamics in supply chain and hinterland strategies of Landlord port authorities, they conclude that path dependent changes inhibit plasticity, which is the result of actions of actors to ‘recombine and convert or reinterpret institutions for their new objectives or transfer institutions to different contexts’ (Strambach, 2010).

Jacobs and Notteboom (2011) considered how “windows of locational opportunity” for port investments open and close as result of strategic actions by actors. Critical junctures emerge when local actors successfully couple institutional arrangements and organisational routines. Hence, there is more room for an approach that considers ports not simply as abstract spaces where particular types of economic activity just happens to take place, but as real life and contextual places in which actors through their interactions shape certain developments outcomes (Olivier and Slack, 2006).

In sum, the topic of governance has clearly enlarged the research field of port geography. While the impetus for port reform has come from globalization and the 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 port, in which individual terminals, managed by firms with different business goals and

practices, are influencing port performance, hinterland penetration, and market coverage. These results are to some degree parallel to the “cultural shift” of economic geography, but, with some exceptions, the exchanges have been few. This is despite the relevance of some port geography research to the broader sub-discipline. Theoretical and empirical insights from other related sectors might help to deepen the narrow focus of many port governance studies. In addition, the impacts of port reform on labour and the communities that depend on the port have been largely ignored.

The study of Woo *et al.* (2011) mentioned at the beginning of this review investigates how seaport research has been conducted from the methodological perspective, and reviews published port literature for the last three decades (1980–2000). The investigation primarily categorises the literature according to various methodological issues such as research paradigm, research strategy, base disciplines, research methods and analysis techniques, in order to provide meaningful implications on methodological evolution in seaport research for the period analysed. Hence, the authors observe methodological bias in port research to a positivistic paradigm, following a quantitative trajectory. Ports have been studied as a part of Transport Economics and Transport Geography, and this approach is still generally accepted (Woo *et al.*, 2011). The investigation in this study has also revealed to some extent the possible existence of interplay among researchers from different disciplines at the level of theoretical models, research methods and analysis techniques. According to the authors, one possible combination is the association of geographical concepts and economic analysis, or the combination of economic concepts with a geographical context. Finally, as for methods and analysis techniques, the authors argue that the tendency to move towards the central concept of ‘people’s perception-positivist’ approaches will likely continue because human factors are necessarily involved in this field of research. Therefore, particular methods such as surveys and interviews will be required in order to incorporate companies’ behaviour and people’s perceptions into port research. More abstract and complicated concepts are expected in the future. Thus, methods and analytical tools, which can manage these concepts and multiple relationships among them, will be required. In addition, qualitative research methods must also be used to develop theories from empirical phenomena taking place in port industry. This will encourage the movement of more diverse paradigms in port research. It is possible that there will be further movement in the type of research conducted towards the ‘direct observation’ approaches (*Ibidem*).

To conclude, this review of the port literature has shown to what extent ports are characterized 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 the recent challenges in the port sector, driven by the changing dynamics in the shipping industry. The increasing sizes of vessels, the horizontal and vertical integrations, and the importance of mergers, acquisitions and alliances have been taken into account in the review, due to the implications on labour and on the terminal operating companies, which are

increasingly affected by the search of the economies of scale in the maritime industry.

The overview focused on the main research streams in the port studies and on some key issues of the recent trends. It turns out that terminal operating companies have to deal more and more with the “uncertainties of the management in the management of uncertainty”, to say it with Streeck (1987). Moreover, it is undeniable that mergers, acquisitions and alliances are strengthening the bargaining power of the shipping companies. The consolidation process has shaped the market structure of the shipping industry, producing a new scenario for port operators as well. Will these processes be sustainable in the long run for the port sector? Should ports and terminals follow uncritically the pace of this apparently unlimited process?

Bigger ships and alliances have led to more rigidity, less supply chain resilience and less quality of the services. In a broader sense, a substantial indifference on the externalities has been noticed in the economic literature, as well as the labour dynamics in the maritime-logistics chain. There is room for empirical studies concerning these issues. An interesting research objective can be the quantification of the capital invested by the shipping companies that end up in the ports, since the latter are the entities who make the most resources available, the highest investments in the adjustment of the infrastructures, etc. Private profit and public financing should be considered jointly in this field of enquiry. There is need for more empirical studies about the impact of alliances and mega-ships on the operations in relations to costs, labour organisation, and profitability of the container terminals. Moreover, if competition is along the maritime-logistics chains, as emerged from the economic literature (Meersman *et al.*, 2009), it should be underlined that not only submissive port policies exclusively with respect to the will of the shipping companies are unsuitable, but also that the dependence of ports and terminal operators on shipping alliances may produce more vulnerability for the former.

Finally, the main solutions to the unrestrainable increase of the ship size and the imbalanced bargaining power determined by the alliances should be found in the institutional role of the member states and the regulatory bodies involved. Although this is very difficult, only, for instance, a process of institutional regulation can discipline these trends. This should allow beneficial outcomes for the overall management of the supply chain. How terminal operators could respond to the huge challenge where customers become bigger and have ever more bargaining power? It is not easy to answer. In order to give an overview of the recent trends by the terminal operator viewpoint, the next sections look at the interplay between shipping companies and terminal operators, aiming at analysing the recent trends and the impact of the new alliances on the terminals. In light of the recent scenarios, the interpretation of these changing trends in the container-shipping sector might provide some insights for port operators in the management of the uncertainty imposed by continually changing market requirements.

The new challenges for the future of the labour dynamics in the port business have to be faced by looking at the overall logistics chain. In addition, the social embeddedness of such activities should always be considered, and therefore the crucial role of the socio-institutional variables in the smooth

process of these chains, whose ports represent the key node.

To sum up, the maritime sector is a key driver in the increasing globalizing trends in the world economy and a highly competitive industry. Its main strength lies in the ever-increasing rates of seaborne trade, marked by the increasing volumes transported over long distances and the corresponding increase in the sizes of sea going 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. Of course, this implies their 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.

In the specific context of container terminal operations, we can distinguish companies specialized in terminal operations on the one hand, and liner shipping companies engaged in terminal operations on the other hand. As such, the increasing efforts by all these players or stakeholders to maintain maximum profit and bargaining power (in the face of growing competition, technological advancements, unstable global economic as well as political conditions and environmental concerns), along the entire sector has seen a corresponding resolution towards strategies of horizontal and vertical integration. In practice, this is witnessed through consolidation depicted by the mergers or joint ventures between important terminal operators and the acquisition of strategic smaller players. This does not only occur in the container market but also in the dry bulk and general cargo markets (Van de Voorde and Vanelslander, 2014).

Container ports and terminals constitute a vital component of the modern economy (Liu, 2010). Containerization has been accompanied by highly automated and efficient operations, which have greatly facilitated the transportation of goods from origin to destination irrespective of modal type. As a result, companies are becoming more and more multinational choosing strategic locations worldwide with the cheapest production costs. This in turn fuels the development and use of global supply chains within which container ports and terminals are of significant importance. In essence, since the inception of container trade in the 1960s, the sector has witnessed a tremendous growth of up to over 1.6 billion tons in 2015 (UNCTAD, 2016).

According to the World Bank Port Report Toolkit (2001), ports secure efficient transfer of cargo from land-based to sea-based transportation and vice versa. They can either be entirely publicly or entirely privately governed and owned. However, most ports constitute a combination of public and private actors. In addition, in most ports the public actors are responsible for the overall planning, facilitating and regulating while private actors act as service providers, operators and developers within this framework. They can also be specialized based on the type of cargo that they handle. This may include general cargo, dry bulk, liquid bulk, oil and gas, and containers.

The most important public actors are the port authorities who act as the governing body of the port and usually are responsible for the overall development of the port. Port authorities usually manage the

real estate within the port area and secure the upkeep of basic port infrastructure such as berths, and access roads, amongst others. The traffic flow, allocation of vessels to public berths, maritime safety and protection of the marine environment are usually managed by a harbormaster on behalf of the authorities.

The private actors include terminal operators, stevedoring firms, cargo handling companies, tugboat operators, mooring service providers, just to name a few. These companies pursue typical micro-economic objectives such as profit maximization, growth and increased market share.

The main private actors in the ports are the terminal operators. In the past decades, several major shipping lines have taken control of terminals in order to control more segments as well as costs of the transport chain. This trend has mainly affected containerized operations where a number of carrier alliances have concluded long-term contracts for container terminals in major strategically located ports. Apart from the container lines, a number of global stevedore companies operate a large number of terminals all over the world. Their main objective is not to control the transport chain, but to make a profit by offering terminal services (World Bank, 2001).

Ports compete with other ports for market shares. The port of choice is usually that which offers the highest added value to its business. Consequently, the factors and services that add value will vary from product to product and from activity to activity (Robinson 2002; World Bank, 2001).

As it has been already mentioned, Van de Voorde and Winkelmans (2002) consider three types of competition in the port business:

- Intra-port competition, between operators within a given port with regard to a specific traffic.
- Inter-port competition, between operators from different ports, within the same range, serving more or less the same hinterland.
- Finally, 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. Ports will try to become a node in the most successful logistics chains to increase their market share and improve their economic impact. Current port competition takes place predominantly at this level (Meersman *et al.*, 2009). As the term of maritime-logistics chain suggests, competition is no longer at the level of individual ports or ship-owners, but along the chains (*Ibidem*). The vitality of the ports therefore is affected not only by the requirements of shipping lines or by the infrastructures, but is shaped by a variety of market requirements. A maritime-logistics chain is formed by maritime activities, goods handling in the port area, and hinterland transport services. The formation of chains, on the other hand, depends on maritime connections, cargo handling operations and distribution to the hinterland (*Ibidem*). Essentially, large seaports require these three elements to be competitive, including adequate connections with the hinterland (Meersman *et al.*, 2010). The new challenges for the future have to be faced by looking at the overall logistics chain. In addition, the social embeddedness of such activities should always be

considered, and therefore the crucial role of the socio-institutional variables in the smooth process of these chains, whose ports represent the key node.

In case of vertical integration between shipping companies and terminal operators, the result is the control over the terminals in terms of capacity, reliability, costs and vessel schedule.

During the year 2016, an unprecedented number of mergers and acquisitions took place in the shipping industry. From April 1, 2017, the ocean carriers have formed three new alliances that represent 77.2 percent of global container capacity and 96 percent of all East-West trades' container capacity. The 14 largest shipping companies make up 73.1 percent of the market share, and almost all of them belong to alliances. The result is a strengthened bargaining power between shipping lines and port authorities, together with terminal operators. To what extent these dynamics are linked with the impact of business interruption? By looking at the ports, we can see how these are crucial for the seamless and smooth cargo flows, since they are elements in the value-driven chain system and key nodes within the supply chains (Robinson, 2002). Nevertheless, the strategies of the main players along the maritime-logistics chain have often produced the disruption of the supply chain, caused by social actions, labour strikes, etc., posing new challenges not only for the future of the port business, but for the entire management of the global supply chain.

3.2.2. What is disruption?

Disruption refers to any major breakdowns in the production or distribution nodes that comprise a supply chain (Hanfield et al., 2011). Whether tangible or intangible, if such breakdowns result in economic loss, or direct or indirect physical damage; then they indeed constitute a disruption⁴¹.

From natural to man-made factors such as earthquakes, labour strikes, disruption can have various causes and these can have a wide range of potential impacts on the maritime supply chain. Specifically for transportation networks, these impacts can be very negative. As stakeholders continuously and increasingly strive for optimal solutions to render their supply chains leaner, the magnitude of these impacts is correspondingly set to grow (Liu and Lam, 2012).

Major transport gateways such as ports are generally considered critical infrastructure (Liu and Lam, 2012). The reason lies on their key roles. They are particularly vulnerable to disrupt supply chains in case of any interruption to their smooth functioning. The potential economic as well as operational impacts of disruptive events are generally negative. Careful monitoring, protection, planning and management of supply chains are imperative.

An important dimension within the discourse of disruption is the perception and understanding of risk. This entails predicting and explaining what can be perceived as a potential source or cause of disruption, its potential impacts and the prevention or mitigation. This also brings forth the notion of (un)certainty. The management of risks implies managing the (un)certainty of potential interruptions along supply chains in their entirety.

As main objective to identify top corporate perils and potential responses, in other words, the business risks with the potential to disrupt the supply chain the Allianz Risk Barometer (ARB) annually illustrates the global incidence of business risks based on the insights of over one thousand two hundred risk experts from over fifty countries, obtained by survey. For the past six years, catalysed by increasing trends of uncertainty at a global level, the ARB ranks actual or potential disruptions to supply chains into twenty different categories, taking into account natural, economic, legislative, regulatory, political and technological developments, as well as their respective impacts (ARB, 2017). According to this report, business interruptions, market developments, cyber incidents, natural catastrophes, changes in legislation and regulation include some of the major causes of disruption. As causes of disruption, these factors simultaneously constitute sources of risk and the underlying uncertainty associated with it. The table below illustrates more details of what these factors constitute of within the framework of the report.

TABLE 3: SOME IMPORTANT CAUSES OF DISRUPTION

Factor	Example
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⁴¹ This section has been written jointly with Assam Akan, master student of C-MAT, University of Antwerp, Belgium

Business interruptions	Physical interruption of the supply chain ex traffic delays which result in a considerable income loss
Market developments	Volatility, intensified competition, M&A, market stagnation, digitalization
Cyber incidents	Cyber-crimes, IT failure, data breaches
Natural catastrophes	Earthquakes, floods, hurricanes, climate change
Changes in legislation and regulation	Government change, economic sanctions, protectionism
Political risks and violence	Terrorism, labour strikes, wars
New technologies	3-D printing, nanotechnology, increasing interconnectivity, IoT, big data
Macroeconomic developments	Austerity programs, deflation, inflation

Source: Allianz Risk Barometer, 2017

With a focus on small, medium-sized and large enterprises, risk consultants, underwriters, senior managers and claims experts from all over the globe totalling over 1200 respondents from 55 countries were surveyed. Based on their experience each respondent could name a maximum of three risks, which they deemed most important. In addition, with a provision for the possibility of providing multiple answers for up to two industries, about 4600 responses were collected between October and November 2016. Changes in ranking were then determined with respect to previous ARB surveys by positions in a year-on-year basis, as well as percentages.

Natural catastrophes accounted for \$175 billion in economic losses for the year 2016 out of which only \$50 billion consisted of insured losses; accompanied by the increasing concerns over climate change and weather volatility clearly making room for more and more uncertainty and speculations about more negative impacts set to disrupt the supply chain (ARB, 2017).

Also predominant in 2016 were changes in government such as Obama to Trump in the US and Cameron to May in the UK; political risks and violence such as the war in Syria, terrorist attacks in Belgium, France and Germany; and the gradual disintegration of the Eurozone or popularly known as the Brexit. The supply chain as a whole is increasingly concerned about and affected by the actual and potential impacts, whether tangible or intangible, as well as the enormous uncertainty posed by the changes in legal, geopolitical and business environment at local and global levels.

Uncertainty or risk emerges beyond the premises of human prediction and even beyond those of natural occurrences. The aspect of unpredictability is very central to the notion of disruption. However, it is imperative to monitor and manage disruptions no matter how unpredictable they may seem. From taking out insurance policies, making alternative plans (or plan B) or simply counting out losses and eventually going bankrupt, various stakeholders in the supply chain develop different strategies and tools to manage interruptive occurrences, all of which can be cumulatively referred to as risk management. Table 4 ranks the top 10 business risks in 2017 according to the ARB.

TABLE 4: TOP BUSINESS RISK 2017

1	Business interruption (incl. supply chain disruption and vulnerability)	37%
2	Market developments	31%
3	Cyber incidents	30%
4	Natural catastrophes	24%
5	Changes in legislation and regulation	24%
6	Macroeconomic developments	22%
7	Fire, explosion	16%
8	Political risks and violence	14%
9	Loss of reputation or brand value	13%
10	New technologies	12%

Source: Allianz Risk Barometer, 2017

3.2.3. Impact of mergers, acquisitions and alliances in the Northern range

This section⁴² deals with the drivers of mergers, acquisitions and alliances in the container shipping sector, and the impact on the container terminals in a group of ports located along the same region, namely the Hamburg – Le Havre range. The question underlying this paragraph is the following: *How can Terminal Operators in the Hamburg – Le Havre range respond to the constraining process of mergers, acquisitions and alliances driven by Shipping Companies?* By drawing upon Vanelslander and Van de Voorde (2014), the profile of the terminal operators currently present in the Hamburg – Le Havre range will be described. Then a look is taken at the impact of the recent reshuffling of alliances in the container shipping sector (April 2017) on terminal operators. Finally, some questions and remarks concerning these trends will be raised in the conclusions.

Terminal operators in the Hamburg – Le Havre Range

In the following section, an overview of the global terminal operators in the Hamburg-Le Havre range is given. Six ports are taken into account: Hamburg, Bremerhaven and Wilhelmshaven in Germany, Rotterdam in the Netherlands, Antwerp in Belgium and Le Havre in France. This overview includes the profile of the actors and their strategy. Table 5 provides an overview of the terminal operator companies, their terminals and the possible cooperation with shipping lines.

The Hamburg – Le Havre range has seven main terminal operator companies spread over 20 terminals of which one (APM Terminals) is directly owned by a subsidiary of a shipping Line, namely Maersk. In 13 out of the 20 terminals, there is cooperation with a shipping line (i.e. vertical integration or joint ventures). The other terminals are independent (pure stevedoring or container handling companies).

⁴² This paragraph has been written jointly with Anton Esser, researcher from the University of Antwerp (Belgium), department of Transport and Regional Economics (TPR)

TABLE 5: OVERVIEW OF TERMINAL OPERATORS IN THE HAMBURG-LE HAVRE RANGE

<u>Terminal operator</u>	<u>Name of terminal</u>	<u>Location</u>	<u>Cooperation with shipping line</u>
Eurogate	Container Terminal Hamburg	Hamburg	
Eurogate	CTB (container terminal Bremerhaven)	Bremerhaven	
Eurogate	NTB (North Sea Terminal Bremerhaven)	Bremerhaven	Maersk
Eurogate	MSC Gate	Bremerhaven	MSC
Eurogate	CTW	Wilhelmshaven	Maersk
PSA	Noordzeeterminal	Antwerpen	
PSA	Europaterminal	Antwerpen	
PSA	MPET	Antwerpen	MSC
DP World	Antwerp Gateway	Antwerpen	Cosco pacific, CMA CGM, ZIM
DP World	RWG (Rotterdam World Gateway)	Rotterdam	APL, MOL, HMM, CMA CGM
DP World (GMP)	Terminal de France	Le Havre	CMA CGM
Terminaux de Normandie (TN)	TNMSC	Le Havre	MSC
Terminaux de Normandie (TN)	TPO	Le havre	
HHLA	CTA (Container Terminal Altenwerder)	Hamburg	Hapag-Lloyd
HHLA	CTB (container terminal Burchardkai)	Hamburg	
HHLA	CTT (Container Terminal Tollerort)	Hamburg	
Hutchison Ports	ECT Delta terminal Rotterdam	Rotterdam	MSC
Hutchison Ports	ECT Euromax terminal Rotterdam	Rotterdam	Cosco Pacific
APM	APM Terminals Rotterdam	Rotterdam	Maersk
APM	APM Terminals Maasvlakte II	Rotterdam	Maersk

Source: own composition, websites of terminal operators

APM Terminals is a container terminal operator established in 2001 within Maersk Line. Most of the terminals of APM are partnerships with local businesses, governments and customers in the form of joint ventures. In 2016, the company acquired the Grup Maritim TCB Portfolio, thereby expanding the number of terminals. Currently APM Terminals is present in 69 countries, has terminal facilities in 73 ports over the world and is present in 140 inland service operations. In 2016 the terminal operator handled 37.3 million TEUs (APM Terminals, 2017).

Being owned by shipping line A.P. Moller Maersk and having influence in inland service operations, APM Terminals is vertically integrated. Next to this, Maersk Line also offers freight forwarding and supply chain management through its company Damco (Maersk Line, 2017). In this way, Maersk Line is present in the whole supply chain. With the acquisition of Grup Maritim TCB by APM Terminals, also horizontal integration strategies are followed.

In the Hamburg – Le Havre range, APM Terminals is active in the port of Rotterdam where they have two fully owned terminals of which the terminal Maasvlakte II is highly automated (APM Terminals, 2015). Next to this, APM operates two dedicated terminals in cooperation with Eurogate, one in Bremerhaven and one Wilhelmshaven (APM Terminals, 2017; Eurogate, 2017b).

Terminal Investment Limited Sàrl (TIL) is the second terminal operator company owned by a shipping line, which is active in the Hamburg-Le Havre range. TIL is a terminal operating company founded in 2000 to secure berths and terminal capacity for ships of the shipping company MSC. The group manages and operates terminals in 22 countries, most of the time in joint ventures with other terminal operators in a 50/50 percent ownership. Although MSC is the biggest client, also other

customers can berth.

In the Hamburg-Le Havre range, TIL has four terminals, all in joint ventures. These are MSC Gate together with Eurogate in Bremerhaven, the MPET terminal in Antwerp in joint venture with PSA, the MSC Delta terminal in cooperation with Hutchinson Ports (Rotterdam) and the TNMSC in joint venture with Termineaux de Normandie in the port of Le Havre. These terminals are chosen because they are, according to MSC, strategic locations around the world. The ports are located on major trade routes and are gateways into the European market (Terminal Investment Limited Sàrl, 2012a)

CMA CGM has two port operators as a subsidiary. The first, Terminal Link created in 2001, has interests in 14 terminals. The global throughput on these terminals in 2014 was 12 million TEUs. Considering the Hamburg-Le Havre range, the port operator is present in the port of Antwerp and the port of Le Havre. The capital of Terminal Link is for 51 percent held by CMA CGM and for 49% by China Merchants Holding International. The second subsidiary, CMA Terminals, is fully owned by CMA CGM. This subsidiary was created in 2012 and handled 2.6 million TEUs in 2013. The RWG Terminal in Rotterdam is one of the 13 terminals in which CMA Terminals has a stake. The number of terminals will be increased in the future exploring projects in Africa, South America, India and Europe. Next to deep sea terminals, CMA Terminals also operates dry ports in India, Algiers and Iraq (CMA CGM, 2017).

Eurogate is a German container terminal operating company based in Bremen, which operates different terminals in Europe. In the Hamburg – Le Havre range the company is present in the three main German ports: Hamburg, Bremerhaven and Wilhelmshaven. In these ports, the company has five terminals of which three in joint venture with a shipping line. As mentioned before, NTB in Bremerhaven and CTW in Wilhelmshaven are terminals in a joint venture with APM, subsidiary of Maersk (APM Terminals, 2017). MSC gate in Bremerhaven is a joint venture with MSC. Both shipping lines are part of the 2M alliance. Next to the container handling services the German terminal operator offers supplementary services: container depot and repair, packing of goods, lashing, stripping, and stuffing of containers. These services are not present in all terminals. In the German ports, Eurogate Technical Services guarantees the availability of the handling equipment on the terminals. The core activities are design, planning, start-up and maintenance of complex plant and systems (Eurogate, 2017a).

Eurogate is vertically integrated into the hinterland offering transport of containers by road and rail. Next to this, the handling of wind turbine is offered in the port of Bremerhaven (Eurogate, 2017a). Besides vertical integration, also horizontal integration is present: the company has a 33.4 percent stake in Contship Italia (Contship Italia, 2014). The company is also involved in terminals located Lisbon, Tangier, Ust-Luga and Limassol (Eurogate, 2017b)⁴³.

PSA (Port of Singapore Authority) is a terminal operator active worldwide. The company, based in

⁴³ The share in the terminals located in Lisbon, Tangier and Ust-Luga is unknown.

Singapore, handled 68 million TEUs in 2016 and has terminals located in all continents except Australia (PSA International, 2017). Concerning the Hamburg – Le Havre range, the company has three container terminals in Antwerp, Belgium since PSA acquired Hessennatie and Noordnatie directly after their merger in 2002. Two out of three terminals are independent. The biggest, MPET (MSC-PSA Europe Terminal), is a 50-50 joint venture with TIL, owned by shipping line MSC. In the port of Antwerp, PSA is active in the handling of general cargo as well. To do so, the company set up a joint-venture with the Nova Natie Group with which they founded NHS (PSA Antwerp, 2017). PSA is not vertically integrated in any hinterland activities.

The core business of DP World is container handling, generating three quarters of its revenue. The company handled 64 million TEUs in 2016 (DP World, 2017c) and is present in 40 countries all over the world. In the Hamburg – Le Havre range DP World operates terminals in three ports: Antwerp, Rotterdam and Le Havre. In all of the three terminals, one or more shipping lines have a stake (Table 1). The Antwerp terminal is a joint-venture with three container shipping lines (ZIM ports, Cosco Pacific⁴⁴ and CMA CGM) and Duisport, the operator of the port of Duisburg, which has a stake of 7,5 percent in the terminal (DP World, 2017b). The highly automated RWG terminal in Rotterdam is a consortium with shipping lines APL, MOL, HMM and CMA CGM (Rotterdam World Gateway, 2014). The Generale de Manutention Portuaire (GMP) is a joint venture between DP World and CMA CGM, operating the terminal de France (TDF) in the port of Le Havre. Like PSA, DP World also has an interest in non-containerized cargo. The company operates two other terminals in Le Havre which are more focusing on general cargo and Ro-Ro (DP World, 2017d). Next to marine terminals, DP World operates inland terminals on different locations in the Hamburg – Le Havre range. An example is the Antwerp East terminal. On this terminal additional services like stuffing and stripping, repair and empty depot are available (DP World, 2017a). In addition to the terminal activities, DP World offers cargo services (stevedoring), crane services (inspection services of container handling equipment) and has a license to operate container trains in India (DP World, 2017c).

Terminaux de Normandie (TN) is a group that runs two container terminals in Le Havre France. The company handles about 2 million TEU annually on this two terminals of which one is a joint venture with shipping line MSC (TIL). The TN group belongs to Perrigault, an independent familial group. Like other terminal operators, TN Group is not only active in container handling. It has a number of companies under its wings making TN vertically integrated into the hinterland. The group is shareholder of two inland terminals in Paris: the Paris-Gennevilliers and Paris-Bonneuil container terminals. These terminals are connected with road, river and rail. Ateliers de Normandie and Portiques de Normandie Assistance take care of the maintenance and repair of the equipment on the TN terminals. Next to this, TN is diversified among products: the company SMR, belonging to TN, deploys a Ro-Ro and ferry

⁴⁴ Cosco Pacific has a network of terminals extending over 31 ports. Most of these ports are located along the Chinese coast. To date, Antwerp is the only West-European port where Cosco Pacific is present (Cosco Shipping Ports Ltd., 2016)

terminal in the port of Le Havre. In addition Dockers de Normandie (DN) operates a pool of dockers serving the all the terminals of TN Group. DN is among the main employer of dockers in France (TN, 2017).

The Hamburger Hafen und Logistik AG (HHLA) consists out of four segments. Three of them are port related: container handling, intermodal transport and logistics. The fourth is situated in real estate (HHLA, 2017). Looking at container handling, HHLA has three terminals in the port of Hamburg. The largest terminal, CTB, and the smallest, CTT, are independent. Shipping line Hapag-Lloyd has a 25,10 percent stake in the third terminal, which is the highly automated Container Terminal Altenwerder (CTA) (Hapag-Lloyd AG, 2017; HHLA, 2017). Out of the Hamburg-Le Havre range, HHLA owns a container terminal at the Black Sea in the port of Odessa, Ukraine. In addition, project cargo is handled here. In total, HHLA handled 6,7 million TEUs in 2016. Container handling is the biggest of the four segments and accounts for 59 percent of the group revenue (HHLA, 2017)

In addition to container handling, HHLA offers intermodal transport of containers. The rail companies Metrans and Polzug are subsidiaries of the company. This companies offer rail services from and to different ports in Europe and have their own inland terminals where additional services are offered (e.g. container storage and customs handling). A subsidiary of Polzug in Georgia organises transport from Georgian seaports to Central Asia. CTD (Container Transport Dienst) is specialised in container trucking. Destinations are Germany and Europe (HHLA, 2017). In total 1,4 million TEU were handled in 2016. The share of this segment in the group is 33 percent (HHLA, 2016).

Another 5% of the group revenue is located in the logistics segment. Different companies exist for Ro-Ro products and fruits. HHLA also has a stake in the coal and ore terminal in the Hamburg port. Lastly, the HHLA has three consulting companies located in the area of port development, planning and transport chain. HHLA real estate, the fourth segment accounting for three percent of the company's revenue, designs and lets buildings and facilities on the property market in Hamburg. The real estate division also plans, develops and administers logistics properties (HHLA, 2017).

Through the different segments, HHLA is vertically integrated into the logistics chain. With the ownership of the CTO terminal in Odessa, there is also horizontal integration in the container handling business. The city of Hamburg is 68 percent shareholder of the group (HHLA, 2017).

Hutchinson Ports is active in 48 sea- and inland ports in 25 countries worldwide. In 2016, the company handled 81.4 million TEU. The company is vertically integrated with businesses in logistics and transportation. Hutchinson Ports does not only handle containers but also operates cruise terminals, is active in airport operations, distribution centres, rail services and ship repair (Hutchinson Ports Holdings Limited, 2016). The company is a subsidiary of CK Hutchison Holdings Limited, a company active in ports, retail, infrastructure, energy, telecommunications and finance and investments (CK Hutchison Holdings Limited, 2017).

In the Hamburg – Le Havre range, Hutchinson Ports is present as ECT, a member of Hutchinson

Ports. ECT operates two deep-sea container terminals in Rotterdam (Hutchinson Ports, 2017). The semi-automated the ECT Delta Terminal is a joint-venture with TIL, subsidiary of shipping line MSC (Terminal Investment Limited Sàrl, 2012b). COSCO Pacific bought a 35 percent stake in the automated Euromax terminal in 2016, the second container terminal of ECT (World Maritime News, 2016).

ECT is vertically integrated. The company operates four inland terminals offering a range of services like storage, maintenance and repair of containers, customs and on-demand pre- and post-transport (Hutchinson Ports, 2017). Via the subsidiary European Gateway Services (EGS), rail and barge connections are offered between Rotterdam and inland terminals (ECT, 2017).

Terminal operators: situation before and after the reshuffling of alliances

As we have already mentioned, the recent reform of alliances in the container shipping sector can have an influence on the port of call chosen by shipping lines. These changes are especially the result of reshuffling of the Ocean Three, CKYHE and G6 alliances into the Ocean Alliance and THE Alliance.

This section deals with the changes as a consequence of the alliances reform in the shipping industry. We look at the situation in the Hamburg-Le Havre range before and after the year 2016 (table 6). The table is composed by looking at the joint ventures between terminal operators and shipping lines. If a terminal is operated in joint venture with a shipping line belonging to an alliance, there is supposed that other carriers from that alliance also have priority berthing at the terminal – but not exclusivity. Moreover, when a reshuffling of alliances takes place, the shipping lines calling at a certain port can change as well as the number of carriers calling at a port. Berths of independent carriers and berths of carriers belonging to an alliance that is not present in a certain port are not taken into account, as well as the berths at independent terminals.

Following this analysis, the question might be asked if there is indeed a strong link between liner alliances and individual port choice of shipping lines. According to the abovementioned literature, and in particular with the investigation made by shipping consultant Drewry, the choice of port of call is often not in line with terminal ownership of carriers. Shipping lines have to bear in mind the port preferences of shippers when looking at gateway ports; in other words, ships go where cargo goes. Also in Meersman *et al.* (2014) is emphasized that the integration between terminal operators and shipping lines is not a high priority, which confirms Drewry's insights. Nevertheless, there is a difference both between alliances and within alliances. While the port choices made by THE Alliance and Ocean Alliance are closely correlated to the terminal interests of the lines, the opposite is true for the 2M Alliance. When considering these aspects, this overview represents a starting point to interpret the impact of reshuffling of alliances on terminal operating companies.

By looking at the ports in the range, only Rotterdam has all the alliances calling at its port before and after 2016. As a result, the reshuffling of alliances did not have an influence on the shipping lines calling at this port. The number of lines calling at the port remained the same (mergers not taken into account).

Antwerp faced a reduction of alliances calling at the port as a consequence of CMA CGM and Cosco grouping into one alliance. This also resulted in a reduction of the number of shipping companies calling at the port. The port of Le Havre is the only in the range who saw an increase of the number of shipping companies calling at the port after the introduction of the new alliances.

Wilhelmshaven and Bremerhaven did not see a lot of change before and after 2016 as they only have members of the 2M alliance in joint venture at their port. The port of Hamburg is the only where the 2M alliance has no interest in any terminal. Consequently, this is the only port where a complete change of alliances is observed. The change from the G6 Alliance to THE Alliance meant a variation of shipping lines in the port of Hamburg, who lost one weekly service (Iconcontainer, 2017).

Supposing a strong link between liner alliances and individual port choice by shipping lines, it could be argued that, apparently, Le Havre can be entitled as a winner considering the number of shipping lines calling at the port, and Antwerp a loser together with Hamburg, who faced the biggest change due to the reshuffling.

TABLE 6: SHIPPING LINES AND ALLIANCES AT THE HAMBURG-LE HAVRE RANGE BEFORE AND AFTER 2016

<i>Before 2016</i>					
Rotterdam	Antwerpen	Le Havre	Hamburg	Bremerhaven	Wilhelmshaven
Maersk MSC	MSC Maersk	Maersk MSC	Hapag-Lloyd OOCL	Maersk MSC	Maersk MSC
CMA CGM UASC CSCL	CMA CGM UASC CSCL	CMA CGM UASC CSCL	NYK APL HMM MOL		
Cosco K-Line Hanjin Yang Ming Evergreen	Cosco K-Line Hanjin Yang Ming Evergreen				
Hapag-Lloyd OOCL NYK APL HMM MOL					
Legend <i>Alliances before 2016</i> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="width: 20px; height: 10px; background-color: #d9ead3; border: 1px solid black;"></div> 2M Alliance <div style="width: 20px; height: 10px; background-color: #fce4d6; border: 1px solid black;"></div> Ocean Three Alliance <div style="width: 20px; height: 10px; background-color: #d9ead3; border: 1px solid black;"></div> G6 Alliance <div style="width: 20px; height: 10px; background-color: #e1e7f4; border: 1px solid black;"></div> CKYHE Alliance </div> <i>Alliance after 2016</i> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="width: 20px; height: 10px; background-color: #d9ead3; border: 1px solid black;"></div> 2M Alliance <div style="width: 20px; height: 10px; background-color: #fff2cc; border: 1px solid black;"></div> Ocean Alliance <div style="width: 20px; height: 10px; background-color: #f4cccc; border: 1px solid black;"></div> THE Alliance </div>					
<i>After 2016</i>					
Maersk MSC HMM	Maersk MSC HMM	Maersk MSC HMM	Hapag-Lloyd/UASC MOL K-Line	Maersk MSC HMM	Maersk MSC HMM
CMA CGM Cosco (Cosco + CSCL merger) OOCL Evergreen	CMA CGM (CMA + APL merger) Cosco (Cosco + CSCL merger) OOCL Evergreen	CMA CGM (CMA + APL merger) Cosco (Cosco + CSCL Merger) OOCL Evergreen	Yang Ming NYK		
Hapag-Lloyd/UASC MOL K-Line Yang Ming NYK					

*Shipping lines in joint venture with TOC's or shipping lines own terminals in *italic*

Conclusions

In this section, the recent challenges in the port sector driven by the changing dynamics in the shipping industry have been highlighted. Besides the increasing size of vessels, horizontal and vertical integrations, mergers and acquisitions, in particular the impact of the alliances on container terminals has been taken into account. This viewpoint emphasized the perspective of the terminal operating companies, who are increasingly affected by the search of the economies of scale in the maritime industry. The analysis of the scientific literature tackled these issues as well. The above overview shows the recent trends, which allow us to raise some remarks:

First, in the Le Havre – Hamburg Range, where the most efficient ports in the world are located, the actors are global terminal operators and leading shipping companies, who cooperate in most of the cases.

Second, it is undeniable that mergers, acquisitions and alliances are strengthening the bargaining power of the shipping companies with respect to the terminal operators. A shipping alliance is typically made of different partners that for instance might address one terminal operator asking for a unique contractual condition, without the opportunity for the terminal operator to negotiate different contracts with each carrier belonging to the alliance. This constraint limits the possibility for the terminal operator to have different contracts according to the variety of services, treatments and costs, since the requirements for loading and unloading, the type of vessels and other conditions may vary among the shipping companies belonging to the same strategic alliance. In other words, an alliance with different partners (for instance, six shipping companies) is allowed to bargain only one single contract with one terminal operator, despite the variety of services provided to each partner of the alliance. It should be added that this is the case in Europe. In the U.S. for instance, the free negotiation has been one of the requirements for the approval of the strategic alliances. Each partner of an alliance has to deal with each terminal operator, with different contracts, in the U.S. ports.

Third, as we shall see, the main question concerns how value is distributed along the maritime-logistics chain, namely the sequence of the maritime supply chain related to the shipping companies, terminal operating companies, forwarders, and logistics operators. In this regard, by looking at the investments necessary for the assets among the actors of the chain, the highest investments are typically of the terminals. The movable assets (trucks, vessels, etc.) are not as expensive as the assets on the quayside. There is room however for empirical studies concerning this field as well. After all, ports are the entities who make the most resources available, the highest investments in the adjustment of the infrastructures, in order to accommodate bigger vessels, for instance. There is need for more studies about the impact of alliances and increasing size of vessels on the operations in relations to costs (included social costs), public infrastructures, labour organisation, and profitability of the container terminals.

Fourth, although not highlighted in this section, the increasing size of vessels is linked to the

development of strategic alliances. In particular, the impact of mega-ships on labour organization at workplace for instance is significant in this thesis. With the rise of peaks and downs, labour flexibility is increased as well. Additional night shifts and short shifts are required in the container terminals of the main European ports. Furthermore, the distance from the workplace to the workforce livings employed in container terminals is becoming even more important, due to the unpredictable peaks and the short reaction time produced by the schedules of the ultra large container vessels. Some terminals are far away from the dwellings and the neighbourhoods of the workforce, which makes impossible for a port worker to be at workplace in one hour⁴⁵.

Fifth, the cargo handling in the port areas represents only a small part of the whole logistics chain. It should be mentioned also the labour necessary along the chain – and its cost – in order to bring cargo from the origin to destination.

Finally, by looking at the Le Havre – Hamburg range it emerges that in 13 out of the 20 terminals, there is cooperation with a shipping line (i.e. vertical integration or joint ventures). The other terminals are independent (pure stevedoring or container handling companies). Container terminals in Rotterdam for instance, the first European port in terms of volumes handled, are not anymore in the hand of a local company, but are either managed by cargo handling companies with the headquarter abroad, or by a leading shipping line. As mentioned by Azevedo (1999), tax benefits result from merger or acquisition. One of the drivers of the vertical integration between shipping companies and terminal operating companies indeed is linked to the system of tax optimization in their business model, which is a key difference when compared to a pure container handling company. This is even more important when trying to compare terminals in Europe involved or not in shipping industry as well, which is mainly the case of the container terminals in the Le Havre – Hamburg Range. The profitability of a container terminal vertically integrated may be lesser if compared to a pure terminal operator, because for the former it is possible to avoid paying local taxes in which the container terminal is situated by moving profits from one unit to another (i.e. shifting this burden on the “seaside” of its network). For the latter this is not possible in principle. Therefore, these important aspects should be underlined when approaching a comparative analysis between container terminals. It is further important to have clear in mind this background philosophy of the container business, in order to grasp the future challenges related to labour dynamics and port industry.

The consolidation process has changed the market structure of the shipping industry. Will these strategies be sustainable? Should ports and terminals follow uncritically the pace of this apparently unlimited development? How Terminal Operators could hence respond to the huge challenge where

⁴⁵ A set of strengths and weaknesses concerns the terminal location by different viewpoints. The fully automated terminal Maasvlakte II in the port of Rotterdam for instance is 50 km away from the urban area. Conversely, the terminal Eurogate in the port of Hamburg is near the leaving areas. These features have advantages and disadvantages. However, the location of a container terminal is significant also in terms of location of the workplace, especially if related to the increasing size of vessels to be managed with higher flexibility.

customers become bigger and have ever more bargaining power? Two answers can be finally provided:

First, Terminal operators should further cooperate through their employer associations at national level in order to push governments for additional regulations, pretending more attention to these issues also at European level.

Second, Terminal operators should invest in R&D and innovation, and jointly collaborate among them with more openness, transparency and trust (Sys *et al.*, 2015). Terminal operators should also cooperate more at the organizational level, in order to manage the operations as a joint effort. A partnership between operators, for instance, would allow a share of working practices, employment relations, training, investments for new facilities and equipment.

3.3. Port labour systems and dynamics: a literature review

From the broad review of the economic literature on port issues, it turns out that a variety of topics has been addressed over the last decades by different approaches, whereas significant changes occurred in the maritime industry. These changes heavily affected the port sector. Increasing ship size, for instance, carries consequences for cargo handling operations, in terms of not only technological innovation and investments. These trends have a direct impact on working settings at the operational level and on dock labour systems in general, being de-structured by such exogenous factors. It is acknowledged that handling bigger ships, for instance, requires adapting work organisation to cope with increasing peaks and lows (ITF, 2015). In addition, the literature reviewed shows how the consolidation process in the container shipping sector, the vertical integrations and the establishment of shipping alliances have transformed the landscape, as well as the market structure of the container shipping industry. On the other hands, gradual changing dynamics occur at the institutional level, namely through the European port policy and consequently the national regulations. While the literature produced on the abovementioned changing processes in container shipping, previously discussed and reviewed, has been consistent, less attention has been paid by scholars on the extent to which these trends are altering the environment for terminals and dock workforce. Indeed, it is further 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 (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 organizational models of dock labour systems in the European ports. The aim of this thesis is to add such perspective in the literature on port studies, through the theoretical approach illustrated in Chapter II.

In this section, the existing literature on port labour will be critically reviewed, aiming at identifying the current gaps, debates and opposing views. The theme of dock labour indeed is not entirely forgotten, almost unanimous is the belief that labour in ports has become more insecure, that the bargaining power of dockworkers is greatly reduced in the last decades, mainly due to mechanization processes.

Emphasizing the variety and organization of dock labour systems in Europe, the conceptual framework developed by Notteboom – and discussed previously – focuses on the market pressures from the main port actors: shipping companies impose several requirements on ports and terminals based on the needs of the global supply chain. Ports and terminal operators have to meet these requirements if they want to stimulate economic growth within the port and the hinterland. According to the author, the requirements of the market players come down to a maximization of the performance of dockworkers in terms of productivity and flexibility, an optimization of the direct costs of port labour as a prerequisite,

and a minimization of the indirect costs such as shortages, strikes, incidents, etc. The reciprocal action, namely the agency of dockworkers in shaping the strategies of the chain actors, is not taken into account.

The internal organization of port labour takes place within a wider setting of legal and social conditions (Notteboom, 2010). Moreover, while the pace of change differs between European ports, there is a general trend towards open and autonomous labour pool systems, with the increasing role of temporary employment agencies, and the general pressure from the side of the port operators to flexible work. Yet, there are no empirical studies about these processes able to develop further the framework abovementioned, perhaps in comparative perspective. Underlining the variety of port organization and systems throughout Europe, the conceptual framework provided by Notteboom is useful for circumscribing the perimeter within which the main actors of the port maritime sector operate. Nevertheless, the author focuses mainly on the structural constraints imposed by the market, neglecting the mutual interaction with non-market processes and socio-institutional features that impact on the behaviour of the market players in the port area. The external organization of port labour, indeed, is just mentioned in the framework, as a passive and static item. Furthermore, Notteboom ignores the nature of the possible opportunities to respond to the (institutional and market) constraints by the actors directly involved. In addition, the changing scenario produced by the market players has heavily affected the relationships among them. However, the limitations of this framework have been already argued in Chapter II.

Besides a few exceptions (Della Corte, 2002; Isfort, 2012, Walters and Wodsworth, 2016; Bologna, 2017; Turnbull, 2010; 2016; Bonacich and Wilson, 2008), the literature on dock labour dynamics is mostly dominated by juridical disciplines. The debate on labour in the maritime-port sector has predominantly an economic nature, which considers labour as a passive item or as dependent variable of production (Cullinane and Talley, 2006; Grammenos, 2002). Although the efficiency with which loading and unloading operations in a port takes place remain important cornerstones of port's competitiveness and its ability to generate wider economic effects in terms of employment and value added creation, labour in the field of port studies seems to be a residual item. 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 dock labour issues in Europe are lacking, as well as comparative analysis linked to the sociological and economic aspects of changing dock labour schemes and functioning. The impact of the strategies of the main players across the logistics chain on the structure of dock labour has not yet received the attention it deserves.

The first issue lies on the variety of definitions of "port worker" 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" came from given spatial areas – dock and

warehouse –, whereas the term “port worker” acknowledges that the profession now requires special skills and qualifications (*Ibidem*). In this thesis however, the term “dockworker” will be considered mostly. The notion of “port worker” is defined in the report commissioned by the European Commission Portius (2013):

The term port worker is generally used to designate blue-collar workers engaged in the handling of goods at docks, quays, wharves or warehouses in ports. It is a generic term which includes general workers (operatives) working on board ship as well as those on land, and specialised workers such as operators (or drivers) of various types of machinery. (Van Hooydonk, 2013: 19)

The legal status of the dockworker may vary as well, as Notteboom observes (2012). Dockworkers can be 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 (*Ibidem*).

In those ports where employers have to use registered dockworkers, the criteria to recognize dockworkers and the entities involved in the recognition process differ among ports, as we shall see. By observing the Belgian ports, Notteboom underlines that port reform processes that envisage loosening the preferential relation between registered dockworkers and port employers often face fierce opposition from labour unions (Notteboom, 2012).

In the general survey of the reports concerning the Dock Work Convention (1973), the International Labour Organization (ILO) recognizes the diversity of views concerning the definitions of “port labour” and “dock work”⁴⁶. The definition of the term “dockworker” should be left to national law or practice. The term “dockworker” though, in this case should be extended to any worker engaged in handling goods in a port, both ashore and on board ships, despite there can be no universal and absolute definition of dockworker or dock work (*Ibidem*).

On the other hand, a generally accepted definition of the term “port labour” does not exist, both in the academic and 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 has however a significant geographical meaning. There is a variety of spatial delimitations related to port labour, according to the several regulations at national level. Port labour can be considered in broader terms, within a port area and its vicinity, or can be sharply defined through a map, or can be related to the quayside, the ship-shore interface, or widely including the logistics areas, and so on. The work environment of the

⁴⁶ Article 3 of 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”.

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 he is situated. It should be underlined that the quayside is the meeting place for a variety of contiguous as well as distant working regimes – seamen, dockworkers, truck drivers, logistics workers, etc.

Besides the definitions, in this thesis port labour – or dock work, or dock labour – is not considered as a generic job, whose exercise can be entrusted indifferently to anyone who gives his or her handy availability to a whatsoever interim agency. In contrast, port labour or dock work is a specialized and professionalized job – not only for safety reasons – that can only be entrusted to people who have certain training and requirements.

A 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), faces the issues of health, safety and welfare of dockworkers in the global container port industry (2016). The research identifies continuing dangers, causes for concern, and weaknesses in the management systems employed by operators. The researchers were granted unique workplace access by six major port/global network terminal operators (*Ibidem*). The report recommends attention to the following areas:

- Inaccurate reporting of health and safety outcomes: even within the context of modern health and safety management models, levels of injury and risk are being under-reported.
- Lack of provision for gender: the study found that there is very little attention to the specific needs of women workers.
- Limitations of behavioural management systems: the report finds the widely used behavioural OHS (occupational health and safety) model inferior to participative systems, which emphasise worker involvement as partners in health and safety management.
- A focus on immediate safety risks at the expense of longer term effects on health.
- Subcontracting undermining reporting and a safety culture: the report shows that health and safety outcomes are worse for subcontracted workers.
- Productivity targets undermining the will to prioritise health, safety and welfare.
- The lack of a consistent approach to OHS management, at least in terms of applying the highest standards regardless of country (Walters and Wadsworth, 2016).

Although specific port labour systems apply differently not only among European countries, but also within the countries themselves, one of the common peculiarities of dock labour deals with the uncertain and unpredictable dynamism of the maritime traffic. Ports and container terminals, for instance, are always subject to an exogenous factor, which is the ship. It is further acknowledged among the dockworkers that berth must wait for the ship, and never the other way round, which means that an amount of flexibility is always required to the cargo handling operations. However, the distinctiveness that determines the anomaly of dock labour when compared to other forms of wage labour is the

unpredictability, the strong impact of shipping industry on port business, and the legal constraints that shape the status of dock labour. 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 flexible part that the cargo requires. In a certain sense, dock work depends ultimately on the goods.

Dempster observes that at the beginning of the twentieth century most of the goods handled in the European ports was carried out with casual labour (Dempster, 2010), over time replaced by recognized dock labour registers, in order to cope with the casual and seasonal nature of this kind of job. In this thesis, besides the labour settings in container handling, the focus is on dock labour systems in ports that have centrally managed pools of registered dockworkers, namely the “pool system” set out by dock labour schemes. Dockworkers in this case are employed through schemes historically introduced to protect them from suffering abuse of their rights as a result of the inherent fluctuations in dock labour. As Dempster points out, the history of dock labour is characterized by constantly oscillating processes of casualization and de-casualization (2010). It should be noticed that those schemes have been obtained after a long series of union struggles, well described in the literature of labour history as well (Bologna, 2010; Levinson, 2006; Davies *et al.*, 2000, Phillips and Whiteside, 1985; Tonizzi 1999; 2014; Vanfraechem, 2002; 2002b).

Port labour issues have been reported in studies by international and regional organizations, such as the International Labour Organization, the World Bank, the European Commission, etc. Portius, the study commissioned by the European Commission on port labour to provide an in-depth overview of the sector, illustrates the evolutionary trajectories, the differences and organizational patterns of labour in the ports of different European countries by a legal perspective (Van Hooydonk, 2013). In this huge study, the author describes three aspects of port labour in 22 maritime member states: the organisation of labour market, training, health and safety. The motivation of this report is to develop a database and toolbox for policy makers, to collect figures and sources of law, to describe the juridical situation in each member state and to outline possible policy actions at European level (*Ibidem*). The starting point is that the market for various port services, principally cargo handling, passenger services, pilotage, mooring and towage, is not always “open” to competition. In particular, dock labour market is classified by the Portius report as a source of “market barriers and restrictive practices” (Van Hooydonk, 2013) and as such a “headwind” against further marketization (Turnbull, 2016).

Dock labour systems and schemes differ heavily throughout Europe, as already stressed. The use of registered dockworkers, through a pool, can be mandatory or not. The governance of dock labour pools varies as well within – not only among – the European countries. This scheme can cover all work or only temporary work during peak periods, it can be financed by all operating companies in a port or it can be (co-) financed by the port authority, subsidised by government etc. (Verhoeven, 2011).

The management and the governance of dock labour schemes are crucial in this thesis. As we shall

see, the latter distinction is particularly important with regard to the application of the basic rules of the European Treaty, as pointed out by Verhoeven, which is particularly interested in the European port policy and regulation in his studies. The organisation of dock labour schemes is mostly subject to Treaty rules on competition at European level, and the so-called four basic freedoms, i.e. freedom of establishment, free movement of workers, goods and services (Verhoeven, 2011). The application of these principles to dock labour systems is one of the key debates in the port sector, and the current challenge. The guidance on the compatibility of dock labour schemes with European laws has been faced by the European Court of Justice⁴⁷. Verhoeven (2011) focuses on the compatibility between dock labour schemes and European policies, describing the attempt of liberalising the market, and showing how delicate is the equilibrium between market requirements and labour regulations in the port sector. His perspective is positioned on the side of the market requirements, supported by the neoliberal European policies. The author emphasizes the variety of dock labour schemes existing in Europe, and the failed process of the European Commission's Directive proposal on port service. According to Verhoeven, "the failure of the Directive can generally be seen as a missed opportunity to create legal certainty about the use of dock labour schemes" (Verhoeven, 2011: 163). Strongly contrasted by Trade Unions, but also from private port terminal operators and public port authorities, the proposal would have introduced the right for authorised service providers in ports to employ personnel of their own choice as well as the right for port users to provide port services with their own personnel (self-handling). The Commission proposals to "open the market" (*On Market Access to Port Services*, EC, 2001 and 2004) led to a "war on Europe's waterfront", as pointed out by Turnbull (2006) and earned the distinction of being the only Directive to be rejected twice by the European Parliament (Turnbull, 2016).

The debate between Social partners at European level refers to the forms of "protection" of the external pressures to which dock labour is subject and the "restrictions" to the free market. Meanwhile, the aim of the European institutions is to release the node that remains to liberalize in the maritime-logistics chain, according to the principles of the Treaty. The European Commission is addressing also these issues through the sectoral social dialogue committee for ports, started in 2012. Along this line, the study of Verhoeven has the merit of describing the stakes, setting the delicate question of labour pool organization, and the complex match between total liberalization and total monopoly of the port services. The theme of dock labour is tough and complex to solve, but also to deal with. Nevertheless, there is room for scientific studies that assess empirically, and with objective feedbacks, the social and economic impacts of such processes.

The report provided by Portius maps a comprehensive overview of dock labour arrangements in the European ports, moving in the same direction of the political goals of the European Commission. Revealing the practices involved by a juridical viewpoint, the study has been used as a possible tool to

⁴⁷ Verhoeven highlights three cases from the 1990s in particular. These relate to the organisation of dock labour in the port of Genoa (Merci case, C-179/90), the port of La Spezia (Raso case, C-163/96) and the port of Ghent (Becu case, C-22/98).

identify situations that violate the European regulations, assuming the – questionable – idea that the law ends where the port area begins. The picture showed is that of a port labour market⁴⁸ in transition, a high variety of organisational patterns across Europe. The instruments recommended are oriented towards the social dialogue, the use of infringement procedures, but also removal of restrictive practices, creation of market access and monitor of the compliance with the European regulations (Van Hooydonk, 2013).

The reaction of the Trade Unions to the Portius report, politically oriented in the opposite direction of the European Commission, was not long in coming. The ETF (European Transport Workers' Federation)⁴⁹, in the response to the study by Portius, has claimed that the way labour is organized in European ports is not an issue for Europe. Expressing unease about the study, the ETF has stated that Portius focused on “restrictions on employment” and “restrictive work practices” instead of a more neutral consideration of “port labour regulations”. The study is biased in respect of language and the selective collection of data, “which gives too much weight to the (unsubstantiated) opinions of port employers and users whilst denigrating various union sources” (ETF, 2013: 3). The report of Portius appears to be concerned with providing ammunition to port users who might want to challenge port labour arrangements against the freedoms of the Treaty. To conclude, the ETF shares the concerns that European policy-making accords supremacy to economic freedoms over fundamental social rights. This imbalance is showed in the Portius report according to the Trade Union. The report seeks to establish a purely market-based mode of governance for the port sector to the detriment of social conditions (*Ibidem*). The agenda behind the Portius report, according to the ETF, “is that of certain shipping lines, port employers and various business interests who are intent on liberalising European ports, including the labour market, in order to cut costs via the substitution of agency and/or casual labour for registered, pool and permanently employed dockworkers” (ETF, 2013: 27).

Whereas the contrasting positions are clearly defined among the social partners, it is hard to find objective studies who address the economic and social aspects of these dynamics. The perspective in both positions shows the opposing views, the interests on this delicate debate, as well as the gaps in the scientific literature on dock labour issues in European ports by a sociological perspective.

Turnbull has faced the same concerns by a more scientific viewpoint (Saundry and Turnbull, 1999; Turnbull 1993; Turnbull, 2006; 2016). By focusing mainly on the industrial relations⁵⁰, the author observes that in the port transport sector, both product and labour market outcomes are substantially the result of social conflict between the main actors, each endowed with different resources in their

⁴⁸ Weinstein argued that the longshore industry because of its peculiar nature, should be considered as a separate labour market (1963)

⁴⁹ The ETF represents more than 2.5 million transport workers from 231 transport unions and 41 European countries in the following sectors: railways, road transport, maritime transport, inland navigation, civil aviation, ports and docks, fisheries and tourism. The ETF is the recognised social partner in seven European Social Dialogue Committees, operating both as the European region of the International Transport Workers' Federation (ITF) and as the transport federation of the European Trade Union Confederation (ETUC). Its principal activity is to represent and defend the interests of transport workers throughout Europe and *vis-à-vis* the EU institutions.

⁵⁰ See also Hodess (2017)

particular national, industrial, and organizational setting (Turnbull, 2007). Some of the existing studies on port labour indeed focus mainly on the social dimension and role of labour unions, as well as the need for a social dialogue at European and international level (Turnbull, 2006; Turnbull and Wass, 2006a).

Turnbull has provided many – and variegated – contributions to the literature on dock labour issues. He has observed the changing bargaining power of the dockworkers, with focus on the industrial relations in the port transport industry, in Britain and Europe. Following the privatization and deregulation of employment in UK ports (abolition of the National Dock Labour Scheme), the author studied the transition of the dock labour market, which opened to competition from temporary agency labour. The repeal of the dock labour scheme in UK (1989) gave to port employers the freedom to hire workers of their own choice instead of dockworkers registered under the National Dock Labour Board (NDLB) (Saundry and Turnbull, 1997; Turnbull, 1993).

Recently, Turnbull analysed the marketization processes and neoliberal restructuring in Europe (2016), exploring the evolution of the European port policy, in particular how the European Commission has turned its attention, after failing twice, to open the market for port services by means of a Directive. The port transport industry indeed is “one of the remaining transport sectors in Europe where there are still a significant number of market barriers and restrictive practices, especially regarding the organisation of different port services”, as emphasized by the European department of mobility and transport responsible for European policy and the European Commission (DG Move, 2012). Moreover, it is the only transport sector with no European legislation, (European Commission, 2013a). Turnbull observes that by testing the “legality” of dock labour arrangements against the four freedoms of the single market, the strategy of the Commission, jointly with the European Court of Justice (ECJ) has led to a “hollowing out” of the protective institutions of industrial relations in many European ports (Turnbull, 2016). The experience of the UK ports (Baird, 2000) illustrates that once the dock labour market opened to competition, operators reduced labour costs, and then rival ports and operators in adjacent Member States, and even those further afield, had an incentive and a political opportunity, to follow suit. The author stresses that this is not to deny the opposition of dockworkers in the ports and Member States in question, rather to acknowledge the introduction and intensification of price-based competition that is the hallmark of marketization. (Turnbull, 2016). Marketization indeed contributes to the disorganization of redistributive and socially protective institutions, eroding the power resources that organized groups have called upon in the past to protect their interests (Greer and Doellgast, 2013).

Global port operators, in particular, have been especially keen to avoid another (pan-European) ‘war on the waterfront’. Following Scharpf (2010) it is demonstrated that they need not enter directly into battle because policy-making in the EU favours ‘negative integration’ (the removal of market ‘barriers’ and ‘restrictions’) and impedes specific policies of ‘positive coordination’ (the upward harmonization of rules and social protection). To be precise, marketization is ‘structured into’ the

liberalizing bias of European legislation, specifically the rulings of the Court of Justice of the European Union (ECJ), ‘favouring some actors and some policy goals, and impeding or obstructing others’ (Scharpf, 2010: 213). As the democratic and redistributive functions of non-market (industrial relations) institutions are undermined, so too are established socio-economic regimes at the national level and within specific industrial sectors, in this instance the European port transport industry (Turnbull, 2016: 3).

The observations of Turnbull provide some insights for the following study. The British author analyses the labour regulation and the institutional assets, especially by looking at the recent policies carried out at European level. One limitation in this insightful perspective is the missing analysis of the economic sphere in detail, the mutual interaction between institutional variables and organizational models of port labour systems in the European ports carried out by transnational firms. In other words, the social role of the economic actors is not enough explored by this viewpoint. In this thesis is claimed that to show how the port worker is the conjunction ring between the global and the local, it is necessary to explore the structure of the maritime supply chain and the behaviour of the economic actors involved. The need of an “intermodal” gaze is required to grasp such dynamics. This claim starts from the principle that to understand contemporary capitalism it is necessary to look closely at what is happening inside the ports, which represent the key sector of the global economy, being the central node of the maritime-logistics chain and global production networks, as previously illustrated.

On the other hand, the claim expressed by Turnbull (2016), that global capital drives the undemocratic redistribution of material resources towards business interests and away from organized labour, although acceptable, is not sufficient to explain how and to what extent these dynamics occur. The structure of the maritime supply chain in relation to these dynamics is not considered by Turnbull, while the competition is conceived mainly among Member States. Additional studies who assess the competitiveness of privatized ports with respect to other European ports in which another governance applies are lacking. Not recently, Saundry and Turnbull (1999) provided a comparison between Spanish and British ports, in particular between labour regulations in the two countries, in order to demonstrate that an “institutionally saturated” and “politically bargained” system of production and employment is compatible with competitive performance in the international port transport industry (*Ibidem*).

Finally, the approach of Turnbull is meaningful; his focus on marketization process grasps some important trends, but does not hit the nail on the head, drilling down in the various dock labour settings at workplace and port labour systems in relation to these changing institutional assets. However, the impact of European policies on national ports and the ongoing erosion of the institutional basis in the port transport industry have been tackled by Turnbull, and should be monitored more in depth.

Mitroussi and Notteboom (2015) investigate work motivation on two maritime-related professional environments, namely seafarers working on board merchant vessels and dockworkers performing cargo-handling operations in seaports. The authors argue that the contexts of the professions of dockworker and seafarer in many aspects differ from more traditional professions in economic life. The distinctive

nature of the working environment on ships and at cargo handling facilities in seaports leads to specific job characteristics and requires tailor-made approach to the motivation of seafarers and dockworkers (*Ibidem*).

No impact has been as pervasive as the technological innovation introduced in the organization of dock labour (Bologna 2010), as well as the automation processes, which represent another sensitive issue in the debate on port labour. The idea that automation modifies skills, and that does not overcome them, is not so widespread among the scholars. Automation processes and technological evolutions produced unavoidably a contraction of the number of dockworkers. For example, Notteboom (2012) observes that since the 1960s, European ports have experienced a contraction or stagnation of workforce. Technological innovation, increased containerization, intermodal transport, the integration of container terminals in global supply chains and European port policies are just some of the elements that have characterized this process of transformation. With the advancement of automation, the organizational structures, the professional and social status of the dock labour have deeply changed.

For this reason mainly, labour unions are particularly watchful on these topics. In the automation seminar of ETF, held in Belgium (2017), the key priorities and visions for the future of dock work have been discussed, as well as the main features of the automation processes.

Fields of automation include the maritime segment (unmanned ships), nautical services, cargo information systems, but the focus has been on the operational automation at port level and supply chain level, with impacts on work and organisation. Automation seems a strategic option for every port, but is not the standard for an efficient terminal. It refers to the application of “automatic control”, the use of programmable logic controllers in machinery (PLC), like the Automated Stacking Cranes. It is further acknowledged that automation reduces human intervention but not necessarily employment, and that it is a very slow, gradual process, although a certain rethorik talks about an imminent extinction of port labour. The main areas of automation in container terminals lie on the operational automation (horizontal transport, vertical transport, and stacking), the Identification systems (landside, waterside), the Terminal Operating Systems, and the Supply Chain Systems. Digitisation⁵¹ is also an important factor.

In general, the purpose of automation is to achieve higher throughput or productivity, lesser direct human labour costs and expenses, higher quality or increased predictability of quality, improved robustness (consistency), of processes or product, higher degree of accuracy, replacement of operators in tasks that involve hard physical or monotonous work, replacement of workers in tasks done in dangerous environments, etc. The risks of automation concern the reduction of operational flexibility, the reduction of financial flexibility (fixed costs), high initial costs, security and vulnerability. In addition, some tasks cannot be automated, or only at high costs. The risk of operational control produces

⁵¹ Digitisation refers to the representation of an object, image, sound, document or signal by generating a series of numbers that describe a discrete set of its points. The result is called a *digital image* for the object, and *digital form*, for the signal. In modern practice, the digitized data is in the form of binary numbers that facilitate computer processing and other operations.

further the automation paradox: The more efficient the automated system, the more crucial the human contribution of the operators. Humans are less involved, but their involvement becomes more critical. If an automated system has an error, it will multiply that error until it is fixed or shut down.

In container terminal operations, the purposes of automation lie on the higher throughput or productivity in terms of crane productivity and schedule vessel, less direct human labour costs and expenses, higher quality or increased predictability of quality, improved robustness of operational processes, higher degree of accuracy (less mistakes checkers), replacement of workers in tasks done in dangerous environments (i.e. lashing). The potential Impact on dockworkers depends on the terminal concept (greenfield / expansion / brownfield), increase of volumes and terminal capacity in relevant ranges, current job structure and collective labour agreements, labour market, job content and working conditions. However, the job and qualification structures are affected. Automation impacts on dock labour producing also a shift from direct to indirect jobs, and in terms of skills and job losses. Health risks may change (also improve), as well as the flexibility demands, who may increase (more peaks, tight schedules, etc.). According to the labour unions, the impact on total employment in the next decades is uncertain, while the impact on unskilled / lower skilled workers is expected to be high (ETF, 2017)

The study of Drewry on container terminal benchmarks (2014) also addresses this topic. Automation of container terminals is considered as a broad term that in practice means different things. Robotically operated yard equipment is the highest profile aspect of terminal automation. Terminal automation (robotisation) at the time of this study focused as well on the quay to stack horizontal transfer and the yard stacking system. Fully automated terminals refer to automated horizontal transfer and automated yard stacking. Semi-automated terminals refer automated yard stacking only. In the study of Drewry, the existing and planned fully automated container terminals are less than the semi-automated container terminals (2013). Less than 5% of terminals globally are fully or semi-automated, but the proportion is growing. Among the countries with at least one container terminal with significant equipment automation technology deployed or planned, are included also those with a low wage economy (China and United Arab Emirates). Comparing the performance of 21 automated terminals in light of the world average in 2013, it turns out that larger terminals achieve higher metrics anyway. Terminal automation is a high profile topic even though its deployment, for now, is relatively limited, according to Drewry. Its effect on the intensity of use of container terminal assets is variable. Finally, automation decisions need to be weighed up on a case-by-case basis.

Researchers interested in port innovation (Carlan *et al.*, 2015), mainly the maritime economists, usually look at the competitiveness taking for granted and unavoidable the automation trend, without challenging critically the social impacts and the externalities related. The notion of *co-innovation* relies on a “new form of innovation whereby the various stakeholders jointly acquire new expertise and create opportunities in the supply chain for new partnerships. In the long term, this will lead to a balance

between costs and profits as well as a greater competitive advantage” (*Ibidem*). In line with Schumpeter (1947), it has been already mentioned that innovation is not only a matter of costs and profits, but also a social phenomenon that shapes the economic development (Fagerberg, 2003).

The pervasive nature of innovation is represented by the introduction of the container, as Levinson and Cudahy observe (2006; 2006). By looking at the technological change, El-Sahli and Upward (2017) investigate how individual workers and local labour markets adjust over a long time to a discrete and exogenous technological shock, namely the introduction of containerization in the UK port industry. Oliveira and Varela (2016) analyse costs and benefits of automation in ports. In particular, the authors investigate automation in cranes and its implications to labour, unemployment, and net financial benefits and losses, concluding that automation is in general not profitable for the operators.

In his research, Bologna (2010) provides a useful contribution to understand the dynamics of the transformation of dock labour, especially if deeply explored through empirical comparative investigations. By analysing financial statements, annual accounts and balance sheets of the main terminal operators in the Italian ports, the difference emerges in the structure of costs between container terminals, bulk cargo terminals and general cargo terminals. Moreover, the container terminals, despite the strong mechanization of the cycle and the automation processes, still appear to be labour-intensive in terms of costs (*Ibidem*). Finally, the costs generated by the external sources of port operators have increased more than the direct labour costs, and this could be a sign of an increased use of flexible, outsourced workforce.

Blomme (2014) explores the value creation in the port of Antwerp, investigating the cargo related creation of value and employment. The purpose of the author is to assess and observe the evolution of the economic contribution of the different subsectors in the port of Antwerp (Belgium). The parameter is the added value of the different activities in the port area, despite the subcontracting and subleasing practices. In this regard, the author observes that dock labour in the port of Antwerp represents an external cost for the cargo handling companies, but at the same time is an internal added value. Blomme “drills down” to the maritime sector, exploring what is the real contribution of the “ship-to-shore” terminal activities in the port economy. The study offers the following conclusions:

- In the port of Antwerp, there is a balanced set of port industry and maritime-logistics services;
- The many subsectors in the port complement each other;
- Logistics-related services create the most jobs;
- Industry related activities are leaders in terms of added value;
- Bulk cargo and containers have an extremely high space productivity;
- The value added per ton throughput remained in time relatively stable between the various commodity groups. However, there is a significant increase in the importance of liquid bulk (chemicals);
- The added value of the entire supply chain for most commodity groups is – not surprisingly - many

times greater than the throughput. Moreover, the contribution in value added of the various groups of commodities across the transport chain comes much closer together;

- Additional logistics and industrial processes increase very substantially the added value.

In a recent study, Serra *et al.*, (2016) evaluate alternative scenarios of labour flexibility for dockworkers in maritime container terminals. By focusing on the increased flexibility in the Italian ports, the authors assume that in the competitive environment of container handling, it is essential to reduce unproductive costs and to offer efficient services to shipping companies. One of the most important factors is to plan workforce optimally. However, according to the authors, strict work regulations can avoid an optimal use of the available resources, leading to longer operation times and to additional related costs. Through the experimentation scenario analysis, the authors compare five new scenarios with respect to the current work organization in the Italian container terminals, by increasing the share of daily working flexibility. The result is not surprising: the increased labour flexibility in container terminals operations can lead to a significant reduction of the operating costs and greater efficiency of container terminals (*Ibidem*). One of the main peculiarities of this study is that the authors analyse the effects of a greater labour flexibility at the operational level in relation to the labour regulations in place. However, the authors overlook the market forces outside the ports, the competitive landscape, the evidence of an ongoing increased flexibility regardless, dictated by the strategies of the shipping companies in the pursuit of the economies of scale, and the resulting pressures on the container terminals related to the increasing vessel size. Another limitation is that the authors consider the “specific case of the Italian container terminals”, but there is nothing specific in this case. It is acknowledged the variety, the strong differences – or specificities – between the Italian container terminals, not taken into account by the authors – not even the distinction between the pure transshipment ports with other gateway ports. It should be emphasized the need to consider labour flexibility at operational level in the multifunctional ports (numerical, functional and temporal flexibility), where labour pools are in place, and the relations between permanent and non-permanent or quasi-permanent workforce. Moreover, the quantitative analysis provided by Serra *et al.*, does not take into consideration what exactly means an “increased flexibility among internal workers” for the workers themselves. 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, not only to the Italian port system. The bias is mainly in the assumption that competitiveness goes to the abolition of the existing labour regulations. The phenomena of a particular market as that of labour in ports should be read in light of the general macroeconomic context, especially by maritime economists.

In this regard, it is not surprising the title of the 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 arts of Logistics in Italy, focusing in particular

on the future of ports and port labour. The report, methodologically and empirically robust, 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 is located the port labour exerted both by the employees of the terminal operating companies and by the dockworkers of the labour pools. The second section relates to the survey realized in five national ports, which represent the complexity of the Italian landscape – Ravenna, Trieste, Naples, Gioia Tauro and Genoa. The third section aims at better appreciate the peculiarities of the Italian context, through the overview of the port governance models at international level.

The report emphasizes that many different situations have been found with respect to the organizational model of port labour, to which the legal framework provided by the law 84 / 1994 had not prevented from developing. The title, indeed, suggests the heterogeneity of the Italian ports in terms of port labour systems, organizations and settings. Each port has found its *modus vivendi*, according to the report, following “formally” the rules provided by the legal framework. In Italy, indeed, there is no single working model of port labour. Each port tends to self-organize by following its own rules, relationships, and conveniences, and creating a specific model of work organization, which is mainly the result of a particular synthesis between the macro-indications expressed by the port reform 84-94 and path dependent, local specificities (*Ibidem*). The common point underlined in the study is the indeterminacy of trade, which is inevitably reflected on the work organization of the cargo handling companies in ports. The study underlines that, *de facto*, cargo handling companies in the Italian ports tend to transfer the effects of the flexibility of the port labour on the labour pools, shifting the risk in case of decreasing volumes handled.

The importance of this report is mainly in the overall picture provided about the variegated Italian scenario, as well as in the approach. The authors indeed claim that addressing the issue of port labour requires an attention on the dynamics of the international trade, on the current characteristics of the transport chain and, finally, on the configuration of the global logistics networks linked to the regional places of production and consumption. The purpose of the report is therefore to offer the necessary elements to focus on the future role of the Italian ports, in order to develop an original viewpoint about the ongoing changes (*Ibidem*). The interaction between global dimension, structural constraints and labour in this case is mentioned.

Heilig *et al.* (2017) highlight the impact of the developments in ports and logistics of the digital transformation. Due to the high requirements of the global supply chain, according to these authors digital innovation is essential to stay competitive. Past developments showed how digital innovation could shape the modernization of ports. The authors reviewed main events and drivers, classified in three generations of digital transformation, considering the interrelationships between different stages of digital transformations. For the future modernization of ports, the study stresses the importance of the interplay between port-centric and local IT (Information Technology) and IS (Information Systems) as

well as process adaptations.

Focusing on the competitive advantages for both the overall port and individual port actors, the authors ignore the interplay between these developments and the labour dynamics. Along this line, the important sociological study of Della Corte (2002) highlights some peculiarities of port labour by looking at the impact of technology. The author focuses on the transformation of dock labour in light of the new technologies through a comparative analysis between the transshipment ports of Gioia Tauro (Italy), Felixstowe and Southampton (UK). In particular, the relationships between the Information Technology and the control exerted on the workforce are underlined. The research deals with the changing labour processes in light of these new developments. The synergy of the working operations indeed is planned, managed and imposed by technology. The crucial point of innovation, according to the author, is not so much the fact that technology conveys a certain organizational model of work different from the previous phases, but rather the fact that in the new organizational form the tools necessary for production are at the same time the control devices on 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. Looking from the computers of the planning offices to the dockworkers on the quayside, it allows to see that the same tools used for the operations are able to process a large number of information on the performance of each worker that management may decide to use to discipline and punish (Foucault, 1977; Della Corte, 2002). The risk to be avoided, recognized by the author itself, is to fall into technological determinism whereby, given the same technology, all the workers are supervised and punished. At this risk, the labour sociologist opposes the reality of the three ports studied, where human resources are not neutral. It turns out that in the – old – port of Southampton, the dockworkers were able to bargain with the management a very different working arrangement from that present in the – new – ports of Gioia Tauro or Felixstowe.

Another crucial point emphasized by Della Corte concerns the changing nature of dock work, the skills eroded by the standardization and the new cognitive skills emerged. The new organization of labour tends to destroy the traditional work gangs based on craft skills, but at the same time requires for some operations the cognitive skills that, being different from the traditional ones, determine the internal differentiation of the workers. This stratification raises disciplinary technologies, but at the same time also forms of aggregation and solidarity that give greater strength to the dock workforce, while guaranteeing their own resistance conditions that make the organizational system vulnerable (*Ibidem*). In the three ports studied, operational solutions to malfunctions caused by technical factors or resistances assume different aspects depending on the context.

As it has been already underlined, the sea freight transport sector is one of the key points of the system of production and circulation of goods. This is why any interruption in one of the nodes in the integrated logistics chain has a snowball effect on production and circulation. Moreover, this gives power to dockworkers, of which only partly they are aware, according to Della Corte. A delay of a few

hours can lead to a huge loss in economic terms, as blocking one or more ports can stop the flow of a logistics chain. This also shows that, despite the fact that telematics power management control has increased through workforce, besides the drastic reduction in workforce, the workforce's resistance capabilities are the "thorn in the flesh" of cargo handling companies operating in terminals (*Ibidem*). A problem that has been faced by implanting ports, as in the case of Gioia Tauro, in strategic positions to international trades, and at the same time in green fields, i.e. lacking the sedimentation of struggles and resistance of the historical ports. This has enabled in Italy as well as in UK the creation of favourable conditions for the cargo handling companies, such as the low wages and the opportunity to take advantage of a non-conflicting, poorly unionized dock workforce – at least in a first stage. Such distinctions are marking the newly established ports as Gioia Tauro and Felixstowe, from the historical port of Southampton (Della Corte, 2002).

To conclude, the review of the literature about port studies and port labour dynamics allows us to underline two main points: first, the complex and non-transparent nature of not only the port industry, but of the overall maritime-logistics chain. Second, the heterogeneity and the lack of uniform definitions in approaching dock labour issues. In fact, a clear and recognized definition of port labour is lacking. The topic of dock labour is thorny, complex to solve and to deal with. The in-depth analysis of the existing literature on port labour shows a fragmented scenario with endemic issues partially faced by scholars, with few exceptions. Dock labour is confronted with specific labour challenges not commonly found in many other industries. Some studies show the current changes and challenges in port labour regimes, and 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 market players. The economic benefits of port activities are expanding from the local system towards a much larger economic system (Benacchio and Musso, 2001), showing a dissolution of the port space, which is both territorially embedded and at the same time de-territorialized through the process of regionalization (Perulli, 1998; Notteboom and Rodrigue, 2005).

Besides the spatial and social definition of port labour, the review shows how the key issues in dock labour dynamics relate to the definition of dock work, the legal status of dockworker, the functioning of labour pools, arrangements at the workplace, lacking coherence between supranational and national regulations, categorization and qualification of dockworkers, automation processes, etc. (Notteboom, 2012).

Beyond the commonalities, ports across Europe and within the member states themselves are different in the way the dock labour system tries to provide an answer to the market needs in terms of flexibility, productivity, quality and cost efficiency of dockworkers, and organizational models (Notteboom, 2010). The peculiarities of port labour systems and schemes in ports, however, are path dependent and embedded in the history of each port. With respect to the national labour regulation, ports may depend on a system based on the labour scheme, a pool of registered and recognized dockworkers

centrally managed, whose use and recruitment may be mandatory or not, depending on the rules at national level. As Notteboom stresses, a large variety in dock labour schemes can be observed among the European ports. However, as already mentioned, the challenge in the following study is to explore whether this variety is more and more converging in a common trajectory by looking at two distinct contexts, being cargo handling performed according to different organizational patterns across the Europe.

By 1960 and 1970, many European ports have institutionalized by law or by governmentally supported collective bargaining, organized systems for limiting competition in the dock labour market. The schemes typically involve three elements: first, the designation of an “in-group” of officially registered – licensed – dockworkers. Second, registered workers are not permanently employed at particular stevedoring enterprises, but are hired through a central pool or hiring hall, which stevedores are obligated to use for their primary source of casual labour. Third, a system of minimum pay guarantees or unemployment benefits for registered dockworkers who are left idle by a shortage of ships to be worked during a particular day, week or month (Notteboom, 2012).

Most port labour reforms have led to significant changes to labour pool arrangements, in parallel with the changes in the matching of labour supply and demand in the port. The process is still ongoing, and it will probably so in the next years. Notteboom points out that in an increasing number of European ports, dockworkers are directly employed by terminal operators, instead of being contracted via “pools”, entities in charge of recruiting and training port workers (e.g. in Antwerp). In some cases (Germany and Netherlands), employers are able to hire permanent company employees directly from the external labour market, but any additional – casual – labour must be hired from regulated labour pools (Notteboom, 2012). In other cases, casual dockworkers are partly outsourced or subcontracted in an ambiguous way, giving rise to unclear settings (e.g. Koper, Slovenia, Europe).

As underlined, labour pool can be organized in the form of an (autonomous) undertaking that provides labour services to port operators, or workers in a pool can be hired by these operators. However, it should be emphasized that there is a general trend towards open and autonomous pool systems with back up of temporary employment agencies. Over the last 50 years or so, the collective bargaining process in many ports has progressively been decentralized to the company level. Moreover, labour pools are typically involved in the training of dockworkers (e.g. Antwerp).

In sum, through a process of *molecularisation* of the labour pools (Notteboom, 2012) some ports have analysed whether it might not be better to replace one dockers pool for all sorts of cargo handling operations by two or more specialized pools for specific commodities (for ex a separate pool for container operations). In this way, dock labour would be not only a complex matter with no clear definitions by scholars and practitioners, but also a parcelled body at the service of the goods, and ultimately – as we shall see - at the heart of liberalization processes at European level, where the essence of European port policies deal only with negative integration (Scharpf, 2010).

The status of dock labour pools and the degree of openness of some of these pools remain points of attention and contention in Europe. When referring to pool systems, the European Commission in its communication on a European Port Policy (2007) stated “The Treaty rules on freedom of establishment and freedom to provide services can fully apply to the activities carried out by the pools. Such arrangements should not be used to prevent suitably qualified individuals or undertakings from providing cargo-handling services, or to impose, on employers, workforce that they do not need, since this could under certain circumstances fall foul of the Treaty rules on the Internal Market, and in particular of Article 43 on freedom of establishment and Article 49 on freedom to provide services” (Verhoeven, 2010; Notteboom, 2012).

Dockworkers in port are generally not a homogeneous group, as noticed by Notteboom (2012). One of the reasons that determine the flexibility of port labour is the uncertain dynamics of the maritime traffic. Fluctuating labour demand is closely linked to the unstable trend in trade, as already underlined. At the beginning of the twentieth century, most of the movement of goods in European ports was carried out through the use of casual labour, over time replaced by recognized port labour registers (a process called “de-casualization”) in order to alleviate problems with the unpredictable nature of dock work. After long struggles in the European ports, the registers of recognized workers were formed, mostly protected by allowances in case of underemployment. The history of port labour is characterized by constant oscillating processes of casualization and de-casualization (Dempster, 2010). The dock labour demand for port operators is typically based on the average level of traffics and, in case of labour peaks, on the use of the temporary labour provided generally, and through different schemes, by the pool system (*Ibidem*). However, this setting has been questioned over the last decades, not only by the European policies for the market access to port services, but also by the search of economies of scale in the shipping industry, i.e. increasing vessel size, consolidation processes in the container shipping sector, vertical integrations, etc. The so-called “naval gigantism” raises the issues of flexible labour even in the “industrialized” sector of the container handling. 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, opening up new decision-making prospects for transnational terminal operating companies in the European ports. In this frame, dock labour policies to date have not been carried out, except for deregulation processes, mainly driven at supranational level. In other words, the organizational models of labour in the European ports, more or less in contrast with the European principles of free market, seem to be undermined by the processes of globalization, competition along the entire logistics chain, and *Europeization* of the labour policies.

The general trends towards open and autonomous pool systems, temporary agencies, push for continuous working flexible and variable shift lengths, have not received too much attention in the scientific literature. On the other hand, some issues are object of delicate debate and conflicting positions between the actors involved, while needs and market rhetorics are brought forward by the European

institutions (Thomas and Turnbull, 2016). Labour Unions, typically very visible at the dock labour front, besides the differences in union power observed across seaports and countries, play an important role at supranational level.

Conversely, while many information have been produced on the port environment, the features of port labour system and the occupational and social structures are more or less unknown. European ports are not only distinguished in how dock labour seek to provide an answer to the global supply chain requirements in terms of flexibility, productivity, services, quality and cost efficiency, but also in the composition of the workforce and its social embeddedness (Azmeah, 2014).

This aspect suggests the 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. The comparative analysis of the economic and sociological aspects of port labour systems and their functioning is limited, even though it is a field of strong disputes, where transformations are experienced and preceded in advance with respect to other key sectors of the global economy.

Besides the different pace of change between European ports, it is acknowledged a slow process of deregulation of the forms of protection from external tensions that port labour is undergoing in Europe. This tendency faces resistance by a workforce capable of paralyzing and disrupt with a single strike in one of the leading European logistics hubs, the smooth and seamless flow of goods along the maritime-logistics chain. Logistics is the “Achilles heel of globalization”, as pointed out by Bonacich and Wilson (2008).

Some questions arise at this point. From the literature reviewed, it emerges that many aspects escape the clear understanding of these processes. Ports are characterized by path dependence elements, and by particular structures affected by exogenous variables, market and institutional pressures, etc. Given its anomaly, its hybrid nature (neither market nor hierarchy) and its implicit negotiating mechanisms, is the port business a dimension in which persists a non-capitalist organization of labour?

Moreover, the ongoing “iron arm” between status and contract of the port labour, as well as the status problem, reveals a changing process that will be analysed in detail in the next chapters, with different responses and strategies of adaptation, case by case, by the actors directly involved: what will be the future scenario, when this process will be finished? Is it possible to talk from now about a different past, a similar future, when dealing with the dock labour systems in the European ports? What will be the relationships between who is inside and who is outside the port segment? It is appropriate to talk about *contamination*, or about *erosion* from within? Although it is hard to provide comparisons between ports and port labour systems, as they usually operate in different economic, legal, social and fiscal environments, the goal of the following thesis is to fill this gap by challenging the abovementioned questions through a comparative analysis between dock labour dynamics in Europe. This thesis explores the main tendencies and key issues of port studies in general, by the perspective of port labour systems

in particular. It investigates distinct but analogous situations in which the logics of the global supply chain shape the organizational models of port labour, besides the specific contexts, in light of the socio-institutional features. In the next section, the research strategy designed in order to explain how and to what extent these dynamics take place will be illustrated.

3.4. Research strategy, case selection, methodology

As previously accentuated, the assumption in this thesis is that the strategies of the market players across the maritime-logistics chain, jointly with the institutional constraints, are commonly shaping the variety of dock labour systems and arrangements in the European ports and container terminals. For this reason, the observation of dock labour dynamics requires an “intermodal gaze”. In order to test these processes, a multi-level comparative analysis is designed for this applied research. Two ports, and two container terminals managed by the same global terminal operator, have been selected throughout Europe. The institutional variables, both at national and supranational level, have been considered during the case selection as well. The idea is to identify and compare the set of constraints that affect the way in which dock labour is managed and organized in two different ports characterized by the presence of the labour pool system.

Starting from the strategic behaviour of one global terminal operator in two distinct contexts, the research aims at identifying the relationships between exogenous pressures and dock labour systems and settings at workplace. A “drill down” to the port sector is therefore carried out (Blomme, 2014). In the comparative analysis, particular attention is paid to the main elements that characterize the organizational models of labour implemented both by the different ports selected and by the same cargo handling company operating in different environments and involved in the container industry. Moreover, the comparative analysis between two cases situated in different contexts highlights the specific role of the institutional, material and structural constraints in the changing dynamics of dock labour systems and settings in Europe.

The case studies for the comparative analysis are identified and selected through the *most different system design* criteria (Fideli, 1998), which compares contrasting cases in order to show the robustness of a relationship between dependent and independent variables. The number of cases has been chosen not only for objective reasons linked to time constraints, but also for better identifying the sharp commonalities in different and representative cases. Such a design assumes that, by demonstrating that the observed relationships hold in a range of contrasting settings, the argument of the research is better supported. The logic of this approach is therefore fundamentally different from the *most similar systems design* (Ibidem).

As Fideli points out, two objects are comparable if they have at least one common property. Two conditions are further required to carry out a comparison: a certain similarity between the facts taken into account, and a certain dissimilarity between the environments in which these events occur. The existence of context disparity is a necessary condition for a research to be defined as comparison. Nevertheless, the types of comparisons are based on the number of elements among objects, properties, states, points in time (Fideli, 1998). It is further considered in this thesis that the cross-national comparison is the most appropriate tool for achieving cognitive goals related to the objectives of the

following research. Indeed, two social contexts are drawn from different societies.

Ragin and Becker emphasize (1992) that the term “case” and the various terms linked to the idea of “case analysis” are not well defined in social science, despite their extensive usage and their importance to social scientific discourse. Implicit in most social scientific notions of case analysis is the idea that the objects of investigation are similar enough and separate enough to permit treating them as comparable instances of the same general phenomenon (*Ibidem*). The case-oriented approach typically detects uniformity and finds differences, while comparison is conceived as a cognitive operation that by its nature works in harmony with the principle of binary opposition between differences and similarities. In this study, the approach used, and the criteria of case selection, are to detect uniformities in the differences, common trends of the varying institutional embodiments (Streeck, 2011). Before selecting the cases for the comparative analysis, attention has been given to their characterizations. The expectations of meaning were dictated by theoretical considerations.

The first step for qualifying the profile of the cases therefore has been to define ideally the starting point⁵² in the processes of deregulation and the market/institutional pressures / constraints related to the port environment in the maritime-logistics chain. The landing point, thus, has been to select the most representative cases among the European ports for the purpose of the abovementioned design, in which the responses to these exogenous factors seem different, in order to challenge this initial characterization. It is assumed in this thesis that dock labour systems and work organizations in the ports are based on economic, but also social conveniences. The operational and local-relational practices and patterns are sedimented over time.

On the other hand, the second criterion of case selection aims at observing two distinct objects, in order to illustrate common and shared transformations, besides the ways to address the external pressures. An implicit assumption of independence has been the third criterion of choice. The structural elements of the cases selected, although with equivalent properties, are incapable of influencing each other.

The temporal scales in the case selection phase, though important, are present but not central. The definition of the case selection pays attention to historicity and the problem of historical and situated constitution of the objects of comparison (Werner and Zimmerman, 2006). However, the comparison over time is not emphasized, due to the synchronic analysis of the objects compared in light of the transformation processes. On the other hand, the historical dimension has been considered both for the case selection and during the comparison of historically constituted objects (*Ibidem*).

A multi-scalar approach of comparison has been carefully conceived – from global to European, national, local, port levels –, given the intrinsic nature of ports, territorially embedded and at the same

⁵² The comparison by time has been considered, but it has not been taken into account as a first comparable item, due to the risk of comparing two cases with different temporal starting points.

time connected into the global supply chains, therefore throughout various spatial scales. Finally, the strategies cases choices deal with the delimitation of the scope.

The absolute properties referred to the cases are relative with respect to the cases different from those selected. On the other hand, they are situated at the same level of the comparative analysis (Ragin and Baker, 1992; Fideli, 1998; Gomm *et al.*, 2000; Gerring, 2007; Stake, 2005; Cardano, 2011; Palmisano, 2006; Della Porta, 2008; Werner and Zimmerman, 2006; Yin, 1984).

Being the exogenous pressures previously acknowledged the *primum mobile*, the cross-national comparison is identified between two ports situated in two different geographic ranges in Europe. The cases have been selected on the basis of the differences in terms of institutional structure at national level, port governance, port regions, corporate management of the container terminals, labour regulations, and socio-economic, political and cultural specificities. Each of these items will be tackled in the next chapters about the profile of the cases. Nevertheless, both cases present homogeneous properties. The main purpose of this criterion of comparison, indeed, is to highlight the fundamental commonalities of two distinct cases instead of focusing on the superficial differences. The ports selected, which are located in two distinct countries, both belong to a Landlord management model, and both are characterized by the presence of a scheme for the dock labour pool – differently managed and organized. The main difference lies on the governance structure of the labour pool and on a set of organizational patterns. In this study, as already mentioned, the same global terminal operator behaviour in organizing dock work is observed during the comparison of the social organization of labour at workplace. The cross-national comparison between two European ports is established by taking into account the object of comparison (dock labour systems -schemes in two ports/container terminals) and the properties of the cases selected (impact of the exogenous and endogenous pressures on container terminals, labour pool systems, organizational models, labour setting at the workplace). In short, the following items have been mostly identified in both cases and compared:

- Dock labour scheme, pool governance and organizational structures
- Labour organizations at workplace
- Training systems
- Employment relations.

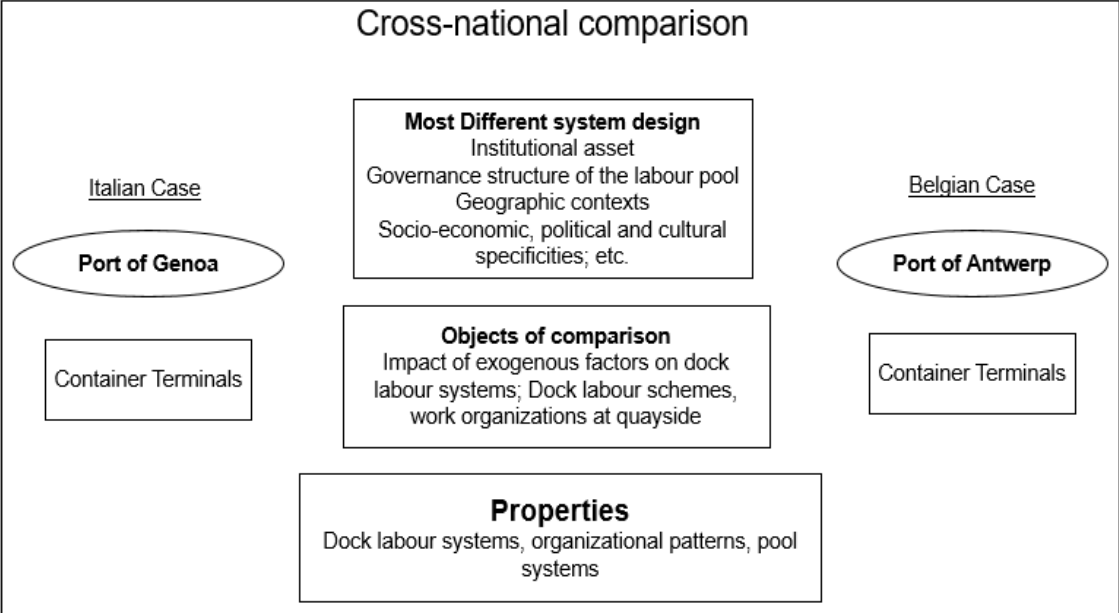
By drilling down to the container terminals of the ports selected, the Key Performance Indicators (KPIs) have been further analysed and compared:

- Container terminal productivity (Gross Crane Rate)
- Dwell time (Vessel turnaround time)
- Terminal Handling Charges (THC)
- Cash Cost per Box (CCPB), Labour Cost per Box
- Wages

As observed by Fideli, features and objects belong to systems considered similar to some significant

properties, but in order to be able to compare it is necessary to extrapolate properties from the context (Fideli, 1998). The cases selected should extend to similar cases the predictability of the results from the comparative design. Finally, the cases considered provide useful elements to work out a response to the research questions from which the following thesis moves.

FIGURE 6: CASE SELECTION AND COMPARATIVE DESIGN



Starting from this research strategy, the cases identified for the cross-national comparison are the port of Genoa (Italian case) and the port of Antwerp (Belgian case) with particular attention to the container terminals managed by a global terminal operating company settled in both ports (figure 6). The choice of the same terminal operating company is further oriented to identify relevant factors in the heterogeneity, similar trajectories and common processes in different territorial conditions. The impulse behind this choice refers to the fact that the port systems identified in these distinct cases are both representative and comparable, given the significant differences between Italy and Belgium.

These cases allow us to explain further how the external factors shape and constrain port labour arrangements, provoking adaptation or not to the market requirements. In addition, the cases identified provide useful instances in order to observe to what extent they refer to a particular situation, or to processes that are far more general. The impact of market requirements on port labour systems in Europe is therefore observed by exploring similar dynamics under different conditions, in the ports of Genoa and Antwerp. The multi-scalar approach further led to grasp the comparison between different spatial scales. The profile and the difference of the organizational patterns of port labour systems in Genoa and Antwerp will be addressed in the next chapters.

One limitation should however be underlined. Although it is assumed that between the ports selected there is no competition, it is important to shift this assumption by the perspective of the maritime-

logistics chain, namely by the viewpoint of the origin and destination of goods. In this regard, it should be noticed that the ports selected for the comparative analysis, even though are not in the same range and do not cover the same hinterlands, might compete in terms of maritime-logistics chains. By the viewpoint of the shipping lines, the use of the port of Genoa as premier southern gateway into Europe for cargo coming from Far East, as opposed to a Northern European port, saves an extra 1847 nautical miles and almost a week's sailing (Port of Genoa Handbook, 2014)

Nevertheless, due to infrastructural constraints, to date the competition between the ports selected by this perspective is not as strong as between ports located along the same range and serving more or less the same hinterland, e.g. between the ports of Antwerp and Rotterdam, or Trieste and Koper, etc. However, the development of the corridors⁵³ for improving port infrastructure and connections at European level in this regard plays a crucial role for the future scenarios.

Another point needs to be clarified: besides the typical “parochialism” concerning ports, this study does not apply a “benchmarking” approach, but provides a comparative analysis between two distinct objects positioned in principle *on the same level*. As Dattakumar and Jagadeesh point out (2003), benchmarking is recognised as an essential tool for continuous improvement of quality. It is defined as a continuous and systematic process of comparing products, services, processes and outcomes with other organisations or exemplars, for improving outcomes by identifying, adapting and implementing best practice approaches (Scott, 2011). According to Jackson and Lund (2000) benchmarking is, first and foremost, a learning process structured so as to enable those engaging in the process to compare their services, activities and products in order to identify their comparative strengths and weaknesses as a basis for self-improvement and self-regulation. Garlick and Pryor (2004) further described benchmarking as having two objectives: first, as a means for assessing the quality and cost performance of an organisation's practices and processes in the context of industry-wide or function-specific “best practice” comparisons. Second, benchmarking can be used as an ongoing diagnostic management tool focused on learning, collaboration and leadership to achieve continuous improvement in the organisation over time (*Ibidem*).

The focus in this thesis critically engages with the benchmarking approach of good or best practices, a term typically used (and abused) in the (rhetorical and redundant) reports for the recommendations to the European institutions, where good practice is preferred and best practice is defined by the highest level of practice identified in the benchmark. The search for best practices, indeed, not only is a

⁵³ The Trans-European Transport Network (TEN-T) is a European Commission policy involved in the implementation and development of a Europe-wide network of road, railway lines, inland waterways, maritime shipping routes, ports, airports and rail-road terminals. The objective of TEN-T is the creation of a single European transport area through the construction of physical infrastructures. It consists of two planning layers: The Comprehensive Network and the Core Network. The latter refers to the most important connection within the Comprehensive Network, linking the most important nodes. Nine Core Network Corridors have been identified (“About TEN-T”. European Commission, Mobility and Transport https://ec.europa.eu/transport/themes/infrastructure/about-ten-t_en). See the PhD thesis of Daniele Pennati, “Sul Corridoio” (2013) for a detailed study on the European corridors and the territories involved.

misleading issue, but it is not among the priorities of this thesis. It is rather for the actors directly concerned and involved to recognize and identify good or best practices in light of the enabling and constraining mechanisms behind them. Besides the performance and the typical need to rank ports in terms of throughput, competitiveness or efficiency, the cases selected are compared as equals – and not as one better than the other – for a proper methodological approach who tries to avoid the misleading consequences of the benchmarking perspective. As already emphasized, the purpose is to identify the common dynamics in port labour systems in light of exogenous and endogenous pressures, and to discuss about the plausibility of a synthetic productivity indicator in two different port systems, bringing into play the variables, given the – homogeneous – market and institutional constraints across the maritime-logistics chain.

Nevertheless, it is further acknowledged the importance of the logistics hub of Antwerp in the European port landscape and worldwide. The port of Antwerp, indeed, is among the first European ports in terms of throughput, efficiency, competitiveness, performance, labour productivity, etc. However, this is not a sufficient condition to set a comparative design as a benchmarking aimed at identifying alleged best practices concerning dock labour schemes and work organizations in Antwerp with respect to Genoa. In addition, it should be reminded that the acknowledged efficiency and productivity of the Belgian port worldwide did not prevent the European Commission from initiating an infringement procedure concerning the labour organization, in contrast with the principles of the Treaty. This raises many questions for the future of the (best) port labour systems in Europe in relation with the political approach of the European institutions in this field, whose aim is the liberalization of the port system.

During the comparative analysis, strengths and weaknesses of both port labour systems will be analysed, identified and contextualized, in relation to the constraints and the market pressures. It is assumed that the de-structuring processes of the organizational patterns are crossing the European ports / container terminals, besides the constraints partially common among the cases selected and partially specific to each of them. Moreover, it should be critically considered the idea or possibility to export one “best practice” model from one social context to a different environment, since this supposed replicability is not guaranteed in this transfer. In other words, the most efficient organizational model between two objects, although important and to some extent faced during the fieldwork, relies on a different research question. The critical point relies mainly on the criteria of evaluating a practice as better than another (at European level), and not to the effectiveness of a good practice which, in any case, will be fairly recognized in this study.

This thesis tries to tackle the methodological field of challenge by questioning what does it mean to compare in the social research. Comparing and analysing two cases in different contexts with the theoretical approaches discussed in the Chapter II is a plausible operation by an epistemological viewpoint. Do the global value chains, indeed, influence the way in which labour is organized in different circumstances? Such kind of questions is updated to the contemporary scenarios of the

globalized capitalism, with its significant and visible isomorphism processes, notwithstanding the institutional path dependencies and the specific global production networks. Ports undeniably offer a fertile field not only for tracing the profile of contemporary capitalism, but also for interpreting how labour dynamics are changing in light of the capitalist globalization. In fact, ports are places territorially embedded at national or regional level, where multinational actors operate mostly, in which contemporary capitalism reveals in its contradictions and conflicts. For these reasons, ports are a context in which it is possible to observe how labour dynamics in the global supply chains and the dynamic effects of the new paradigms of global circulation and production are changing.

These trends produce homogeneous patterns, but the history engages in institutional structures and organizational practices that dictate the differences. However, the distinctions detected reveal a process in which such differences are more and more converging. Does the differential is explained completely or in part by the context in which the actors operate? Do other explanations occur? (E.g. different constraints, bargaining power, degree of competition, labour market, etc.).

The differences noticed may in fact overcome what really matter, namely the commonalities in these trends. As Streeck suggests, indeed, time has come to think about commonalities of capitalism (Streeck, 2011). The interpretation of these ongoing processes diverges in the priority of the focus to be emphasized by the theoretical approaches conceived in the comparison between two relevant cases selected for the following thesis. Does it is better to highlight what differentiates them or what they share? Given the theoretical debate in which this study is situated, the answer has been soluble solely through the comparative empirical research. The aim of this thesis, as already emphasized, is not only to assess the feasibility of the comparative method in this field of enquiry, but also to use the comparative method to assess whether the strategies of the major players along the maritime-logistics chain and the institutional constraints in highly different contexts are affecting port labour systems equally or differently.

TABLE 7: COMPARING DOCK LABOUR DYNAMICS. KEY VARIABLES

Variables	Port of Genoa	Port of Antwerp	Notes
Global factors (Container shipping industry)	Shipping companies, strategic alliances	Shipping companies, strategic alliances; Vertical integration	Exogenous pressures Economies of scale Market and Supply chains requirements
Institutional constraints (supranational and national)	Law n. 84 1994 Collective Agreement Contracts at company level	Wet Major, 1973 Collective Agreement (Codex)	European port policies, national regulations Labour contracts
Port policies and regulations	Governance reform Labour reform?	Labour reform (after infringement procedure)	Current changes in the port sector
Port governance and management	Landlord model (Mediterranean tradition)	Landlord model (Hanseatic tradition)	Public-private partnership
Port range	North Tirrenian range	Le Havre – Hamburg range	Low competition vs high competition
Port performance measurement	Disaggregated	Aggregated	Different methods of data collection
Key performance indicators (KPI's)	Container terminals (Limited data availability)	Container terminals (Limited data availability)	Same Terminal Operating Company in both ports

The methodological itinerary of this research starts from the information gathered during the fieldwork in the European ports of Genoa (Italy) and Antwerp (Belgium), respectively situated in two different geographic ranges. These periods on the field have been necessary for “collecting the evidence” (Yin, 1984). Drawing upon Yin, five sources of evidence have been considered: Documentation, archival records, interviews, direct observation, and participant observation. Another source consulted and analysed regularly during the fieldwork has been the press review and the specialized newsletters. Three principles of data collection have been followed:

1. Using multiple sources of evidence, which allows to address a broader range of issues, and to develop a process of triangulation. The great burden, during the fieldworks, has been to address several and different sources of information, following a corroboratory mode. Furthermore, as observed by Yin (1984) many graduate training programs emphasize one type of data collection activity over all others. However, a multidisciplinary research organization has been privileged in this research project. In order to obtain the needed training and practice, the fieldwork in Belgium coincided with the visiting period at the department of Transport and Regional Economics (TPR) of the University of Antwerp, where the advanced specialization courses of C-MAT (Centre for Maritime and Air Transport Management) have been attended in parallel with the data collection and the fieldwork.

2. Creating a case study database (notes, documents, tabular materials, narratives). The information collected during the fieldworks have been organized and documented. In addition, during the overall research, a notebook has been regularly updated.

3. Maintaining a chain of evidence from the initial research question to ultimate case study conclusions (Yin, 1984).

As emphasized by Cardano (2011), with this methodological choice, qualitative research responds specifically to a general need that invests the entire domain of social research, namely to govern the complexity of phenomena of study. This complexity is usually governed in two ways: that of object simplification, typical of quantitative research, and that of reducing the observed domain extension, typical of qualitative research. Focusing on a few cases, the purpose is to detect the minutest details. This research strategy puts the researcher in front of a massively rich set of clues from which to interpret the social phenomena on which he focuses his attention (*Ibidem*).

The systematic practices of interviews, related to participant observation, have been the most appropriate research techniques, considering some peculiarities of the empirical context of study. The interviews, open-ended and structured, have been conducted to the key informants. Focused interviews with structured questions have been conducted in addition to corroborate certain facts already established during the fieldworks. The direct observation has been necessary in providing additional information about the topic (Yin, 1984).

The interviews have been conducted in both ports to the key actors, as illustrated in the table 8. In addition, different sources of information available are used through an “iterative process of puzzling” (Blomme, 2014) and an eclectic approach to the case studies. Together with the interviews as primary data sources, and the information processed, the systematic collection of secondary data sets the profile of the cases for the comparative analysis.

The study of the organizational structure of dock labour in two distinct institutional environments requires a detailed, multi-scalar investigation (from the social organization of the workplace to the regional, national and supranational level). For this purpose as well, the fieldwork period in both ports has been necessary. In Genoa, during six months (from January to June 2016) the empirical documentation was collected through qualitative methods. About forty in-depth interviews in the port of Genoa were conducted. The first interviews were exploratory, in order to understand in detail the main features of the port business, the actors involved, the structural mechanisms of dock labour and the norms that govern ports in Italy. In a second phase, explanatory interviews were conducted, with semi-structured questions focused on the impact of the external pressures on dock labour system and work organization, in light of the comparative analysis.

Respondents, anonymised, were identified and selected through a snowball sampling. As shown in the table, the following actors were heard and interviewed: permanent dockworkers employed by terminal operating companies, managers and dockworkers of the labour pool (Compagnia Unica Lavoratori Merci Varie “Paride Batini”, CULMV), managers of the temporary agency for port labour “Intempo”, trade union members, members of the employer associations *Assagenti* and *Assiterminal*, officials of Genoa Port Authority, etc. Attention has been paid to the container handling process, through

several sessions of observations into the terminals, and interviews to the management of global terminal operating companies aimed at identifying the corporate governance, inter-firm relations, training of the workforce, management of knowledge and uncertainty, etc.

Following Cardano (2011), the analysis of the empirical documentation is based on the concatenation of three steps: the segmentation of empirical documentation; the qualification of each of the segments identified; and the identification of the relationships between the features assigned to the different segments. The types of empirical documentation indeed appear as a continuous flow of information. To govern this flow, to distil from that heterogeneous set of answers to the questions from which the study moves, it is necessary to proceed to its decomposition by pointing the lens selectively on some of its parts, strategically approaching a set of still-images (Cardano, 2011).

The interviews therefore, between one and three hours, were converted into text documents, transcribed and codified mainly through the conceptual categories provided in the interpretative model of constraints developed by Giddens (illustrated in the Chapter II), in order to reach a synthesis and to group the positioning of each actor involved in a synchronic way. In a second stage, interviews have been analysed in light of the matrix of the three senses of constraint, aiming at defining the recurrent keywords who belong to the types of constraints. Labour issues have been analysed in the interviews further by the viewpoints of the main actors involved, aiming at assessing the perspective of each group of actors with respect to dock labour dynamics.

During the fieldwork, related to the literature review and the interviews conducted were associated a large number of face-to-face meetings with port operators, cargo handling stakeholders, port workers, and other chain actors not only in the port of Genoa⁵⁴. The participation in conferences and round tables has been an additional driver for the deep understanding of the port environment and the main issues. The collection of secondary data provided by Port Authority, Chamber of Commerce, management of labour pool, trade unions and terminal operators represent the background for the sharp profile of the Italian case.

The fieldwork in the port of Antwerp was conducted from October 2016 to May 2017. In this period, thanks also to the scientific support of the University of Antwerp (Department of Transport and Regional Economics) twenty-two in-depth and semi-structured interviews were conducted to the key actors of the Belgian port and the Northern Range, through a similar working plan and approach of the fieldwork carried out previously in Genoa. As already mentioned, a first stage of literature review about the role of the ports in the maritime-logistics chain and the relevant aspects of the container shipping sector has been realized, focusing on the actors involved, the market structure, the dock labour issues, and the role played by the institutional actors. After the observation stage, a set of in-depth and semi-structured interviews were conducted, as primary source of data, to the management of several cargo handling

⁵⁴ During the fieldwork in the port of Genoa, some key respondents have been interviewed in the ports of Koper (Slovenia), Trieste, and Livorno as well. Other informants have been interviewed and met in Milan, Padua, and Rome.

companies, dockworkers, management of labour pool and employer association CEPA (Centrale des Employeurs au Port d'Anvers), board of Voka (Flemish chamber of commerce), and training centre OCHA, trade unions, etc. In light of the research questions and the comparative design, different moments of observations in the hiring hall for the recruitment of casual dockworkers, in the port area, in the training centre and in some terminals were organized, with particular attention to the container terminals. The visit to the port of Hamburg, Rotterdam and Le Havre has been necessary for a better comprehension of the Northern Range and the features of the port of Antwerp, bearing in mind that, to some extent, a better observation may require distance. Moreover, in those ports, some key respondents have been identified and interviewed. A set of interviews has been conducted in Brussels, to the actors involved at European level in the Sectoral Social Dialogue for ports. Two sessions of observations during the works of the Sectoral Social Dialogue have been conducted (European Commission, ESPO, FEPORT, ETF, IDC), jointly with the attendance of a set of conferences organized within the European framework (e.g. EUPortraits, FEPORT conference, etc.).

The collection of data retrieved from different and anonymised sources during the fieldwork completes the profile of the Belgian case study. It should however be noticed that the limited availability of data, due to their sensitivity, has been the main issue faced during the fieldworks in both ports. The academic literature acknowledges the lack of data and transparency in the maritime port sector, where a cutthroat competition is in place. Scholars involved in this field have to deal with the “data rubber wall”: At a certain point of the research, indeed, the researcher is obliged to stop the attempt to obtain additional facts and figures, he hangs in a “rubber wall” that prevents him from going further. It is hardly difficult to overcome this gap, due to the lack of “sharing” culture in the maritime-logistics chain. This has been clearly the case during the process of data collection, namely the impossibility to get data, to have access to the sources, to have access or to obtain availability by the key informants in certain circumstances. This is even more so in the following thesis on port labour dynamics, where varieties of delicate data are involved (e.g. labour costs, performance indicators, etc.).

For this reason also, the systematic use of interviews as primary data source has been considered as a best research technique in order to obtain information to be processed in data. For the same reason the sources of data collected, as well as certain confidential figures, have been both anonymised and elaborated in the respect of the will of the sources themselves. In many cases, the information collected during the fieldworks has been processed in data through the elaboration of different sources.

To sum up, the comparative analysis of two distinct cases is a challenging methodological ground that is suitable not only to explain how global value chains affect the way in which labour is organized in different circumstances, but also to empirically test the answers that emerged from the critical debate between theories of neoliberal convergence and varieties of national capitalisms. By this perspective, the most different system design criteria of case selection gives robustness to the common traits that the cases share. Both the organizational dock labour systems indeed, albeit managed differently, have been

involved throughout the years in infringement proceedings and litigations at the European Court of Justice because of the incompatibility between dock labour systems and principles / rules of the Treaty. The trans-contextual regularity in the changing dynamics can only be corroborated by the comparison between the two selected cases, and addressing the people directly involved.

The profiles and the empirical findings gathered during the fieldworks in the ports of Genoa and Antwerp are presented and discussed in the next chapters. Finally, the comparison between the two case studies is interpreted in order to identify the labour arrangements, “drilling down” to the work organization at quayside of the same Global terminal operators settled in both ports, in the light of the external and internal factors abovementioned. The assessment of the main elements who are affecting the functioning of the dock labour system in the container terminals aims at providing a set of information and insights for both port operators, workers, social partners and institutions at national and supranational level.

TABLE 8: COMPARING DOCK LABOUR DYNAMICS. KEY ACTORS

Port of Genoa	Port of Antwerp	European institutions
Dockworkers of TOCs, Dockworkers of Labour pool (CULMV)	Dockworkers	Sectoral Social Dialogue Committee for Ports
Port Authority; Assagenti (Associazione agenti e mediatori marittimi); Assiterminal (Associazione italiana terminalisti portuali); etc.	CEPA (Centrale des Employeurs au port d'Anvers); OCHA (Training Centre) Voka (Chamber of Commerce); Vdab (Public employment service) Flemish port commission; etc.	European Commission (Directorate General Mobility and Transports)
Terminal operating companies (Containers); Cargo handling companies; Shipping companies, etc.	Terminal operating companies (Containers); Cargo handling companies; Shipping companies, etc.	Feport (Federation of European Private Port Operators and Terminals) Espo (European Seaports Org.)
Trade Unions (Filt Cgil); Interim agency (Intempo); ANCIP (Ass. Naz. Compagnie Imprese Portuali)	Trade Unions (BTB; ACV)	IDC (International Dockworkers Council) ETF (European Transport Workers' Federation)
Other chain actors	Other chain actors	Others

3.5. Port performance measurement

Currently, the port performance indicators⁵⁵ typically considered are the throughput volumes and the operational performance, i.e. safe and fast maritime access, land and terminal productivity, number of accidents, connectivity with the hinterland and the foreland, etc. Socio-economic impact and value added, jointly with the environmental performance indicators, are important parameters as well. However, the financial performance gives a clear image of the capital-intensive activities carried out in the ports.

The purpose of port performance indicators is twofold: for an internal use, they provide important information for the management at company level (e.g. financial indicators) and at the whole port level. For communication purposes with the stakeholders, the performance indicators typically give license to operate and justify public / private investments (at local, regional, national or European level). Furthermore, they provide information for policy makers as well, and offer the possibility to compare the performance between organisations, ports, etc., and to show sector performance.

The relevance of port performance indicators depends on the port's key business (Ro-Ro, Containers, and Bulk), activity, and location. There are however differences between urban, industrial, transshipment ports, or logistics hubs, where often commercial entities have not the same viewpoint of non-economic bodies. It should be noted that in any case port performance indicators are linked to the goals and the strategies of private and public actors operating in a variety of ports. For each port activity or aspect, port performance indicators may differ substantially. In private ports such as in UK, for instance, the key performance indicators refer to the financial indicators, growth in port operating profits, in the value of port assets, in dividend per share.

As already underlined, throughput volumes are the most widely used port performance indicators. Typically, in the main ports in Europe, they refer to the number of tons handled. The top container ports in Europe refer to the number of TEU. Other throughput volumes are ports' market share and the annual growth rates. Ports are usually ranked according to the volume of cargo handled. These figures typically are available on the websites of the port authorities. Growth of throughput is considered as the evidence of the performance of ports. At sectoral level, they contribute to a better understanding of the dynamics in the European port industry. In particular, volumes allow assessing the growth of vulnerability of the European port system to external factors (e.g. economic crisis, consolidation processes, alliances, mega vessels, vertical integrations, etc.), but also the competing ports for specific markets. The annual growth rates show the fast growing port. The cargo volume handled remains a key performance indicator for ports, and it is relevant to observe how cargo volumes have evolved over time. In a recent study,

⁵⁵ This section partially draws upon the lectures of *Port terminal operations finance* and *Port performance measurement* attended during the specialisation course of Port Economics and Business (C-MAT, University of Antwerp, 20-31 March 2017).

Notteboom (2017) observed that the total container throughput in Europe increased by 13, 9% between pre-crisis year 2007 and 2016. Rotterdam is the largest container port in Europe (12.38 million TEU in 2016), followed by Antwerp (10.04 million TEU) and Hamburg (8.91 million TEU). The author groups seaports together in multiple-port regions in order to get a better picture of the container port handling hotspots in Europe. With 24 million TEU handled in 2016, the Rhine-Scheldt Delta remains the most important container port region in Europe in terms of volumes. Compared to 2007, the Delta's container throughput increased by 2.47 million TEU (11.5%). Rotterdam and Antwerp, the largest container ports in the region and Europe, have seen healthy growth figures in the period 2007-2016 (i.e. 14.8% and 22.8% respectively).

Ligurian ports in Italy represent some 4.3% of the total European port volume in the past few years, a decline compared to 6-7% throughout the 1980s and 1990s. The port system saw a modest growth of 9.8% in the 2007-2016 period. It is the only south European port region showing a figure below the 13.9% growth of the entire European port system. Genoa, the largest port in the region with 2.3 million TEU in 2016, is the strongest grower in the 2007-2016 timeframe (+24%) (Notteboom, 2017).

The example provided by Notteboom allows us to see what throughput figures really show about the performance of a port, namely the commercial performance and the port competitiveness in a range or region. These figures are crucial not only for the role and objectives of a port, but also for its image, reputation, marketing strategy, and so on. It should be noticed however that the method of collecting the throughput figures differ among ports. Furthermore, data may differ according to the port typology as well (pure transshipment port such as Gioia Tauro, in Italy, or gateways ports such as Genoa, or ports with balanced transshipment activities and gateways such as Antwerp, etc.). It is acknowledged that the transshipment activities concerning container handling are counted twice in the statistics, and that in the total throughput those figures are not disaggregated. For this reason, it is a good practice for the researcher who wants to analyse (or compare) throughput figures to carefully assess how they have been collected, if transshipment activities are included or not, if data are aggregated or disaggregated, etc.

The indicators of the operational performance provide more in depth information at terminal level. According to the Freeport of Riga, these indicators refer to the following items:

- Terminal infrastructure – storage capacity (open, covered)
- Terminal throughput capacity and capacity utilization rate
- Berth⁵⁶ throughput capacity and utilization rate
- Terminal equipment

The operational performance is at the core of ports competitiveness. Both customers and port community are highly interested on operations. These indicators typically show operation duration and

⁵⁶ Berth is the area alongside the Quay Line whereby ships are secured for servicing. Typically, one terminal has multiple berths.

quality, efficiency and effectiveness.

The productivity indicators usually refer to the following items:

- Terminal utilization rate (%)
- Vessel turnaround time (Hours)
- Berth productivity (TEU/m)
- Crane productivity (TEU/crane)
- Lifts / Hours / Crane
- Terminal productivity (TEU/hectare)
- Average truck turnaround time (Hours)
- Average container dwell time (Hours)

The reliability indicators instead are the following:

- Vessel schedule reliability (%)
- Rail schedule reliability (%)
- Rail car availability (%)

Finally, the congestion indicators are the following:

- Total vessel-hours in port area (Hours)
- Total number of trucks processed
- Gate congestion (min.)

Besides the operational efficiency, other indicators typically considered are the ease of transactions (e.g. customs clearance, document inspection, etc.), the security of goods, the maritime and inland connectivity (e.g. number of regular services calling at the port, number of railway services to the hinterland, containers and cars by rail, hinterland accessibility). The modal split also is an important indicator, but again the complexity of collecting this data is due to the different methods used and the availability of the terminal operators.

Socio-economic indicators typically show ports as large components of the regional economy. These indicators are important because they justify port investments in terms of contribution to local, regional, national welfare (public budget allocation). As already mentioned, they include employment (in FTE, full-time equivalent), gross added value (i.e. contribution to GDP of port activities). The employment is further considered as direct, indirect and induced, as already mentioned. It should be noticed that it is not easy to assess whether the quality of jobs is more important than the quantity. However, these indicators are relevant to show the performance of ports as well, although not all countries provide meaningful information in this regard. The Belgian example is an exception. The National Bank of Belgium, indeed, publishes an annual update of its survey on the economic performance of Flemish seaports, as we shall see, using individual company data. The survey is based on the collection of data and calculation of indicators on the level of added value and employment, by looking at the annual accounts and social balances deposited by port related companies to the National Bank of Belgium, who

performs own check with individual companies if needed. The results of the survey are further discussed with Port Authorities for potential improvements. In addition to employment, added value and investments, the National Bank of Belgium publishes other indicators such as gender balance, educational level of port workers, financial health of port companies, etc.

Other socioeconomic indicators such as safety, security and occupational health are complex to produce due to the lack of data availability and “sharing” culture of the actors involved along the maritime-logistics chain.

Port costs account for only a fraction of the total costs associated with the logistics chain. However, the financial indicators are very important and typically refer to the following items:

- EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization)
- Operating profit
- Profitability: Profit/turnover (Year on Year data)
- Investments

The sources of revenue of a container terminal usually come from handling containers. The more ‘specialised’ or out of the norm handling generates higher revenue. Typically, a port operator revenue consists of the following items:

- 85% container handling charges from loading and unloading containers (paid per lift of the quay crane)
- 15% ancillary services: stacking of containers, lashing of ships, monitoring of reefers
- Two sorts of Cargo are usually handled:
- Origin and Destination (O&D): cargo originating in one place and discharged at its final destination;
- Transshipment: cargo dropped off by a deep-sea vessel to be loaded onto another vessel bound for final destination (hub and spoke mechanism). Transshipment cargo is less stable than O&D.

Container Terminals also earn revenue from handling and storing empty containers. The type of cargo (differentiated by origin and destination or transshipment, refrigerated, size, full or empty, high cube, etc.) determines container Handling Rates. They usually includes a period of demurrage (storage) also called dwell time, typically between 3-6 days. Container Handling Rates varies according to location in the world. The labour costs and the competition along the maritime-logistics chain are the main determining factors, but the range acknowledged is between 80 and 200 USD per lift.

Ancillary revenues usually refer to the lashing of ships, storage (stacking), electricity and monitoring of refrigerated containers, container inspections and customs verification, repairs and maintenance, cleaning, stripping and stuffing. However, the mix of cargo determines the overall revenue. Moreover, it should be underlined that full import containers are more likely to generate revenue from storage, inspection, customs verification and stripping and stuffing charges than full export containers. Empty

and transshipment containers generate relatively little ancillary charges except for occasional cleaning and maintenance. O&D tariffs are much higher than transshipment tariffs. The container handling process is a volume driven business, with high break-even levels and high fixed costs. Another important aspect refers to the terminal capacity. Once a container terminal reaches 75% of capacity, typically the operational congestion may occur, causing loss of productivity. At this point, the expansion plans are considered. Finally, reliability and consistency of the service are crucial for shipping companies, namely the main customers of the ports and the terminals.

The key performance indicators (KPIs) for a container terminal refer to speed, reliability and efficiency. Shipping companies expect punctual and efficient service from ports and adherence to berthing windows. Leaving aside the overall operations, in short, when a vessel docks on the berth, dockworkers of the terminal begin to unload import containers off it and load export containers onto it. Once the operations are completed, the vessel leaves the port. The amount of time taken for this operation is called the *vessel turnaround time*. Typically shipping companies try to keep these vessel processing times at terminals as low as possible. The average vessel turnaround time at a terminal is one of the most important service quality metrics used in the maritime port industry to rate terminals. Typically, in the top rated terminals the vessel turnaround time varies between 8 to 12 hours.

If 2000 TEUs are supposed to be handled, for instance, two scenarios can be theoretically sketched:

- Scenario 1: 5 cranes per 30 moves per hour = 13 hours + 1 hour each side for lashing, etc. = 15 hours
- Scenario 2: 5 cranes per 35 moves per hour = 11 hours + 1 hour each side for lashing, etc. = 13 hours

Considering that the saving to the shipping company is \$8,000 per hour, the savings expected are \$16,000 in the Scenario 2. However, it should be noted that typically along the maritime-logistics chain there are “knock-on effects”, given the unpredictability of the flow of goods and the non-synchronized nature of the whole logistics chain.

Among the main operating expenses, we have:

- Labour (around 25%-50% of total costs)
- Concession fees / land use rights
- Operating repairs and maintenance, fuel, electricity
- Security, safety, hazardous chemicals compliance
- Insurances

Capital expenses are:

- Depreciation
- Interest cost

According to the economic literature, the main issue when dealing with these indicators is the lack of uniform definitions and methods of data collection. Comparisons of port performance indicators are

hardly possible.

The average vessel turnaround time is directly influenced by another important metric known as the *Gross Crane Rate* (GCR), which is the average lifts achieved at the terminal per quay crane (QC)⁵⁷ working hour (where a “lift” refers to either the unloading of an import container from or the loading of an export container onto the vessel). The vessel turnaround time at a terminal is inversely proportional to its Gross Crane Rate. For this reason, the Gross Crane Rate is the most commonly used productivity indicator to rate container terminals and a profit measure to be maximized. The higher the GCR, the better the service quality. Typically, the gold standard is 40. Good performing container terminals have GCRs in the high 30s.

As emphasized previously, labour productivity should always be analysed in relation to the labour costs (Notteboom, 2010). However, this is very hard to accomplish, although it is the correct approach to adopt for a comparative analysis. Some points should be highlighted in this regard. The system for measuring or comparing the productivity is not only related to the cost, but to the volumes (capacity) as well, and even in this case, typically the figures from different terminals are not aligned.

Suppose to measure the crane productivity of one container terminal dealing with one vessel of 18,000 TEUs. The productivity here refers to the number of moves per crane, and not to the time needed to load or unload the vessel. The terminals with high productivity in this case are usually those who load or unload large vessels with four cranes, which mean that the yard of the terminal has enough space – capacity – to move the containers towards the hinterland, that there is no mass in between, etc. By looking at the time, typically loading or unloading a 10000 TEU vessel with four cranes requires approximately three days in an efficient European terminal (average). However, other constraints have to be considered. A container terminal might be located in an inland port, such as Antwerp or Hamburg, with restrictions linked to the tidal windows for the vessels. The dependence of the tides influences the organizational model of labour, for instance in terms of shifts. In this regard, time is relative, since the loading and unloading operations have to be finished at a certain time linked to the tides. Even the productivity is influenced by the physical features of a port / terminal, since it is not relevant a high productivity as well by this perspective. Therefore, it could be argued that the organizational pattern of labour in a container terminal (e.g. shifts, labour settings, etc.) and the terminal productivity are strictly

⁵⁷ Quay Crane (QC) is a large crane usually mounted on rails alongside quay that services the ships. Other facilities in the container terminal are:

Rubber Tyred Gantry (RTG): yard equipment that operates in a single plane along a pod of containers

Straddle Carrier: a smaller yard crane that can operate in any direction

Reach Stacker: purpose built forklift with a spreader on a long hydraulic arm that handles containers

Empty Handler: purpose built forklift with a higher reach but lower tonnage capacity for handling empty containers

Rail Mounted Gantry (RMG): similar to RTG but on rails instead of tyres. Industry development associated with automation.

Yard trailers: Specialized trailers for transportation of containers from handling area to storage area.

related to the constraints of the tide. In other words, productivity and terminal work organization are linked to the *material constraints*, deriving from the character of the material world and from the physical qualities of the port taken into account. It should be emphasized the necessity to set up a comparative analysis by considering the port environment not only in terms of exogenous pressures, legal, national or European regulations, but also geographical (and historical) environments, material and structural constraints. Container terminals in the Belgian ports, for instance, have to deal with a flat hinterland and with well-developed infrastructures linked to the industrial growth of Belgium, (railroads, inland navigations, etc.). This is not the case for the Italian ports such as Genoa, with a merchant tradition, caught between the mountains and the sea. A different approach concerning transportation and trade occurs between countries such as Netherlands, Germany or Italy. In the Italian case, there is a very different relationship between seaports and logistics platforms for the process of stuffing and stripping than what we can find in Antwerp or Hamburg. It is important to keep in mind these variables as well during the comparative analysis.

Besides volumes, the comparative analysis between container terminals is even more complex when the labour cost is considered, both in the cargo handling of the port leg and in the overall transport chain, from the origin to destination of cargo. A higher cost in one leg of the chain however is not directly proportional to a higher cost of the overall chain. In fact, it may result also in a lower cost of the entire process related to the maritime-logistics chain.

Concerning the container handling in the port area, an important indicator for the container handling companies to take into account is the so-called *Cash Cost per Box* (CCPB). The Cash Cost per Box is a cost indicator that represents how much a container handling company spends only in terms of out-of-pocket costs for each volume unit handled. In this case, the volume is measured in boxes and not in TEUs. In the calculation of the indicator, typically all the out-of-pocket costs are taken into account, except those not specifically related to container traffic (rent, car carrier, Ro-Ro, etc.). As the table shows, for a generic Global terminal operating company, the Cash Cost per Box report is typically presented in two ways: excluding or including the concession fees. By excluding them, the streams highlighted in yellow determine the CCPB. The figures of this indicator are sensitive, and the availability of data is very limited. However, this indicator is very important for the comparative analysis conducted in the following study. Typically, labour cost is the main value among the items that compose the CCPB in the European ports.

TABLE 9: STRUCTURE OF THE CASH COST PER BOX

COST OF SALES
Wages and Salaries
Contract Labours
Running, Repair and Maintenance
Power and Fuel
Rental of Equipment and Facilities
Other Direct Charges
Total Cost of Sales
OVERHEADS
Management / Royalty Fee – Local partner
Management / Royalty Fee – Multinational Group
Concession fees
Property Tax
Rent & Rates
Wages & Salaries
Other Overheads
Total Overheads
Depreciation
Amortisation of deferred expenditure
NON_OPERATING ITEMS
Investment income
Dividend income (for inter-co dividends)
Interest income
Amortisation of goodwill expense
Foreign exchange (reliased) gain/(loss)
Foreign exchange (unreliased) gain/(loss)
Provision for Doubtful Debt
Provision for Stock Obsolence
Provision for Diminution in Value of Investment
Gain/ (Loss) on disposal of fixed assets
Gain/ (Loss) on disposal of investment
Other non-operating items
Unusual gains/(losses)
Non-operating items

*Elaboration from different sources

The Terminal Handling Charges (THC) represents another (complex) key indicator. Typically, these charges vary across countries, ports of call and operators. Terminal Handling Charges (THC) varies also with respect to the shipping company, it refers to the cost of loading (or unloading) containers charged by the port terminal to the shipping company, which in turn recharges to its costumer (usually at a higher price than the original). Generally, commercial negotiations among shipping companies, terminal operators and port authorities define the THC, based on volumes. Most contracts between terminal operators and shipping companies are multi year, with break clauses. They commit the shipping company to a minimum guaranteed volume and in exchange, the shipping company is usually provided with guaranteed time slots for vessel berthing and numbers of containers handled per hour. The terms of the contract are based on container moves, irrespective of size or type. There is usually a price

differentiation between full, empty, refrigerated containers⁵⁸ as well as a special allowance for transshipment boxes (European Commission, 2009). Along this line, it should be noticed that an increasing trend of consolidation processes along the logistics chain, of vertical integration and joint ventures between shipping companies and terminal operating companies, has led to a situation in which the customer of the terminal operating company is at the same time the shareholder of the terminal. These trends produce distortions and lack of transparency of the THCs.

In other words, Terminal Handling Charges are effectively charges collected by shipping lines to recover from the shippers the cost of paying the container terminals for the loading or unloading of the containers and other related ancillary costs borne by the shipping lines at the port of shipment or destination (European Commission, 2009a).

The table 10 shows the Terminal Handling Charges and ISPS⁵⁹ charges of the Northern range for the main shipping lines involved in the container shipping industry. It is an overview of the THC invoiced from a big forwarder to his customers, namely the beneficial cargo owners, in the different ports of the Le Havre – Hamburg range. It is easy to see in this table the variety of THCs between the carriers in each port/terminal.

⁵⁸ The specialized container for transportation of refrigerated / frozen goods is called *Refeer*. Break bulk is the freight not containerized

⁵⁹ The International Ship and Port Facility Security (ISPS) Code is an amendment to the Safety of Life at Sea (SOLAS) Convention (1974/1988) on minimum security arrangements for ships, ports and government agencies. It prescribes responsibilities to governments, shipping companies, shipboard personnel, and port/facility personnel to “detect security threats and take preventative measures against security incidents affecting ships or port facilities used in international trade”.

TABLE 10: TERMINAL HANDLING CHARGES AND ISPS OF THE NORTHERN RANGE

Carrier	Hamburg	ISPS	Wilhelmshaven	ISPS	Rotterdam	ISPS	Antwerp	ISPS	Le Havre	ISPS
	Bremerhaven									
ACL	\$ 240,00	\$ 20,00			\$ 240,00	\$ 20,00	\$ 240,00	\$ 20,00	\$ 240	\$ 20,00
ANL	230,00 €	Incl.			205,00 €	Incl.	190,00 €	Incl.	195,00 €	Incl.
APL	235,00 €	Incl.			205,00 €	Incl.	183,00 €	Incl.	206,00 €	Incl.
CMA CGM	230,00 €	10,50 €			205,00 €	10,50 €	190,00 €	10,50 €	207,00 €	10,50 €
COSCO	230,00 €	15,00 €			200,00 €	15,00 €	190,00 €	15,00 €	190,00 €	15,00 €
DAL	235,00 €	10,00 €			210,00 €	6,00 €	170,00 €	10,00 €	190,00 €	10,00 €
EVERGREEN	225,00 €	18,50 €			200,00 €	16,50 €	175,00 €	17,00 €	195,00 €	17,00 €
HAMBURG SÜD	225,00 €	15,00 €			205,00 €	15,00 €	190,00 €	15,00 €	180,00 €	15,00 €
HAPAG LLOYD	220,00 €	9,00 €			200,00 €	12,00 €	172,00 €	12,00 €	185,00 €	11,00 €
YUNDAI	230,00 €	Incl.			205,00 €	Incl.	175,00 €	Incl.	200,00 €	Incl.
K-LINE	240,00 €	11,00 €			205,00 €	10,00 €	180,00 €	10,50 €	205,00 €	11,00 €
MAERSK	240,00 €	Incl.	210,00 €	Incl.	210,00 €	Incl.	180,00 €	Incl.	215,00 €	Incl.
MOL	240,00 €	Incl.			220,00 €	Incl.	185,00 €	Incl.	205,00 €	Incl.
MSC	220,00 €	17,00 €			195,00 €	17,50 €	170,00 €	14,00 €	195,00 €	16,00 €
NYK	235,00 €	Incl.			205,00 €	Incl.	190,00 €	Incl.	200,00 €	Incl.
OOCL	229,00 €	Incl.			199,00 €	Incl.	184,00 €	Incl.	184,00 €	Incl.
ZIM	215,00 €	17,00 €			195,00 €	17,00 €	190,00 €	17,00 €	185,00 €	17,00 €

* International Ship and Port Facility Security ** Dry containers.
Own composition. Elaboration from different sources (01/04/2017)

This table raise some insights about the key question of how multinational firms in this sectors fragment the value chain, in particular how the value is distributed along the sequence of the maritime supply chain, between shipping lines, terminal operating companies, forwarders and logistics operators.

First, it does not make sense to map the value chain of only the global terminal operator of the port leg, since its link within the overall maritime-logisitic chain. Moreover, due to the untransparent culture of the the chain actors, this task is almost impossible to accomplish.

Second, it is clear that the forwarders derive profits by invoicing the Terminal Handling Charges to their customers (the cargo owners) by different terminals.

Third, global terminal operators in these ports get much lower than the (differentiated) value of THCs invoiced by the forwarders to their customers. It could be also argued that, by the viewpoint of the terminal operating companies, the revenues from the CCPB in the container terminals of the Le Havre – Hamburg Range are lowest than all the THCs in the above table.

These THCs of the table are out of the business model of the terminal operators, since they represent

the amount of all the previous profit margins. Supposing that in the port of Antwerp the CCPB is 60 €, a global terminal operator asks 100 € of THCs to a shipping line such as Maersk to get margins. The shipping line charges in turn THCs of 110 € to the forwarders. At the end, the forwarders invoice his customer – the cargo owner – of a higher THC (180 €), which refer to the value of the above table.

Being the variety of THCs linked to the profit margins of each step across the chain, per each carrier, it is hard to obtain the real initial value. Moreover, by the maritime-logistics chain perspective, the variation of the THCs may be related to the hinterland transportation as well, whose costs might be more expensive in Rotterdam than in Hamburg or Antwerp. Therefore, if in the port of Rotterdam the same THCs apply than in Antwerp, the former would be penalized by a more expensive bill concerning the entire maritime-logistics chain. Consequently, this means that the bill or the invoice for the entire transport chain is important for port competition. On the other hand, it is hard to have a transparent view of the real costs because the forwarder in this case is managing the process (merchant haulage) and the customer of the forwarder does not know the real cost paid by the forwarder to the railroad transport, cargo handling at the terminal, and so on. It is also acknowledged that for this reason also, shipping companies try to gain control over the entire chain, from the origin to destination of the cargo, in order to optimize return benefits or profits, and each step of the chain. The development of shipping and terminal networks worldwide is therefore linked to these business models. The example of THCs shows how complex might be the analysis of the value chain in this field⁶⁰.

Another important limitation need to be pointed out referring to the THCs. As it has been already mentioned, the difference between pure terminal operators and terminals vertically integrated with a shipping company is a key distinction, not only in light of the comparative analysis. The system of tax optimization applied in the business model of a terminal operator vertically integrated differs substantially with respect to the pure cargo handling company. This should be considered when analysing the variety of THCs, when comparing THCs and cost structures in general combined with labour cost and productivity between terminals characterized by such a difference. In the case of vertical integrations or joint ventures among terminal operators and shipping companies, as previously illustrated, it is possible to manipulate the costs and the profitability in order to avoid payments of local taxes. In this regard, it is further important to clarify who gets the invoice from whom, and who is the client of whom, in the maritime-logistics chain. Being clarified the distinction between carrier haulage and merchant haulage, the clients of terminal operating companies are the shipping lines, while the clients of the shipping lines could be the forwarders, who in turn have the cargo owners as clients (shippers).

It should be underlined that the terminal operators represent a small part between the strengthened bargaining power of the shipping companies organized in monopolized strategic alliances and the forwarders, who are driving the business without the burden of investments in assets. Among these three

⁶⁰ Interview to the general director of Eurogate, Hamburg 2017

parties, terminal operators are the weakest, asset driven and non-flexible part (affected, in addition, by the growing size of vessels). That is the reason why most terminal operators developed their networks worldwide, and why some developed in the hinterland transport as well (e.g. Eurogate).

By the viewpoint of the shipping company, three basic parameters are typically considered when choosing a port of call, besides the ownership of container terminals by the shipping company itself. First, competitiveness of the terminal by the viewpoint of the costs. Second, capacity in terms of space and volumes. Third, technical capacity, facilities and equipment.⁶¹ With respect to the THC's paid by the shipping company to the terminal operator, this is typically between 60-80% of the basic rate. The other costs refer to storage, reefer containers, dangerous goods, costs of idle cranes (in case of ship delays), etc. It should be reminded however that the cost paid by shipping companies to the terminal operators, as other costs, is not only determined by the cost structure, but also by the market structure.

This basic overview gives rise to the real limitations and difficulties related to the comparative analysis in this field when referred to the KPIs. In the container business, it is very difficult or almost impossible to approach a comparison that combines productivity with costs. At the same time, this is the only right way to set up the comparative analysis on labour productivity, besides the variety of dock labour systems. Different partners and actors are involved in the container handling process across the chain. Besides the overall structure of the maritime-logistics chain, this study analyses only a path of the entire process. In this regard, it should be underlined how relatively this leg in relation to the overall transport chain is.

⁶¹ Interview to Head of VSA Terminal procurement of Maersk

Chapter IV. The Italian case

4.1. Introduction

The port of Genoa is a universal multipurpose port, situated on the shore of the bay of the Ligurian sea, in the Southern Europe. The strategic geographical location has determined the long maritime history of this merchant port-city⁶². Constrained between the sea and the Apennine ridge, the port – alongside with the urban area – develops along the coast, from east (*Levante*) to west (*Ponente*). The city, crossed by the Apennine Mountains behind his back, covers a narrow coastal plain along the sea. The lack of space available for port expansions has led to infrastructural interventions⁶³ based on sea reclamation and artificial land to be dedicated to port and industrial activities. However, the orography of the territory causes some difficulties in moving cargo to/from inland destinations. In the same region, the port of La Spezia is located over 50 nautical miles northeast, whereas the port of Savona (Vado Ligure) is 23 nautical miles northwest away⁶⁴.

Today the port of Genoa ranks as the first port in Italy in terms of throughput (over 51 million tons) and amongst the top Mediterranean container ports for final destination (2,242,902 TEUs) (Port of Genoa Handbook, 2016). The Port performed strongly in 2015 and hit a new container throughput record, despite the global economic crisis. Container traffic peaked in 2015 with a +3.2% advance on the previous year, and in equal measure both imports and exports rose. Genoa ranks as the top gateway container port in Italy, as only 8.7% of volumes account for transshipment (Port of Genoa Handbook, 2016). Genoa is one of the most important Southern European gateway for container traffic for Far East moving via the Suez Canal and for trade with North Africa and Eastern Mediterranean.

The port extends over 22-kilometre coastline, starting from the Foce area (east), passing to the old

⁶² Since ancient times, the economic development of Genoa has been linked to the port. Genoa has been one of the four Sea Republics in ancient Italy. See Braudel (1972) and its seminal study for an historical overview of the role of Genoa in the Mediterranean. See Landes for further insights about the relationship between industrial revolution and transports revolution (1958); Harlaftis (2002) and Grass for the history of the European ports (2013). For the history of the port of Genoa and port labour, see Tonizzi (1999; 2014).

⁶³ The new terminal development at Calata Bettolo (near completion) will be equipped to handle 550,000 TEUs per annum. In addition, a range of infrastructure projects is being implemented. With reference to the new Port Masterplan, the port of Genoa faces the advent of the ultra large container ships over 20,000 TEU, aiming at handling 5/6 million TEUs yearly, according to the goals of the Port Authority. The port's development programme includes projects aimed at accommodating ULCVs (Port of Genoa Handbook, 2016).

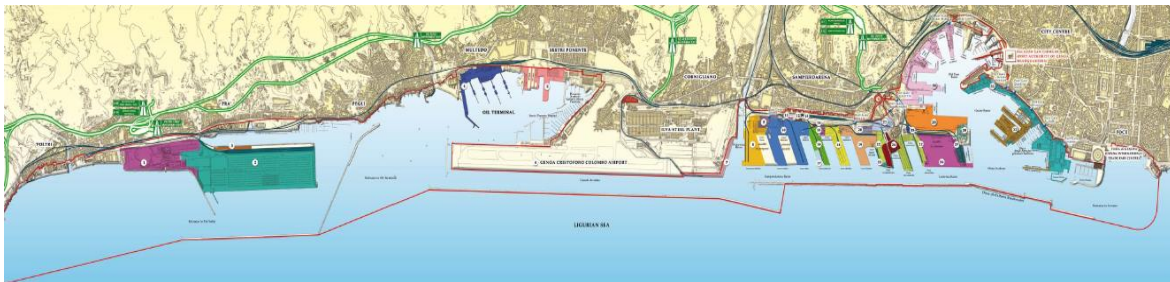
⁶⁴ The container terminal in Savona (Vado Ligure) is currently under construction and will have an impact on the port competition in the Ligurian range in the coming years. APM Terminals, who has the major share, announced the entry into the Shareholding Company that will handle the container terminal of the Chinese Cosco Group and Qingdao Port. From 2018, the container terminal of Vado Ligure will be ready to hold containers up to 19,000 TEUs. The whole container terminal of Vado will have an expected capacity of 800,000 TEUs.

port⁶⁵ area and developing to the new port of Voltri Terminal Europe⁶⁶ (west), where the main container terminal of the Tirrenian region is located.

Protected by the sea by a forge dam system, the port covers a total surface area of approximately 6 million square meters of land and about 15 million square meters of seawater. It is a multi-service port, with 25 specialized terminals managed by private terminal operating companies. The port of Genoa caters for the following commodity sectors: container, general cargo, perishable goods, steel, forest products, solid bulk, liquid bulk, petroleum products and cruise and ferry passengers. The leading shipping lines regularly serve the port. Over 150 regular liner services connect Genoa with 450 ports worldwide (Port of Genoa handbook, 2016). In 1969s, the port of Genoa inaugurated the first container terminal in the Mediterranean basin.

Genoa, affected by the industrial decline, was an important industrial centre in the past, whilst the seaport has long been the foundation for the economy of the city and the region⁶⁷. The port is located near industrial production areas in Northern Italy and Southern Europe. From Milan and Turin is 150 km away, Bale (Switzerland) 517 km, Munich (Germany) 627 km.

FIGURE 7: MAP OF THE PORT OF GENOA



Source: Port of Genoa Handbook (2016)

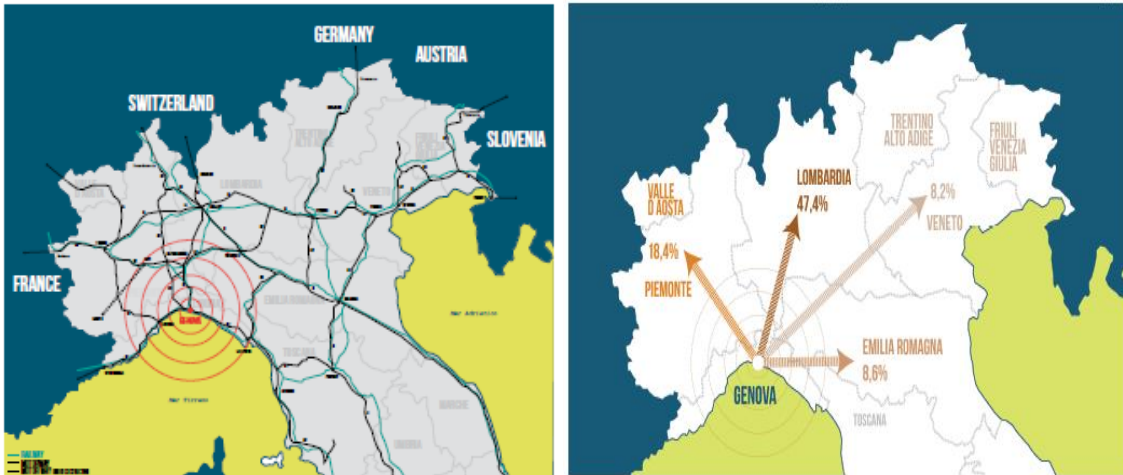
The peculiar orographic configuration of the territory and a large urban area in the immediate proximity of the port have forced the Port Authority to search for more space in the hinterland in order to manage the handling of goods in the most efficient way (Caballini and Gattoma, 2009). The Rivalta Scrivia dry port indeed is located 75 km from Genoa along the railway line that links the Ligurian port with the reference market.

⁶⁵ See Domus n. 740 (1992) for the urban project of the old port developed by Renzo Piano.

⁶⁶ In 2015 the port of Genoa handled 2.242.902 TEUs (Informare, 2016). VTE (Voltri Terminal Europe) is the first container terminal in the port of Genoa and in the region. The terminal is managed by one of the leading Global Terminal Operators worldwide, who has a stake also in the container terminal SECH (South European Container Hub). Currently, no joint ventures with shipping companies are in place. The port area of Voltri has been developed progressively starting from 1970. In 1992, FIAT Impresit decided to constitute a society of port services, SINPORT, acquiring from Port Authority the concession for completing and managing the terminal in Voltri.

⁶⁷ See the study of Oxford Economics about the performance of the port of Genoa (2015) and the study of Nomisma Prometeia Tema (2016). See also Ferrari *et al.* (2011), Ferrari *et al.* (2010), Grosso *et al.* (2009), Musso *et al.*, (2004); Notteboom (2012)

FIGURE 8: CATCHMENT AREA OF THE PORT OF GENOVA



Source: Nomisma, Prometeia, Tema (2016)

Within the TEN-T project, Genoa is further located in the catchment area of the Rhine-Alpine Corridor, which constitutes one of the busiest freight routes, the most densely populated and economically strong regions in Europe. The corridor connects the seaports of Belgium and the Netherlands with the port of Genoa. The Rhine-Alpine Corridor is also home to a number of production plants and distribution centres, including major economic centres. This multimodal corridor incorporates the Rhine River as the key inland waterway in Europe, as well as important tunnelling projects in Switzerland, including the Gotthard Base tunnel.⁶⁸

⁶⁸ The Gotthard Base Tunnel (57 km) is situated beneath the Swiss Alps and opened on 1st June 2016.

FIGURE 9: MAP OF THE RHINE – ALPINE CORRIDOR (TEN-T)



Source: European Commission, DG Move, 2017

4.2. Port regulation, port governance

In Italy, jointly with the collective bargaining agreement for ports (CBA) and the second level agreements (at company level), the main legal framework concerning ports and port labour is the Law n. 84 of 1994. This law emerged from a reform process⁶⁹ that introduced the privatisation of port operations, enshrining further the transition from a public model of work organization, in which the main reference entity was the so-called *Compagnie portuali*, to a quasi-private model (Vezzoso, 2000). The port reform set up Port Authorities to replace earlier organizations that managed the seaports in Italy (In Genoa, the CAP, Consorzio Autonomo del Porto).

Recently, the government has approved the decree amending the Law 84 1994, which reformed the port governance in Italy, with the merge of the 25 Port Authorities in 15 Port authorities (Autorità di Sistema Portuale, AdSP) and with a more centralized focus on strategic decisions⁷⁰. To date, the government did not modify the articles concerning labour on port operations in the Law 84 1994, namely loading and unloading cargo and the specialized services, as well as the complementary and ancillary services of the same operations. Shortly after the decree was passed, however, the Italian Minister of Transport initiated a confrontation with the social partners (AdSP, terminal operating companies, workers of *Compagnie Portuali*, trade unions) to reform, by means of additional decrees, the rules of

⁶⁹ It should be reminded that in the port of Genoa the decrees of the Minister Prandini (1989) anticipated the privatization process and the port reform 84 / 1984. The sentences of the European Court of Justice (Judgment of the Court of 10 December 1991 - Case C-179/90) concerning the compatibility between labour regulation in ports and European competition rules, shaped further the port reform 84 / 1994.

⁷⁰ Decree 4th August 2016, n.169, *Riorganizzazione, razionalizzazione e semplificazione della disciplina concernente le Autorità portuali di cui alla legge 28 gennaio 1994, n. 84, in attuazione dell'articolo 8, comma 1, lettera f), della legge 7 agosto 2015, n. 124.*

port work. These rules refer to the Article 16 on the licensing of port undertakings, the Article 18 on the concessions of docks to terminal operating companies – and their own permanent employees –, and the Article 17 on the subject (enterprise or agency) authorized to the provision of “temporary work” (labour pool). This latter in particular has been object of recent confrontations with the social partners at national level.

As in all ports with a Landlord governance, in the port of Genoa the operational management of the port areas and terminals is given in concession to private terminal operators (Article 18 of the law). The new Port Authority of Genoa and Savona (AdSP), in line with the governance and the Mediterranean tradition, is currently responsible for planning, coordinating, controlling and assuring the safety of port operations, maintaining shared port infrastructure, and assigning and controlling port activities, related to paid services for port users (Genoa Port Authority, 2016).

The private cargo handling companies operate in the port area through a concession fee. They employ their own workforce, hired from the labour market (white and blue collars). According to the labour scheme concerning cargo handling activities, they can also hire additional dockworkers via an exclusive pool of temporary work, namely the labour pool of workers in line with the Article 17 of Law 84 1994, in order to meet the constant fluctuating demand and to cover the so-called “labour peaks”.

The labour pool in the Port of Genoa is represented by an historical workers’ cooperative, the Compagnia Unica Lavoratori Merci Varie “P. Batini” (hereafter CULMV). As observed by Sacchetto and Semenzin (2016), the cooperative movement in Italy since its early years advocated an alliance between capital and labour that was set up in favour of labour and was made up mainly of workers. The main aim of cooperatives was to ensure that members’ working conditions and consumption would be better than those offered by the external market (*Ibidem*). Since the end of World War II however, a gradual shift of focus occurred, with the transformation of cooperatives into more business-like companies that still maintain the main feature of “social responsibility”⁷¹.

CULMV has a long history, deeply rooted in the social and political fabric of the city⁷²; it groups together the registered dockworkers of the labour pool in the port of Genoa, which are at the same time members of this worker cooperative. It was founded in 1340 and restructured in 1946 to form the cooperative CULMV⁷³, offering a labour pool to the terminal operating companies. Due to the legal constraints and the recent changing processes, CULMV has been obliged to acquire the status of enterprise for the provision of temporary dockworkers to the terminal operating companies in the port of Genoa. According to the law 84 1994 and the article 17 indeed, the provision of temporary port work is carried out by “an enterprise, whose activity is exclusively aimed at the provision of temporary work

⁷¹ The authors underline that the presence of small and sporadic cooperatives which operate according to the original values and practices keep alive the idea that cooperatives could also act as a form of self-defence of the workforce against the worst aspects of the power of capitalist exploitation (*Ibidem*).

⁷² See Batini (1991), Tramella (1993), Bagnasco e Gaglione (2007)

⁷³ CULMV may be similar to a Guilt, but not exactly in the Flemish sense (*Natie*). However, defining CULMV as a Guilt is only partially correct, due to its peculiar embeddedness in the history of the city and its *cooperativist* structure.

for the execution of the operations and of the port services”⁷⁴.

In 2009, CULMV won the tender for the provision of temporary work in the port of Genoa for the next 10 years⁷⁵, shaping its status for this purpose. In the rules for the provision of temporary work attached to the tender, a series of constraints pertained as conditions to participate (CALP, 2017). Among them, the following obligations were set up:

- To be an enterprise.⁷⁶ In the case of CULMV, a workers’ cooperative forced into the constraints of the capital company’s budget and burdened by operating tax and corporate costs. On the other hand, CULMV cannot act as a free enterprise, either inside or outside the port;⁷⁷
- To have an exclusive scope of activity;
- To have a workforce predetermined by the Port Authority;
- To have non-operational administrative staff;
- To provide training for their members, with resources entered in a special budget chapter, to enable them to operate with all the port operators that require their services, in light of a survey of the professional port requirements;⁷⁸
- To have workforce oriented towards the numerical, functional and temporal flexibility. De facto, 7 daily shifts are provided by dockworkers of CULMV, with widespread double and triple consecutive shifts;
- To operate into the port with temporary work on call only under the enterprises (Article 16) or terminal operators (Article 18), without any guarantee of minimum number of working days.
- To apply the minimum wage treatment provided by the National Collective Agreement for Ports (CBA);

The service provided by CULMV to the terminal operators is remunerated through a maximum tariff man/shift established by Port Authority, according to the competition rules set at European level. However, CULMV accepts in the deals as a result of bargaining with each individual terminal operator a tariff of 8 to 9 % lower (and undifferentiated per shift) than the tariff established by Port Authority, as Deloitte observes (2014). The maximum tariff man/shift established is not sufficient to cover all the costs of CULMV⁷⁹. It should be noticed that the labour cost of CULMV members accounts for the 85%

⁷⁴ The legislative landscape is complicated further by the article 16, which refers to the “port operations” provided by port undertakings, distinguished from the status of the enterprises or agencies for the provision of temporary work made by the article 17. In fact, the interpretation of those two articles has been not homogenous throughout the Italian ports, producing many anomalies. In the port of Genoa the firm under article 16 is represented by another historical workers’ cooperative, “P. Chiesa”, dedicated in the loading and unloading of coal and break bulk, whose traffics are dramatically declined in the last years.

⁷⁵ The expiration is scheduled for 2019.

⁷⁶ Attached to the Decree n.282, 31st March 2009, Port Authority of Genoa.

⁷⁷ The alternative to the enterprise status provided by Law 84/94 is only that of the Agency, an entity promoted by the Port Authority with forms for which there is no legal regulation so far but only two experiences in the ports of Livorno and Trieste. Port Work Agencies are currently being established in the transshipment ports of Gioia Tauro and Taranto, affected by occupational crisis and losses of traffic.

⁷⁸ The Genoa Port Authority in 8 years never did the survey, despite being assigned by the same regulation.

⁷⁹ CULMV would have every right to aspire to have profits. It is a cooperative, namely an enterprise, and not a non-profit association. What distinguishes it is the distribution of profits. Compared with other capital companies, CULMV has an

of total costs and absorbs 90% of the revenue (Deloitte, 2014).

The role of pool members of CULMV is further specified in the contractual agreements signed between each terminal operator and CULMV for the provision of temporary workforce. Although the maximum tariff for their recruitment is fixed by Port Authority, CULMV negotiates different temporary employment contracts directly with each terminal operator of the port (a commercial agreement between private actors). In these negotiations, the average tariff per shift does not include differentials between tasks or shifts of dockworkers employed, and it is in average lower than the maximum tariff set by the Port Authority. The services provided by CULMV workers to terminal operators do not have any contractual guarantee or preventive protection on recognized tariff.⁸⁰

For these summarized reasons mainly, CULMV had closed a budget deficit at the end of each budget from 2009 to 2013. He had negotiated and eventually received from the terminal operating companies, through the mediation of the Port Authority, the provisions to repatriate the deficit. Terminals had agreed to pay “as a tariff adjustment” the deficit of CULMV, in order to maintain social peace and operational continuity in the port of Genoa. At the same time, terminal operators argued that the deficit was caused by poor economic management of CULMV and, above all, by redundancies of workforce⁸¹. Although this peculiar situation, CULMV should not claim more than the predetermined maximum tariff per single shift with the ratio of the budgetary consolidation. At the same time, CULMV takes the business risk exclusively for the benefit of terminal operators, without any compensation from the latter. The unemployment indemnity (IMA) is paid by INPS⁸² and protects the individual workers.

In case of quantitative or professional shortages, CULMV is allowed to use the services of an external interim agency if needed, and has to pay the service beyond the cost of the employee used. Its operating members bear the pressures on the organization of work by the user terminal operators to increase productivity, without having an effective union voice, as they are members of the supplying enterprise. In short, CULMV has to bear in terms of tariffs and employment the unloading of pressures on the profitability of the production cycle served in the presence of volume reduction or competitive growth in the sector.

In order to try to put an end to this chronic deficit, by the end of 2013 the Italian Parliament had intervened by introducing paragraph 15bis of Article 17, with the provision of a rebalancing funded by each Port Authorities – mainly destined to Genoa – by means of a maximum of 15% of revenue from taxes and surcharges on goods. The Port Authority would have rescheduled the budget of the enterprise

obligation to reinvest a large part of the profits in the company in achieving the members’ objectives, and in that sense directs them to capitalizing on the company.

⁸⁰ In case of shortage of ships to be worked during a particular day, week or month, an unemployment indemnity (IMA) is provided to the registered dockworkers of the labour pool who are left idle.

⁸¹ This information has been elaborated from different sources during the fieldwork; in particular, this part draws upon a private document of CALP, Collettivo Autonomo Lavoratori Portuali. For further clarifications, see the study of Deloitte on the reorganization plan of CULMV, in accordance with the resolution of 10th April 2014, protocol of the Port Authority of Genoa (2014).

⁸² Istituto Nazionale della Previdenza Sociale

under Article 17 if in crisis, but only after the reduction of the workforce employed at least of 5% per annum for each year of contribution benefit. The link between budget consolidation and staff reductions in the law argued that CULMV staff was redundant, without considering other reasons for the deficit.

CULMV took advantage of a couple of years of the paragraph 15bis, therefore reducing his operating staff by 5%. Subsequently CULMV refused the benefit by contesting the causal link between the supposed excess of staff and the crisis in his budget, arguing that the number of the workforce is not sufficient, while the budgetary deficit is the result of the constraints in which CULMV was put up with the tender in 2009.

The reorganization plan commissioned to Deloitte in 2014 as required by the Port Authority tried to answer the question of how to manage the accounts between the multiple constraints to which the CULMV was subjected and the low revenues generated by the tariffs set by the Port Authority, lowered more by the user companies. Especially on what working conditions and wages, given that over time, wages have not increased and the budget has not risen. In the same period, terminal companies have made profits⁸³ for themselves, but have not allowed profitability margins at CULMV, and have made them pay in terms of employment increases in productivity. On the other hand, terminal operators have annually provided to settle the deficit to the CULMV (being the latter forced to ask each year the adjustment of the tariff). The Port Authority set the maximum tariff claiming that it would have been all encompassing of everything, even the profits of CULMV⁸⁴.

CULMV accounts for about 45% of the entire workforce of enterprises and agencies operating under the article 17 in all the Italian ports. This labour pool represents the only workforce for temporary and casual labour in the port of Genoa, offering a 24 hours a day service, 364 days per year, with 7 daily shifts (that can also be 10 or 12 due to the broken and overlapping shifts), in order to cater for the diverse requirements of all the terminal users. To date CULMV is composed by personnel of almost 900 members among multi-skilled/multi-tasked dockworkers, administrative employees who manage the day shifts, hiring and recruitments in the various terminals of the port. CULMV is also responsible for the salary administration. The board of directors is elected every three years by all the members/ workers of the assembly. It consists of a Director, named *Consul*, two vice-directors, named *Vice Consuls*, and four advisors. Membership of CULMV workers is typically handed down from father to son.

CULMV dockworkers carry out approximately 50% of the loading and unloading operations in the overall port. Dock labour in the port of Genoa – loading and unloading cargo – indeed is done by the

⁸³ In the last balance sheet of the main container terminal operator in the port of Genoa, the net profit is 20% of revenues. See the annexes for a detailed overview of the balance sheets of two container terminals in the port of Genoa.

⁸⁴ It should be underlined that few companies would be able to operate economically under the conditions listed. CULMV does so because this guarantees the minimum vitality and continuity of a job and a salary to its members. No other firms beyond the CULMV participated to the tender in 2009. The only competitors would have been the workers' cooperatives operating in the inland logistics platforms in Italy, typically known for their illegal behaviour and the relative substandard labour contracts implemented. To date, workers' cooperatives operating into the Italian ports under the Article 17 differ from any interim agencies and from the cooperatives of services involved in the hinterland leg of the chain, whose labour arrangements are deregulated.

permanent employees of the terminal operating companies, and the members of the labour pool managed by CULMV. The latter, according to the dock labour scheme, may have support of external workers coming from the interim agency directly linked to the worker cooperative CULMV, named *Intempo*. It is not allowed for terminal operators to hire casual and temporary workforce outside the labour pool when required.

4.3 Composition of the workforce

The composition of the dock workforce⁸⁵ in the port of Genoa has a dual nature⁸⁶: the permanent workforce of the terminal operating companies (white and blue collars) and the non-permanent dockworkers who represent the flexible, temporary workforce requested by the terminal operators, which belong to the labour pool, according to the article 17. The latter, according to the law, may also have the support of external resources of the interim agency called *Intempo*⁸⁷.

In other words, CULMV manages the flexible dockworkers who perform the loading and unloading of all kind of commodities in the port of Genoa (excluded oil, coal and breakbulk), and the flexible labour in the terminal where they are needed, according to the requests of each terminal operator. If the permanent dockworkers of terminal operators are not sufficient to carry out the operations of loading and unloading, these latter are obliged by the scheme to hire dockworkers of the labour pool, which integrates the permanent employee's work cycle during the peaks, with their flexible workers.

According to words of the current president of Assiterminal, the relationship between pool members and permanent dockworkers in the port of Genoa, and in particular in the container terminals, is "like the oil in the water".⁸⁸

⁸⁵ The majority of permanent and non-permanent workforce is relatively young, with an average age between thirty and fifty years. There are no migrants workers and no women involved (operational workforce). One transgender worker is present among the pool members. It has not been possible to obtain precise figures. During various interviews, it also emerged that most of pool members are divorced.

⁸⁶ Looking back in time, also before the port law 84 1994 the port of Genoa was characterized by a double composition of workforce related to the operations of loading and unloading: on one side, the dockworkers of Compagnie Portuali (e.g. CULMV, "P.Chiesa", etc.), on the other the so called "Consortili", namely the public employees of the ancient Port Authority called CAP (Consorzio Autonomo del Porto).

⁸⁷ *Intempo* is an interim agency who belongs to Randstad. It is specialized in the port and logistics sectors. Intempo operates in the main Italian ports (Genova, Imperia, Savona, Livorno Piombino, Civitavecchia, Napoli, Salerno, Palermo, Cagliari, Venezia, Trieste, Monfalcone, Chioggia, Ravenna, Venezia, Bari), according to the rules of outsourced work (Decree 276/03) and the port law 84 1994.

⁸⁸ Interview to the current director of Assiterminal, Livorno, 2016

In this way, a permanent dockworker from a container terminal explains how both compositions are interlinked at workplace in terms of tasks, introducing some items that will be further analysed in the following pages:

It is not a well-founded hierarchy, the reach stacker or the crane driver does not tell to the yard trailer what to do, but there is close interdependence, if the yard trailer does not turn, the job does not go ahead. The members of CULMV earn on the containers. If they reach more than an amount, they begin to earn every ten pieces more. If there is the family father member who bumps on the trailer, I do also on the Stacker, but more than that, I cannot integrate. I often do not want to, because maybe I did night shift, I bring my daughter in kindergarten, I start again work at the third shift without rest. [Interview with a permanent dockworker, Genoa, 2016].

It should be reminded that the workers who belong to the labour pool have a different status with respect to the permanent dockworkers of terminal companies. They are *members* of a cooperative, and not *employees*. The contractual reference is also the collective bargaining agreement for ports, as already emphasized. At the same time, the flexibility provided by workers of CULMV hardly fits with the collective bargaining agreement for ports at national level. The union of port workers FILT CGIL, for path dependent reasons, has had an ambiguous and somehow conflictual relationship with CULMV, although there are union delegates in these workers' cooperative. These latter are "the union of themselves" in a certain sense, due to the status of "members" of a cooperative, which is different from being "employee" of a given cargo handling company⁸⁹. To a certain extent, the "employer" of the labour pool member is CULMV itself, but at the same time, CULMV is not exactly an "employer", since it supplies a service (flexible, temporary workforce) to the terminal operators. The relationship between the management of CULMV and the members is not the same relationship between any management of an enterprise and their employees. Members of CULMV have hence an indirect relationship with their port employers.

The relationships between the permanent dockworkers of the terminals and non-permanent dockworkers from the labour pool have not always been peaceful in the past, due mainly to their different status. However, in the time the relationships seem to have stabilized despite the persistence of a peculiar organization of labour at quayside (which will be analysed in detail).

Here is how a permanent dockworker explains the relationships between permanent workers of the container terminals and members of the labour pool:

I have more personal relationships with the people of CULMV I know already out there. In general, at workplace is a strange situation, sometimes I feel like they hate us. I am a blue-collar employee, I receive a salary because I work, it is not my fault, and you hear that thing, I feel it, I see it. It's silent, I do not even know how to explain you, you feel it during the break, when we are into the "wind room", because when it is too windy we must stop the operations... there is a division⁹⁰ when we are in this room, the pool members on one side and us on the other. It is sad because we work together in the sense that you are from

⁸⁹ This point turned out during the interviews conducted to the management of CULMV, pool members and union members.

⁹⁰ Between pool members and permanent workers there are two separate dressing rooms in the main container terminal.

an enterprise and I am from another, but we do the same job, we drink coffee from the same machine, many times we eat on the same table. [Interview with a permanent dockworker, 2016]

The Vice-Consul of CULMV explains as well the relationships between pool members and permanent workers of the container terminals, introducing the “freedom” as constitutive difference among the compositions:

Any worker in the world must organize their lives according to their work; here you can still arrange a bit of work depending on your life. If tomorrow afternoon you want to go to tennis or soccer, do it, and then you will work in the evening, or you will do two shifts on Saturday night that I need more. If there is nothing on Tuesday, or Wednesday you come to me and tell me “look at Wednesday I cannot work”, you go, but Saturday and Sunday for you there is no life. “They” do not understand this element. They... are different beings, mentally inferior... they are workers, slaves. Mostly the employees. They are envious because we do not stamp. It is true that we do not stamp but we do not have the salary at the beginning of the month. They yes. We go to work when the terminal operators call us, but if you do not call me for five days my salary is zero⁹¹. They have 26 days already paid, with holidays, benefits. The member of CULMV is another thing, the dockworker... though we are all... the “Camalli”⁹² are these. There are two different things, mentality, and different brain. The employee... us (...). In my opinion, however our relationship is much less conflicting with the employee than that of the employee with us, but more for an ideological and ethical fact. They feel a little more... they see us more free... the fact that they did not have sometimes more freedom as we have always had, has led us to have to regulate a lot more to their way of working, at their timetables [Interview with the Vice-Consul of CULMV, Genoa, 2016].

Finally, another permanent dockworker considers the relationships between permanent and non-permanent workforce, mentioning the role of the management in producing competition among them:

I think that any type of division among them and us is detrimental. Then of course, they do a different job from ours, but we interact constantly, is not that we are two separate things. We actually work with them, what people do not understand is that we need them, not to mention that many of the rights that we have, we also have thanks to them. I think that it takes solidarity with them, then maybe they sometimes seem to have attitudes that go in another direction, but those are individual. The management create also competition between them and us. The yard trailers driven by them are more productive: of course, they have different economic incentives from us. There are also between us the divisions, between crane drivers and non-crane drivers for instance. However, there is no conflictuality between us. If you look at my phone contacts, I have no numbers of pool members. There are probably more conflicts within us and within them than between us and between them. They do not even respond to our supervisory staff, but to their foremen. Then we all have the same interest, working to keep our families, bringing home the salary [Interview to a permanent dockworker, Genoa, 2016]

⁹¹ This information is not exact, since the dockworker of CULMV has right to an unemployment indemnity (IMA) when he is idle due to shortages of vessels.

⁹² *Camallo* (plural: *Camalli*) is the term in the local dialect that means “dockworker”, in particular it define the pool members of CULMV. The origin of this word is Arab. The verb *camallare* in local dialect means to bring, to transport, to carry.

4.4 Organization of the labour pool

It is acknowledged that port labour needs to adapt to a continually changing market. Therefore in quite all the ports is present the need for a (more or less regulated) flexible and temporary work through the outsourcing of some operations provided by the dockworkers of the pool, with their shifts and the short reaction time in which they respond to the terminal operators needs'. The role of the pool members in the port of Genoa, as already mentioned, is established by the dock labour scheme and the Port Authority regulation, who sets the maximum tariff man/shift to be paid after (informal) bargaining by each terminal operator of the port to the CULMV. Nevertheless, the role is further specified in the contractual agreements signed between each terminal operators and CULMV for the provision of temporary workforce. Due to this reason mainly, it has not been possible to obtain the minimum wages of the dockworkers belonging to CULMV and temporarily hired in the container terminals of the port of Genoa⁹³. What is known is the reference to the wages of CBA and the maximum tariff man/shift set by Port Authority (232,00 euro), which corresponds – in principle – to the price paid by the terminal operators to CULMV, and not to the minimum wage of the dockworkers of the pool. In addition, two limitations have to be highlighted with respect to this value:

First, as already emphasized also by Deloitte (2014), this is never the real value paid by terminal operators to CULMV. In average, container terminal operators charge a tariff of 229, 00 euros, but this value may vary, it depends mainly – but not exclusively – on each negotiations between terminal operators and CULMV.

Second, in the port of Genoa polyvalence, bonuses and wage supplements are widespread. Given the

⁹³ Wages and salary administration for pool members are set up by an internal agreement within CULMV, which represents to a certain extent a contract at company level between members and CULMV. In this internal agreement, the remuneration is jointly set up with the bonuses and wage supplements related to a productivity man/shift and the piecework rate system. It has been not possible to obtain this document as well.

piecework rate system and bonus incentives to the productivity allowed, the real value of the tariff paid by the operators to CULMV might be even higher than the value established by Port Authority, especially in the full container terminals (according to volumes handled and terminal productivity). By reasoning in terms of costs related to productivity, it should be underlined that by a terminal operator the permanent workforce represents a fix and predetermined cost – with the relative variants and productivity incentives –, whilst the non-permanent workforce represents a variable cost, that in principle should also increase in case of effective increase of profits.

It should be emphasized another important point mentioned during the above stream of interview, related to the autonomous management of the temporary workforce belonging to the labour pool: at workplace, the non-permanent workers refer to the coordination structure of the CULMV, and not of the terminal operators. This organizational feature has been considered as a “dyscrasia” during the interview by the management of the container terminals. On the other hand, this aspect, namely the self-management and autonomy, is strongly claimed by CULMV. In other words, the terminal operator requires a certain amount of temporary workers, organized in gangs or not, to integrate the operations; these pool workers are hierarchically integrated to the operations, but at the same time they do not respond directly to the internal hierarchical structure of the terminal operating company. The pool members refer in principle to the coordination structure of the CULMV. Indeed, in the container terminal, two foremen (called “inspectors”) of the supervisory staff of CULMV are present as well during the operations, monitoring the gangs of pool members.

The hiring system of the dockworkers of CULMV takes place through SMS to the mobile phone of each member, generally available throughout seven shifts of six hours each, and it is managed by the callers of CULMV itself. Pool members typically receive on their mobile phone information about shift, terminal, vessel, task, position/ number of the gang (e.g. “Second shift, VTE terminal, ship CMA CGM Andromeda, Yard trailer, second of twelve).

By the viewpoint of the container terminal operator, the Berth Resource Allocation is the office that deals with the (external) resources to be employed from the pool, through three daily meetings with operative and supervisory staff, representatives of offices and inspectors of CULMV. It is during these operational meetings that is asked the adequate number of non-permanent personnel to integrate in the operations of the permanent dockworkers, together with the “hands” (quay crane arms) set up to work on a ship, taking into account the contractual agreements signed between terminal operator and shipping companies.

According to the contract⁹⁴ signed between the main container terminal operator in the port of Genoa and CULMV, the container terminal operator who typically asks more pool dockworkers, is expected to request in advance to the CULMV the dockworkers needed through the following scheme:

⁹⁴ The sensitiveness of the content and the commercial nature of the contract signed by private economic actors make these documents not available. This information has been elaborated from different sources during the fieldwork.

<ul style="list-style-type: none"> • First shift: H 06:00 – 12:00 Request of pool members by 16:15 pm of the day before
<ul style="list-style-type: none"> • Second shift: H 12:00 – 18:00 Request of pool members by 09:00 am of the same day
<ul style="list-style-type: none"> • Third shift: H 18:00 – 24:00 Request of pool members by 14:30 pm of the same day
<ul style="list-style-type: none"> • Fourth shift: H 24:00 – 06:00 Request of pool members by 16:00 of the same day
<ul style="list-style-type: none"> • Week end shifts Request of pool members by H 13:00 of Saturday (3rd and 4th shift Saturday, all the 4 shifts Sunday, 1st shift Monday)

The dockworkers of the labour pool generally provide additional flexibility to all the terminals through “broken” shifts and “overlapping” shifts. Moreover, the elaboration of the hiring in each terminal requires additional time, producing short reaction time, namely situations in which pool members are alerted also one hour before starting the shift in a terminal, as it emerged during some interviews, in particular during an interview to a pool member who highlights the interplay between productive process and social reproduction:

If you ask me to see you this afternoon, I do not know, because I have to wait for the SMS before 11 h. Do we see this evening? I do not know, because I have to wait for the SMS coming between 17:30 and 19:00 h. Do we see you tomorrow? And I have to wait till 19:30 h. In the meantime we have come to the port that we were young, we have come forward normally in life as many others, then as comrades, wives, children. And you begin to say that you do not know if you are going to take him to school, do not you know if you are available to accompany him to training, to do shopping, the normal things of life, which seems strange but in the long run have an impact if you think about the quality of life of a human being. You are not a reference, you are not a point, you are a question mark... there is, there is not, maybe... [Interview with a pool member, Genoa, 2016]

It has been already mentioned that the dockworkers of the pool hired temporarily in a container terminal can work for two or three consecutive shifts. This practice may occur for the single member or for the gang involved in more than one shift consecutively⁹⁵. This is typically noticed through the security systems of the terminal, in which anyone who stand inside the international area for more than 12 hours is reported at the exit by an alarm system. However, the alarm remains just a notice for security reasons.

In general, the payment system of the dockworkers belonging to the labour pool is settled by an internal regulation of the CULMV, which distributes wages to the workers derived only from the

⁹⁵ Typically, in the port of Genoa the principle of “the labour to finish” occurs for pool members. So the shifts are somehow overwhelmed by this principle

maximum tariff set up by the Port Authority and negotiated with each terminal operator. The wage of dockworkers of the labour pool includes a basic fixed wage of the working day, diversified for shifts and days (e.g. week-ends or night shifts), and a part of variable wage supplement associated with the productivity of the team in the single shift (piecework rate system). The remuneration is therefore in relation to a productivity indicator. As already mentioned, bonuses and incentives are allowed in the port of Genoa, especially in the container handling process.

This overview shows how complex is to regulate and govern the composite and mobile dimension of labour in the port sector. Dock labour pool in the port of Genoa is mainly based on the existing labour regulation and by means of informal agreements between the actors (day-by-day, ship-by-ship, shift by shift) of the professional and quantitative relations between permanent employees of the terminal operators and temporary dockworkers of the pool who belong to the workers' cooperative CULMV. These dynamics are routinized throughout the time and legitimated further by the peculiar composition of the workforce, in which a locally embedded workers' cooperative is involved jointly with a permanent, internalized workforce.

By drawing upon the observations of Sacchetto and Semenzin (2016), cooperatives can also be overwhelmed by market rules. The authors suggest that the transformation into a more business-like company is linked to the crisis of the Italian labour movement. In fact, since the end of 1970s, the cooperative movement has become more and more permeable to the influences of the market and the government. The cooperative movement has been transformed from an economic-political movement that supported a model of Industrial relations in favour of the employees, into an economic entrepreneurial movement that has a significant degree of uniformity. The recognition of the legitimacy of the role of cooperatives is a process supported by economic and institutional factors.

4.5. Labour organization at workplace

The operations that constitute the main activity of a container terminal in the port of Genoa are heterogeneous. Three cycles are in place: ship cycle, yard cycle and rail cycle.

The vessel reaches the port and berths on the terminal. Once berthed, the moored vessel waits for the quay crane to unload the containers leaving the terminal and load the incoming containers onto the ship. The containers unloaded with the quay cranes are placed on the yard trailers and forwarded to the yard, the storage area where workers employed to the yard equipment (RTG and RMG) operates. Conversely, as many yard trailers carry the containers to be loaded onto the vessel. And so on, seven days a week, twenty-four hours, throughout the year, excluding 1st May and 25th December.

Containers in the yard are pending withdrawal by the customer. About 82% of the containers continue their path across the chain in the hinterland mainly via trucks. Daily, almost 2000 trucks (in and out) enter and exit randomly, without gate appointment systems, the main container terminal of the port. The remaining percentage is handled by railroad connections.

Among the means of the container terminals, Reach Stackers and Empty Handler also are in place. The Straddle Carriers, smaller yard cranes that can operate in any direction, are not present.

The permanent dockworkers of a container terminal operating cycle consist of 360 employees, with their own roster and flexibility, grouped into 12 teams by 30 workers each (white collars excluded). The permanent workers know their own variable shifts from the beginning of the year since the end. 7,58 flexible shifts are accomplished monthly and may vary each month (minimum 6, maximum 10 flexible shifts). The flexibility of the permanent workers therefore is limited, whilst the flexibility of the non-permanent workers is total (numerical, functional and temporal flexibility).

In order to simplify the operations, generally two inspectors (foremen) of CULMV are permanently employed to the container terminal. They manage the work of the gangs of members involved as general

dockers, lashers (which have their own supervisor from CULMV as well), yard trailers and so on. They interface directly with the (permanent) supervisory staff of the container terminal, and they are provided of the stowage plans of the vessels in order to manage the appropriate number of pool members required daily. In this way, the Head of operations of a container terminal explains the principles of work organization of the terminal:

Our superintendents and supervisors talk with the supervisors of CULMV. Our dockworkers are going to cover the higher jobs. Therefore, when we need additional workforce, the first job in order of call is the general docker, then the lasher, then the Yard trailer, then the driver... What does the pool members do? The Calling Line of the CULMV is lasher, and I move my workers from the yard trailer upward. If I do not even have the lasher, I call the pool members as yard trailers as well, and therefore I move my workers from the driving machines or crane drivers upward. The highest skilled tasks in the operational cycle are accomplished by our permanent workers [Interview with Head of operations, Genoa, 2016].

The major container terminal in the port of Genoa has a dedicated workforce of approximately 250 members of CULMV – called MOE, Elementary Operating Module – used in a “quasi-permanent” manner by the terminal operator. These workers, as well as the other pool members, are integrated daily in the operations and have a priority with respect to the other pool members of CULMV. At the same time, they all respond to a differentiated piecework rate system in respect to the incentive of productivity for the permanent dockworkers. However, the dockworkers of MOE also refer to the management and the coordination structure of CULMV, although they are regularly employed at the same terminal, day by day.⁹⁶ After having reached the amount of monthly shifts for instance, quasi-permanent dockworkers of MOE generally can “unmark” or “dribble”, namely they do not give availability for further work shifts. This option might be accomplished by all the pool members as well.

As underlined in the interview of the Head of operations, the permanent dockworkers of the terminal operating companies typically cover the most qualified and skilled jobs, according to an internal agreement who sets the hierarchical integration of tasks and job categories (from the drivers of the quay cranes downward). The other handling units (i.e. RTG, RMG, Reach Stackers and Yard Trailers) are employed according to the internal hierarchy established in the contract at company level. This agreement enshrines the use of permanent dockworkers for specialized, “high skilled” jobs, and coverage of the pool members for “low skilled” jobs, starting from the generic work, lashing and securing on board of the vessels and going upward.⁹⁷ It is not allowed, for instance, to employ a dockworker of the labour pool on a Reach Stacker, if there is among the available permanent

⁹⁶ As previously emphasized, this need is typically widespread in order to meet the short reaction time. It is known that for instance the members of the MOE usually leave nearby the container terminal in which they are regularly employed, which is 20 km away from the city. Many pool members indeed do not prefer to work far away from their homes.

⁹⁷ Although dock work in general is a professionalized job, the skills and qualifications vary depending on the tasks. The lashing and securing is that set of operations carried out by the organized gangs of CULMV members on board of ships in order to fix the containers solidly, to keep them stable during sea transport or vice versa to free them. These operations are dangerous and require specialized workforce.

dockworkers who are able to accomplish this task.

For instance, we have defined at least 100 containers in 1 hour. A ship has 4,000 movements, you divide 4,000 by 100 and come the number of cranes needed to finish. The ship is scheduled to arrive in the morning at six o'clock, for example, ending 48 hours later. I have to start a number of decent hands (cranes) so that the ship can be finished in the expected time. Once you have laid the hands for that ship, the recruitment of the dockworkers from the labour pool comes in. The Berth Resource Allocation carries out a coating of the teams of workers to be employed for the yard, railways and ship cycles. The system covers the tasks from the highest to the lowest skills, then the whole part not covered by our permanent workers is covered by the dockworkers of CULMV; This is done in advance during the operational meetings because you must also give an info to the shipping line of the dwell times or end of the operations. [Interview with Head of operations, Genoa, 2016].

As a terminal manager of a container terminal pointed out during the interview, the organizational model at workplace is a kind of “elastic system”, first linked to the volumes handled by the container terminal. When the volumes decrease, the terminal operator generally recruits less dock workforce from CULMV, and uses its permanent dockworkers. When the volumes increase, unless he decides to hire additional permanent workforce⁹⁸, the terminal operator increases the number of temporary dock workforce from CULMV, which provides flexible workers to the terminal according to the so-called “peaks”. In other words, permanent dockworkers cover the core operations. During the “peaks” in the largest container terminal of the port of Genoa, for instance, permanent workers cover entirely the crane drivers (quay cranes) and RTG, partially the Reach Stackers, whilst the yard trailers, lashing/securing and general work is almost always covered by non-permanent dockworkers of CULMV. When no ships or only one ship is in the terminal, the number of permanent workers covers every task (or may even be redundant).

From the lowest task upward, the main professional profiles for the operations of loading and unloading in a container terminal of the port of Genoa are typically the following:

- Generic dockworker
- Lasher
- Yard trailer
- Self-propelled vehicle driver
- RTG driver
- Quay crane driver
- Shift supervisor, foreman, etc.⁹⁹

Typically, one “ship hand’s” (e.g. one quay crane working on a vessel) is composed by the following

⁹⁸ Such a policy has not been adopted in the last years. The strategy of the terminal operating companies, therefore, has been to shift anyway the risks on the pool, by exploiting the flexible part of labour provided by CULMV. In this way terminal operators who handle containers in the port of Genoa benefit from the pool system.

⁹⁹ Generic dockworkers typically are employed to remove or affix twist locks. Lashers on board are employed to lash or unlash the containers.

tasks: the shift supervisor (permanent) which has delegations for safety and organizes labour. The crane driver (quay crane) has a double task of manoeuvring the crane and of signalmen. The crane driver receives the loading and unloading plan from the planner office (via the shift supervisor), and it has the responsibility to ensure that the plan is respected. After the lashing operations on board of the ship (conducted by organized gangs of pool members), the (unloaded) container goes down from the crane to the yard trailer. The trailer from the shore goes towards the yard, where the Reach Stacker driver stores the container in the planned position as established by the planning office. The Reach Stacker driver has also to unmark the container through an IT system device, once it has been stored. For the loading containers, generally, the Reach Stacker drivers have the number of the box to load; they put it on the yard trailer, who goes below the crane. The box is taken by the crane driver and is loaded onto the ship. At the end of the process, again, the box is unmarked, under the coordination of the planning office.

The setting of the operational cycle is changed throughout the time, together with the increasing amount of volumes handled. The number of self-propelled vehicles for instance has been increased, modifying in turn the IT system in order to distribute the tasks in a right way. At the same time, the moves per hour increased, so an additional Reach Stacker has been introduced in order to follow the pace of the quay cranes. In other words, the increasing rhythms in the last years determined a different labour setting of the gangs at operational level in order to avoid bottlenecks during the operations of loading and unloading. The volumes increased with the pace of work, i.e. the moves per hour. To date, this trend did not produced new recruitments of permanent workforce in the port of Genoa.

4.6. Labour productivity

Many factors affect labour productivity at quayside. The main items emphasized during the interviews that characterize productivity are generally work organization, equipment used / automation (but also IT systems), professionalism, social peace and safety conditions.

With respect to the incentives linked to the productivity for pool members (piecework rate systems), those are part of the commercial contract between the terminal operator and CULMV. The latter receives by the terminal operator a far higher tariff for the worker than the higher the productivity achieved in a given shift. Therefore the terminal operator, starting from the tariff man/shift established by Port Authority, pays to CULMV for each shift a negotiated value X, that can also increase to X+ according to the productivity indicators of the dockworkers of the pool (after which CULMV administration develop wages). This organizational procedure has been routinized in the time.

Besides the “hierarchical integration” into the operating cycle of the pool members relating to the tasks, the incentive mechanism is based on the KPIs annually determined, as explained by the head of operations:

We define at the beginning of year 26 of Gross Crane Rate, for example, it means that on annual average each crane will have to make 26 moves per hour. This number brings a series of calculations and considerations. It means that I have to work with a certain number of quay cranes; behind the crane, I will have to put an X number of means such as the yard trailers to make sure it can get that performance [Interview with Head of operations, Genoa, April 2016].

The wages of both the permanent and non-permanent workers therefore vary in function of the productivity reached. The economic incentives to productivity for the permanent dockworkers of the container terminal are established in the decentralized contract at company level (II level contracts)¹⁰⁰.

¹⁰⁰ It should be reminded that the contracts at company level are subject to a different taxation with respect to the CBA

It is not considered as a piecework rate, but as a fixed productivity bonus linked to the volumes handled, and based on the attendance. “An incentive to produce”: by reaching certain performances, the bonus grows. According to the trade unions as well – who signed the contract at company level –, the terminal operators pay the wages of permanent dockworkers on the basis of the collective bargaining agreement. In addition to the other variables which constitute the wages on the payrolls, the economic bonus established by the contract at company level is related to the KPIs, in particular the Gross Crane Rate (GCR) determined by the sum of all the crane productivities in a month. The higher this indicator (moves per hour), the greater the economic incentive for the permanent dockworkers.

As illustrated in the table below, the calculation scheme for the bonuses and wage supplements takes into account both the volumes handled in TEUs, according to the current scheme, and GCR on a monthly basis. The economic effect of the bonus, limited to the volume component, remains unchanged in light of existing agreements. The economic effect linked to the GCR is based on the recognition on an individual basis of a gross euro coin, the value of which varies with the average GCR per month (in correspondence to the volumes moved in the same month). The values highlighted in yellow represent in average the current GCR in the main container terminal of Genoa, with the relative bonuses. It is further acknowledged that the objective in this container terminal is to reach in the long run a GCR equal or greater than 30.

TABLE 11: PORT OF GENOA. SCHEME FOR INCENTIVES LINKED TO PRODUCTIVITY INDICATORS

Volumes (TEUs)	GCR - Month	Daily Euro (gross) per single day/shift
		<u>First year validity</u>
84.000 – 97.999	≥ 24 ≤ 24,99	€6,00
	≥ 25 ≤ 25,99	€6,50
	≥ 26 ≤ 26,99	€7,00
	≥ 27 ≤ 27,99	€7,50
	≥ 28 ≤ 28,99	€8,00
	≥ 29 ≤ 29,99	€8,50
	≥ 30	€9,00
> 98.000	≥ 23 ≤ 23,99	€ 5,50
	≥24 ≤ 24,99	€ 6,50
	≥ 25 ≤ 25,99	€ 7,50
	≥ 26 ≤ 26,99	€ 8,50
	≥ 27 ≤ 27,99	€ 9,50
	≥ 28 ≤ 28,99	€ 10,50
	≥ 29 ≤ 29,99	€ 11,50
	≥ 30	€ 12,00

Own composition. Elaboration from different sources

The bonus is paid on an individual basis for all days/shifts ordinarily worked (and days /shifts extraordinary not scheduled in the roster) in the month referred. The day/shift worked means the actual performance of at least 6 hours for shifts of 8 hours and 4 hours for shifts of 6 hours. For the purposes of the definition of the bonus, the volumes and GCR calculations are carried out monthly.

The challenging strategy of the terminal operator, therefore, is to stress the assets in order to raise the performance, the efficiency and the volumes, by lowering the CCPB, keeping the fixed labour costs as low as possible, and stressing the variable labour costs at the same time. The premise of this strategy is an organizational model based on the polyvalence, and piecework rate systems, or incentive to productivity, differentiated by permanent and non-permanent workforce. It should be underlined that labour productivity is also linked to an appropriate professional training system.

4.7. Labour cost and wages

As previously illustrated, the Cash Cost per Box (CCPB) is the indicator that represents how much a container handling company spends only in terms of out-of-pocket costs for each volume unit handled. The cash cost per box therefore is the total cost that a terminal pays to handle a container, included the labour. In this cost structure, indeed, labour (direct and indirect workforce) composes typically the main value. Starting by the value of this crucial parameter, the terminal operator applies the tariff to the shipping company in order to obtain margins.

In the port of Genoa, the indirect workforce is represented by CULMV workers. Besides the cost of operating employees, other costs are considered in the CCPB, such as the cost of fuel, maintenance of the means, etc. Based on this cost, the terminal operator then charges the shipping companies for an economic margin. Every container terminal that wants to be competitive starts from its Cash Cost per Box, and then it does business negotiations with customers (i.e. shipping companies) to have profitable margins that keep it on the container handling market.

In the case of CCPB, the volumes are measured in number of boxes and not in TEUs. In the calculation of the indicator, typically all the out-of-pocket costs are taken into account, except those not specifically related to container traffic. As the table showed in the previous section, for a generic Global terminal operating company, the Cash Cost per Box report is presented in two ways: excluding or including the concession fees. The streams highlighted in yellow determine the CCPB. The figures of this indicator are sensitive, and the availability of data is limited. However, it is acknowledged that labour cost is the main value among the items that compose the CCPB in the European ports. The empirical findings for the CCPB in the port of Genoa available have been elaborated from different sources. With respect to the permanent employees, a container terminal in the port of Genoa with about 660 units spends approximately 63.000 € as labour cost per capita annually (gross values, white and blue collars included). In 2016, between the fix costs of permanent workers (white and blue collars) and

the variable costs of non-permanent workers, approximately 64 million € has been the absolute value (42 million for permanent workers, 22 million for non-permanent workers). By dividing this amount with the number of boxes handled annually, it is possible to obtain the labour cost per box (approximately 64,00 €). The total CCPB in the port of Genoa is approximately 96,00 €, 66% with respect to the Revenue per Box. The 75% of CCPB is labour related (permanent and non-permanent workforce, white collars included). Labour component therefore has a strong impact on the cost's structure.¹⁰¹

TABLE 12: PORT OF GENOA. STRUCTURE OF THE CASH COST PER BOX

COST OF SALES Wages and Salaries Contract Labours Running, Repair and Maintenance Power and Fuel Rental of Equipment and Facilities Other Direct Charges
Total Cost of Sales
OVERHEADS Management / Royalty Fee – Local partner Management / Royalty Fee – Multinational Group Concession fees Property Tax Rent & Rates Wages & Salaries Other Overheads
Total Overheads Approx. 96,00 € Cash Cost per Box (CCPB) Approx. 64,00 € Labour Cost per Box (LCPB) CCPB is 66% with respect to Revenue per Box; 75% of CCPB is labour related

*Permanent workforce refers to white and blue collars (approx. 660 permanent workers) Own composition. Elaboration from different sources

The tables 13 and 14 show an overview of the minimum wages of the dockworkers in the port of Genoa related to the tasks – job categories and the dayshift of six hours in the container terminals, bearing in mind that in this port four daily shifts take place. In addition, some categories of permanent workers perform shifts of 8 hours instead of 6 hours. Concerning the pool members of CULMV, as previously mentioned it has been not possible to obtain the figures. However, since in principle CULMV should apply the minimum wage treatment provided by the National Collective Agreement for Ports (CBA), the figures are taken from this document and the categories of workers within the V level. The monthly minimum wages, according to each employment level, has been divided per 26 working days. The other values refer in average to the gross wages per shift, per category, including all the components of remuneration expected in a payroll.

¹⁰¹ White collars are included in the calculation, due to their active role in container handling operations (planning, etc.)

Typically, the wage is determined by the minimum wage, the seniority pay increase and the EDR, which is a monthly pay adjustment. It is further determined by the employment level (according to the qualification). Other items that constitute a payroll of the permanent dockworker are the number of extra or night shifts, unclaimed days off work, withheld, days worked, hours of surcharge, flexible shifts, and of course the bonuses for volumes handled and productivity indicators, incentives for the attendance, etc.

TABLE 13: PORT OF GENOA. WAGES PER ONE SHIFT. CONTAINER TERMINALS

Task – Category	Minimum & average wages Dayshift (H 06:00 – 12:00)
Pool members (non-permanent) Yard trailer driver; Lasher; General worker; Interim agency worker (Intempo)	Piecework rate system; multiskilling/multitasking Man/shift maximum tariff (232,00 €) Reference to CBA: 61,90 € (V level) Approx. 140,00 € - average
Supervisory staff (Permanent) Superintendent, Shift supervisor (Quasi-permanent) Foreman/lashing, Foreman (CULMV)	86,55 € (I level CBA. 8 hours per shift) 220,00 € - average 75,45 € (II level CBA. 8 hours per shift) 185,00 € - average
(Permanent, polyvalent) Crane driver Driver of Reach Stacker, Transtainer, etc.	69,79 € (III level CBA) 160,00 € - average 65,61 € (IV level CBA) 140,00 – average

*Gross values

Own composition. Elaboration from different sources

TABLE 14: PORT OF GENOA. MINIMUM WAGES PER MONTH

Mid executive level	2250,32 €
1 st level	2105,54 €
2 nd level	1961,89 €

3 rd level	1814,78 €
4 th level	1705,96 €
5 th level	1609,50 €
6 th level	1535,70 €

*Permanent workforce*¹⁰²

Source: CBA 2016

The Collective Bargaining Agreement (CBA) sets the labour conditions at national level of the dockworkers, making a relevant difference with respect to the workforce involved along the maritime-logistics chain. This CBA protects the permanent workforce in the port from the deregulation processes across the chain; it comes from the public port despite its private nature. The public origin of this contract is further demonstrated by the fact that also personnel of Port Authority – a public entity – are covered. The CBA further allows the bargaining at company level (Article 52), which delegates certain agreements to this second contractual level. However, these always relate to productivity upgrades, and in any case affect the work organization. The agreements at company level therefore affect the labour productivity, since usually they are linked to both the productivity incentives, labour settings and worker's viability (i.e. corporate welfare, etc.).

¹⁰² Minimum Seniority pay increase and EDR (monthly pay adjustment) are included. The bonus linked to productivity is excluded

4.8. Professional training

The organizational model and the relative labour cost structure linked to productivity in the port of Genoa are allowed by the current regulatory scenario, which might change in the future due to exogenous factors. Supposing that a further regulation would constrain terminal operators to pay the maximum tariff man/shift provided by Port Authority (232,00 €) to CULMV, without the possibility of linking the cost of the shift to a system of bonuses, incentives and productivity indicators, in the long run the terminal operators would hire permanent workers. Terminal operators in this case indeed would lose a lever. On the other hand, the piecework rate system in turn is of interest for CULMV as well. The incentive to productivity is not only a way to discipline an outsourced workforce hierarchically

integrated in the port operations, who at the same time does not respond to the internal hierarchy of the employer. It represents also a convenient tool for CULMV in order to be somehow “competitive” for its customers in the “market”. If productivity and KPIs were not reached, for instance, the terminal operators for *extrema ratio* would no longer asks for dockworkers of the pool. Members of the pool are therefore encouraged to be performative – and indeed, they are. The balance between “make-or-buy” decisions however – a decision mainly produced by the social relations of production – is delicate. Terminal operators need to find always a meeting point, given the current constraints at regulatory level, the market requirements and the external factors.

On the other hand, the limited integration with the permanent workforce might change, due to the regulatory constraints and the exogenous factors. To date, pool members typically manage several phases of the operations “autonomally”, without interfering hierarchically with the organizational structure of terminal operators. If terminal operators opt for a policy of strengthening the permanent workforce, a further reduction of the amount of shifts asked to CULM might occur. In the meanwhile, the key tasks are provided by permanent workers, and to the pool members it is asked to accomplish less skilled tasks. In the short run, this relationship might vary as well.

It is further acknowledged by all the parties that the cause of “peaks” as motivation for the consistency and employment of temporary workers, at least in the port of Genoa, has almost no reason to be. Pool members are employed for almost half of the total operations, their daily use is constant. In the major container terminals, they represent a structural and not extraordinary component of the whole workforce. On the other hand, the number of the pool members employed is not daily the same, being the variation linked to the traffic and volumes to be handled. However, the constant use threshold is significant. The empirical evidence shows that each terminal operating company behaves in essence providing itself by its own permanent staff in function of the organizational model that it adopts, more or less open to the employment of temporary pool workers on a constant basis.

Above all, it is significant that this variability is not so much linked to temporary use as for professional qualification. The evident consequence in the terminals of the port of Genoa, in particular the full container, is that the terminal operating companies employ their permanent dockworkers in more complex and control tasks, leaving to CULMV pool members the lowest jobs, firstly the generics, lashing and securing and horizontal handling at the yard.

There is therefore a sort of professional bias in this setting, a polycentric model at the expense of CULMV workers, not only subject to temporary variability, but also to a structured work hierarchy, as well as organizational, which prevents professional growth and career development. Unless the user terminal operator absorbs the temporary pool workers¹⁰³, or a beneficial constraint produces an up-grade of the skills of pool members required through additional investments and active labour policies – at

¹⁰³ This option has been considered during the interviews. The following question has been raised to a HR manager of a container terminal: Suppose that you are oriented in recruiting permanent dockworkers: Would you hire 500 pool members from CULMV?

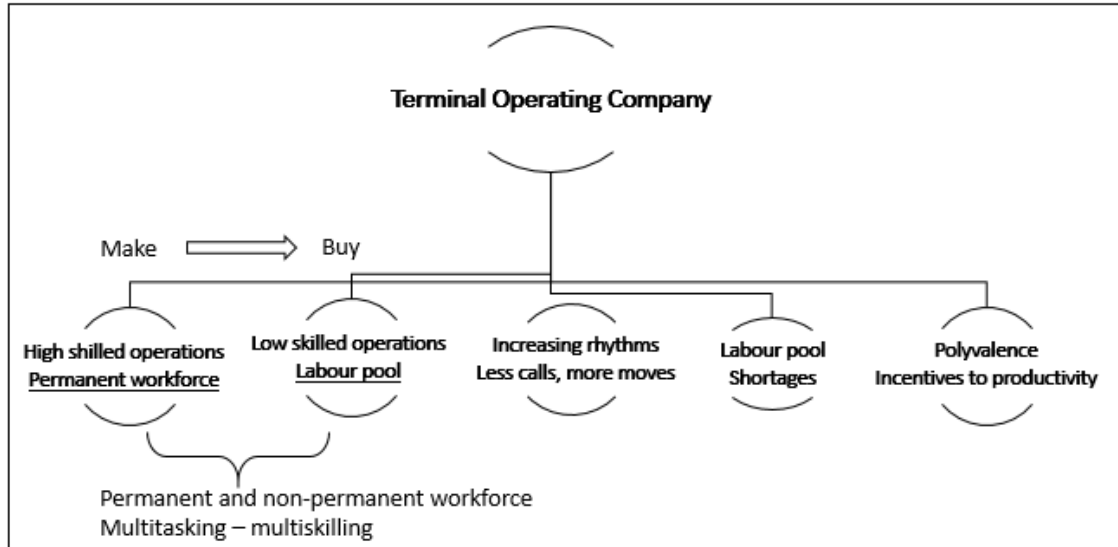
national or regional level.

To date, the professional training system does not boost the advancement of job categories throughout the dockworker careers. It is organized on the job, at company level, and based mainly on the needs of the company and on learning by doing. The terminal operator typically invests in training when needed, in different periods according to the requirements. In the period 2004-2008 for instance, the main container terminal operator needed many professional profiles due to the tremendous increase of volumes. The permanent workers hired in that period were trained according to these needs. Typically, training to the pool members of CULMV is done and paid by the members themselves, previously trained by the trainers of the terminal operating company. As we shall see in the Belgian case, dock labour requires a structured professional training, in order to provide precise competencies and skills, both for the general knowledge of the workplace (e.g. the layout of a terminal) and for the operational cycles. The largest container terminal in Genoa has invested recently in training and safety.¹⁰⁴ Furthermore, in Italy, there is not a conformation of professional profiles and common paths of training among ports, excluded the mandatory common safety training.

The figure below provides a synthesis of the organizational model at workplace in the port of Genoa, focusing on the container terminals. Given the institutional, material and structural constraints, the work organization of a terminal operating company is characterized by a polycentric model based on polyvalence and incentives to productivity (allowed by the port labour system). Multitasking and multiskilling are in place for both permanent and non-permanent workers, with some different conditions. Permanent dockworkers, employed for high skilled tasks, are hired by a terminal operating company. The flexible, temporary workforce is outsourced by hiring daily non-permanent dockworkers from the labour pool, employed for low skilled functions. The empirical evidence from the Italian case shows an increasing trend of this practice, represented by the narrow from the “make” towards the “buy” decision taken by the terminal operating company. This trend (increasing flexibility) is mainly due to the market pressures coming from the needs of the shipping companies along the maritime supply chain, but also to the occupational context. The impact of mega-ships on the container terminals generates further pressures, with a shrinking of the handling time, increasing rhythms, shortages in the labour pool and an increasing role of the outsourced work from the interim agency (via labour pool).

¹⁰⁴ Seven non-serious injuries occurred in 2016.

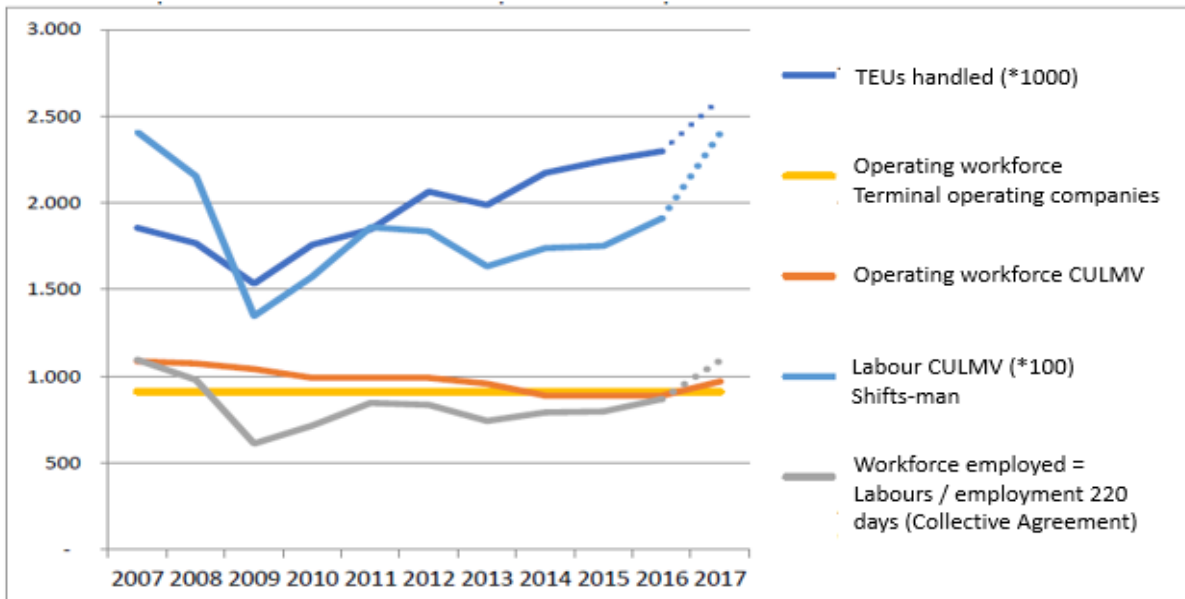
FIGURE 10: PORT OF GENOA. ORGANIZATION AT WORKPLACE AND NEW TRENDS



The Port Authority (AdSP) provided the record throughput of TEUs handled in May 2017, making a projection of 2.600.000 TEUs for the end of the year, with an increase of 13% over the previous year. In addition, Port Authority has allowed CULMV to increase its staff from 888 to 970 operational units. At the same time, the Port Authority made a projection of the number of shifts done by CULMV, estimated at 240,000 (a figure only reached in 2007), with an increase of 25% over 2016. The following graph summarizes the last 10 years starting from 2007, the year before the financial crisis. It should be noticed that the figures for 2016 are unofficial and for 2017 are a projection.¹⁰⁵

¹⁰⁵ The graph has been provided by CALP, Collettivo Autonomo Lavoratori Portuali.

FIGURE 11: PORT OF GENOA. OVERVIEW OF VOLUMES LINKED TO LABOUR



Source: CALP, Collettivo Autonomo Lavoratori Portuali

The following points can be underlined from the graph:

- The container throughput after the years 2008 – 2009 has returned to grow, and in the last two years is growing as well.
- The number of shifts provided by CULMV decreased more than the volumes, probably due to a productivity deficit that CULMV had to pay even with the reduction of the staff, up until the last two years, when the work shifts grew more than the traffic.
- The workforce of CULMV, ordered by the Port Authority, has dropped steadily, at least by 20% in 9 years. Half of the operational units lost from 2007 have been recovered in 2017. The throughput in TEUs has risen by 30% with an impressive increase in CULMV productivity, also taking into account that terminal operators in the meantime did not hire (except one).
- The actual staff set up by CULMV, calculated on the basis of shifts divided by 220 days according to the Collective Agreement for ports (220 days = 5 working days per week x 12 months, minus 1 month of holiday and a couple of weeks of vacations, permits, illness or injury), in the last years saturate completely the nominal staff. It exceeds it in 2016 and breaks it off in 2017.

As it has been underlined by the CALP, instead of talking about redundancies, it should be considered the possibility of new recruitments among the pool members. However, two points have been emphasized:

First, the qualitative mismatch between the professions / skills required by terminal operators and those offered by CULMV.

Second, the social organization at workplace between the permanent dockworkers of the terminals and the pool members of CULMV.

In the first case, the solution should be found in the training system, which however finds a limitation

in the second case, since to date terminal operators do not accept that the pool members have equal or higher professional tasks than their own permanent dockworkers. In this second case, the solution should be found in the employment relations and the political process of negotiations between the social partners, based on the common search of clear and shared regulations in the interest of all parties involved instead of pursuing informal logics by means of agreements and unwritten constraints. The professional value of those working in the port might be not only a real barrier to deregulation processes widespread along the maritime-logistics chain, but also a potential driver to increase labour productivity¹⁰⁶.

The port of Genoa lacks a regulative and institutional entity for the coordination and supervision of flexible dock labour, a specific regulation on the role of pool members, whose organizational structure operates in a different way from any interim agency. The limitation therefore is structural and regulatory. In the long run, the increasing flexibility might rise the qualitative mismatch between permanent and non-permanent workers, in light also of the transformation of the workers' cooperative in private enterprise, subject to the requirements of the global supply chain. The risk, in other words, is a progressive professional depletion of the labour pool, and the "contamination" with other (deregulated) labour conditions just outside the ports, across the maritime-logistics chain.

Another point to be underlined lies on the question of automation, who has a strong impact on labour and on the occupational structures. It is acknowledged that a certain degree of automation will be introduced in the existing container terminals, whilst it will be differently set up in the new coming terminals in the port, as well as in the region (e.g. Calata Bettolo, Vado Ligure). In this regard also should be interpreted the strategy of not hiring new permanent workers by the main container terminal operating in the port of Genoa. The labour Union FILT CGIL as well is not pushing towards the request of new employments and recruitments. The future scenarios therefore will be characterized by a further, slow automation of certain tasks and port operations. However, the misunderstanding consists in the questionable idea that automation erases skills, whilst it should be recognized that automation does not modify the necessary competencies in the accomplishment of evolving tasks and skills in port operations.

On the other hand, the question relates to which kind of automation one has to expect. The example taken into account by the largest terminal operator in Genoa during the fieldwork has been the BEST terminal (Barcelona Europe South Terminal) in the Spanish port of Barcelona. Leaving aside the peculiar national regulations and the port labour system in Spain,¹⁰⁷ what is known is that the container terminals analysed in the port of Genoa have been conceived in the 1980s, which is quite different with respect to a container terminal projected from scratch. By this perspective, the passage to the automation

¹⁰⁶ Along this line, the idea of a port training centre at national level, based on the example of OCHA training centre in the port of Antwerp, is currently being developed by a joint effort between ISFORT, Rina the Interim agency Intempo and other partners. The project in progress is named *SeaPoTra* (Sea Port Training Method)

¹⁰⁷ Currently under infringement at European level.

in the port of Genoa will be slow, and it will be driven by power relationships and social – not only economics – factors.

To conclude, in light of the abovementioned analysis, and in the perspective of the next section, some important questions raise. Given the existing regulations and the exogenous factors affecting the changing trends in port labour, by the viewpoint of a container terminal operating company, it is less and less useful to have own permanent workforce or non-permanent flexible workforce? Why do terminal operators prefer to internalize some operations of the cycle – by having permanent workforce – and on the other hand, they outsource some operations to temporary work provided by the labour pool? How much permanent and non-permanent work is incorporated in a container? Is it possible to develop a synthetic measurement productivity indicator able to put together the Gross Crane Rate, the amount of permanent workforce with the amount of non-permanent workforce required, by linking to it the labour cost per box? What are the structural and regulatory constraints that can have “beneficial” effects on the actors involved, the performance and the contractual system of port labour? Finally, is there attention to these issues by the port operators, or the aim of the terminal operators is just to keep the labour cost - both fixed and variable – as low as possible?

4.9. Port labour in the time of mega-ships

This section provides an analysis of the main elements that have been characterizing port labour transformation processes under the market pressures, focusing on the impact of the increasing size of vessels on the container terminals in the port of Genoa. As it also emerged in the previous section, there is a relationship indeed between the trends of increasing vessel size, the increased pace of work and flexibility required. The table 15 shows the trend in the last three years of the dimensions of container ships calling at the port of Genoa, in the major container terminal. In average, the moves per vessel in 2017 are 1246 boxes, not TEUs. The number of vessels above the 12,000 TEUs, more than double between 2015 and 2016, is expected to increase further.

TABLE 15: DIMENSION OF VESSELS CALLING AT THE PORT OF GENOA
Moves per call on average YTD 2017: 1246

Calls - capacity	2015	2016	2017 Jan-May
TEU < 8K	576 73,2%	557 69,8%	223 69,0%
8K < TEU < 12K	163 20,7%	129 16,2%	46 14,2%
TEU > 12K	48 6,1%	112 14,0%	54 16,7%
Tot.	787 100,0%	798 100,0%	323 100,0%

Own composition. Elaboration from different sources

Terminal performance (January – June 2017)		
		% 2016
Yard Volumes (TEUs)	765.244	+ 13,8%
Railroad (TEUs)	98.183	+ 9,0%
Trucks (TEUs)	579.740	+ 6,7%
Moves/crane/hour	24,95	+ 0,20 %
Moves/ship/hour	65,72	+ 0,80%

Elaboration from different sources

In the first six months of 2017 the main container terminal in the port of Genoa has moved 765.244 TEUs, with an increase of 13,8% in respect to the first six months of 2016. The GCR (Gross Crane Rate) has been 24,95 moves/hour, greater with respect to the same period in 2016 of 0,20%. The ship crane rate also performed an increase with respect to 2016 of 0,80%.

It is acknowledged that in the port of Genoa for the last ten years, besides the volumes handled, less and less calls corresponded to increasing crane moves during the container handling process. This means that for each call of a vessel the amount of moves per vessel (loading and unloading) increased.

Accordingly, the labour performance is linked to this trend, as described in the previous sections, since the bigger ship needs to be served and worked faster. The leading shipping companies along the maritime-logistics chain increasingly ask high performances.

The growing size of vessels has affected the investment strategies of the main container terminal in Genoa, constrained to update the terminal facilities in order to accommodate these kind of ships and to increase the competitiveness for future scenarios (i.e. two new container terminals in proximity). In the past years, 100 million euros have been invested for new eight quay cranes and other facilities. The Head of operation explains how the needs of the market players affect the strategies of container handling companies:

Time is the predominant element because the ship-owner asks higher performance, because a high performance brings cost savings for the ship-owner. If I can give him a greater performance, in the route from Genoa to Fos, for instance, instead of going to 22 knots he goes to 18 knots, so there is a saving of fuel. Considering this kind of aspects throughout the years, it is normal that the ship-owner asks for the most possible to the container terminal, and in turn, it is normal that the terminal tries to match the needs of the shipping company with their own needs. It is an agreement, but the main pressure on the terminal comes from the ship-owner [Interview with the Head of operations, Genoa, 2016].

The empirical evidence from the Italian case highlights how the mega-ships are shaping the work organization, the mechanisms of the labour pool and the degree of flexibility in Genoa. The impact of mega-ships on the container terminals has generated an increase of the concentration of the pace of work, shrinking of handling operation times, shortages and higher flexibility, with the increasing role of the interim agency *Intempo*¹⁰⁸ requested by CULMV. In order to achieve economies of scale, shipping companies are increasingly putting pressures on the terminals, influencing the functioning of dock labour pool itself. As it has been illustrated also by a study commissioned by OECD (ITF, 2015), the growing size of vessels has produced the rise of the pace of work. Terminal operating companies are asked to provide ever-increasing levels of efficiency as result of the pressure from the shipping lines on terminals – and along the whole logistics chain.

In this way, the Head of operation underlines these trends:

Mega-ships produce extra costs, increase the investments that are mandatory. Then there is the labour peak, which corresponds to a greater call of external resources. In our case CULMV. Suppose equal volumes, approximately 1.200.000 TEUs in a year with vessels of 8.000 TEUs, and 1.200.000 TEUs in a year with vessels of 14.000 TEUs. It means the day I have the peak I have to give the most, and the day when despite having my own staff roster started, which I pay, in the end I can have redundancy even of permanent staff I do not need, but I have it to work. This is consequence of the peaks of mags-ships. [Interview with Head of operations, 2016]

¹⁰⁸About 500 casual dockworkers from Intempo are employed throughout the Italian ports. The majority of casual workers provided by Intempo to CULMV in the port of Genoa are employed to the main container terminal operator, who ignores the difference among pool members and casual workers from Intempo. It should be noticed the increased revenue of Intempo from 2013 to 2016, as it has been highlighted by the General Manager of Intempo during the interview (Rome, 2017)

In the Italian case, it has been shown that there is no direct connection between the throughput volumes of containers and the amount of work shifts provided by CULMV (Deloitte 2014). After years of increased volumes, even with a significant increase of containers handled (+ 9% in 2014), it has been observed an increase in work shifts by CULMV not equally significant in percentage (+ 4% in 2014). These figures suggest a trend towards the increase of flexible labour via the casual workforce requested by CULMV of the Interim agency, generated by the growing size of vessels. An increase in the containers handled corresponds to a decrease of moorings of bigger ships, a relative decrease of the work shifts provided by CULMV members with respect to the volumes, and an increase of the work shifts provided by the casual workers from the Interim agency Intempo. Bigger ships are imposing, in other words, an increase of the volumes of the peaks and of the flexibility (numeric, functional and temporal), who produces shortages in the labour pool. Consequently, CULMV has been obliged to outsource more labour to the interim agency in order to cover the labour peaks. This aspect is pointed out by the director of interim agency Intempo in Genoa:

If the terminal operator asks 10 workers in a given shift, and CULMV has 8 workers available, then Intempo sends to CULMV 2 workers. Suppose that in the same shift the terminal operator needs 24 workers. Of course, CULMV has always 8 workers available, because they are the 8 workers available in that shift, because CULMV has always the other requests of shifts to accomplish in the overall port from the other terminal operators as well. Intempo workers intervene for that reason. If the given shift is for 10 workers, 8 pool members and 2 Interim workers, and you distribute them in the 4 shifts for 7 days a week, you will have a number of calls. But if you put them all in one day, I cannot send you more than I can. So you have to modularize it, between the permanent staff of terminals structurally required, the pool of CULMV and the “bench” of Intempo, let’s call it that. You practically do not have the chance to distribute flexibility in vertical and horizontal terms. The problem is that the increasing size of vessels is increasing flexibility, everything is going to figure out how manage it. Mega-ships moves the barycentre to the pool with respect to the permanent workers on the terminals, and also has dynamic consequences on the “bench” as well. [Interview, Intempo Work Agency, Genoa, 2016]

It appears how the exogenous factors can affect not only ports in terms of investments in new facilities, but also the same configuration of dock labour pool, which is shaped by these trends. It is expected therefore that the work organization at workplace will also change, due to more and more flexibility required by the port operators. Mega ships indeed generate a concentration of the paces of work, in particular concerning the container handling process. In order to meet the constraints of the maritime supply chain, the labour pool is forced to increase the flexibility through increased outsourced force provided by the interim agency¹⁰⁹. These casual workers have no right to the unemployment indemnity

¹⁰⁹ Between the interim agency and CULMV, as well as with the other Article 17 in the Italian ports, a contract of service occurs. The “employer” of the casual workers from Intempo is Intempo itself, who provides also salary administration and training programs. The contractual framework of casual workers from Intempo lies on the outsourced work of interim agencies equalized to the CBA for ports. It should also be noticed that typically the casual workers from Intempo are considered as “apprentices” dockworkers of the labour pool, before being hired by the latter. In the case of Genoa, casual workers who belong to Intempo as well are sons of pool members of CULMV, and in principle, they become members of the workers’ cooperative after this period of apprenticeship – and when this is allowed by Port Authority. Furthermore, the ongoing reform process could reconfigure the organizational structure of Italian ports, consequently this constrain labour pools in managing the turnover.

(IMA) with respect to the members of labour pool. In addition, the increasing use of casual workers from the interim agency by labour pools is producing at the same time professional growths among the casual workers, who are employed and trained by Intempo.

The setting of flexible workforce provided by pool systems in relation to the uncertain trend of the trades, and the relative demand of temporary workers based on the average of volumes, is questioned by the processes of concentration of the trades themselves. The increased flexibility is only one of the consequences of how the economies of scale and needs across the maritime-logistics chain affect labour dynamics and the organizational structure of port labour.

The process resulting from the increasing size of vessels has led to an increase of productivity standards and a concentration of rhythms in terminals that impose an adaptation of the pool of temporary work to the market pressures. The strategies of shipping companies thus condition the structure of temporary port work. The greater use of temporary work to meet labour peaks and the increase in flexibility suggests a return of casual work on ports and container terminals (Bologna, 2017). The phenomenon of “double pool” is taking place: the labour pool (Article 17) for the provision of temporary port labour to terminal operating companies, and the pool of interim workforce provided by Intempo to the Article 17.

The shrinking times and the intensification of pace are some of the fundamental effects of these dynamics, in a key sector for the development of global production networks. The polycentric model emerged from the empirical research, the return of casual work represented by the increasingly intensive role of interim port labour provided by the interim agency, and the slow erosion of those structures that over time have been formed in order to protect working conditions in ports, suggest a transition driven also by exogenous factors. A process of casualization that produces the de-structuring of the pool system occurs, whose barycentre moves towards the casual interim working segment. This transformation is in the forefront of an organizational strategy by the terminal operating company oriented to the constant search for a perfect balance between permanent and flexible workforce through the instruments of economic incentives to productivity, polyvalence and the skills mismatches'. The dilemma between production and purchase increases in light of these changing dynamics.

As emerged from the fieldwork in Genoa, therefore, the strategies of a multinational terminal operating company to maximize port labour performance fluctuate between the internalization of the high skilled operations and the use of complex forms of outsourcing for low skilled operations through the temporary work provided by the labour pool. These strategies should be analysed in light of the institutional constraints and opportunities in which the terminal operating companies operate, but also in relation to the peculiar composition of the workforce, and in particular the members of the labour pool, rooted in path dependencies and structurally weakened by the market rules. Genoa is a port in which half of the operational labour is carried out by the pool of members who belong to a workers' cooperative constrained in being an enterprise, although it is not exactly acting as an enterprise neither.

The other half is represented by permanent workers of terminal operating companies, unionized and employed for the high skilled tasks during the operations. Upon this path dependent setting, port labour system in Genoa has been built in light of the juridical framework at national level, although it is not perfectly framed into it. However, the actors involved seem to ignore this aspect. The functioning of this system seems to be profitable for private terminal operators, who benefit from the pool system, whilst the labour pool members suffer a structural weakness in terms of working, economic and professional conditions. It is acknowledged, however, that this is not a sustainable model in the long run.

In other words, given the specific structural and institutional constraints of the case analysed, the hypothesis that port labour is a significant variable in value production, destined to reduce its role with a rise of contingent, casual labour, is confirmed in the port of Genoa.

As already emphasized, the scientific literature on port labour issues and dynamics is dominated by juridical disciplines, while the debate on the maritime-port sector, mainly of economic nature, considers labour as fungible commodity. In this chapter, port labour system of a southern European port has been positioned on the foreground in light of the comparative analysis with the port labour system of a northern European port. The focus has been on trying to conduct the debate towards a sociological analysis of the role of labour in a segment of the transport chain that is vital for the global economy, through an approach capable of analysing the interdependencies and dialectical relationships among the actors involved. In short, the increasing flexibility and the changing processes of the organizational structures in the container handling operations are driven by pressures that are both internal and external to the ports. At the same time, these dynamics are increasingly shaping the mechanisms of labour settings. Labour conditions in the port of Genoa are influenced by the strategies of a multiplicity of actors – i.e. shipping companies, terminal operators, port authority, etc. – who act along a variety of spatial scales, with a cascading effect that from the global industry of container shipping leads to the social organization at workplace on quayside. The institutional changes, at national and supranational level, seem to partially support such dynamics, calling in this way the interplay between national labour regulation, social role of multinationals firms and European deregulation policies.

To conclude, port labour has an active role along the maritime-logistics chain. It is no coincidence that disruptions in the supply chains, which are so important for the global economy and the spread of production network patterns, are extremely damaging and intimidate the stakeholders. Considering European port labour systems and schemes just as a matter of cost-benefit analysis, mere barrier to the free market, and labour in ports as a passive element, prevents a proper analysis capable to assess the ongoing phenomena that are crossing these nodes so important for the smooth flow and the seamless movement of goods. Phenomena that are taking place in an historical period characterized by a “deficit economy” (Bologna, 2017), in which the risk is always transferred to someone else.

Chapter V. The Belgian case

As it has been underlined in the previous chapter, the peculiar features of the port labour system and work organization in the container terminals of the port of Genoa rely on polyvalence, incentives to productivity, and the right mix between permanent and non-permanent workforce. The terminal productivity is important in turn for the establishment of the commercial tariff that the terminal operator asks to the shipping company. It should be however emphasized that the cost paid by the shipping companies to the terminal operating companies is not only determined by a cost structure, but also by the market – and ultimately by social relations of production.

A port such as Antwerp is located in a region with different alternatives for shipping companies, with more competition along the chain, intra and inter-ports. Other factors (e.g. terminal overcapacity, vertical integration) may have an impact on the rate cost in the commercial relation between shipping companies and terminal operators. By the viewpoint of the shipping company, the port of Genoa in a certain sense is located in a region with less competitors¹¹⁰.

What contributes to productivity in the container terminals in the port of Genoa? To sum up, the empirical findings show that, besides the investments in new facilities able to accommodate bigger vessels, the port labour system, the organizational structure and the peculiar composition of the workforce are an essential component (as well as training and professional updating, which in Genoa are not fostered). In Genoa, four shifts of six hours are settled for the permanent workers, which are also multifunctional. Job categories are settled in the CBA and organized in levels. Each permanent worker employed in the operations can accomplish the highest tasks, but it is possible to employ them for other functions according to the operational needs of the container handling company. The polyvalent tasks of the direct personnel therefore are linked to the needs of a given shift. The lowest skilled tasks are always covered by the pool members of CULMV, which are polyvalent as well, constrained to accomplish the low skilled jobs, and totally flexible.

In the last years, in parallel with the increasing market pressures, the incentive systems linked to the terminal productivity have been created in the port of Genoa. As far as the commercial contract between a container terminal and CULMV is concerned, the latter receives from the terminal operator a tariff set up by Port Authority (maximum tariff of 232 € man/shift) that varies for a single worker the greater the productivity achieved on that shift. This unwritten constraint is held by a commercial relationship between terminal operating companies and CULMV, characterized by an increasing tariff that the former charges to CULMV according to the increasing productivity (piecework rate system). In other words, the terminal operator pays the CULMV for every shift worked X, which can become X- or X+

¹¹⁰ Source: Interview to the Head of VSA terminal procurement, Maersk (Antwerp, 2017). “Genoa and Antwerp for us are compulsory stages, but in the Tirrenian region, Genoa gets the monopoly”.

according to the productivity indicators (and the contractual agreement between the parties). Therefore, CULMV distributes wages to its members, which in principle are framed by the CBA, and at the same time are set up by an internal agreement (currently unknown).

The path dependent routine determines the intensity of labour within a shift in which the pool members are employed, jointly with the permanent workers of the container terminals. For this workforce, another incentive system linked to productivity indicators is set up by a decentralized contract at company level. In this contract efficiency, productivity, and quality have been agreed with trade unions after negotiations. An incentive scheme linked to the performance determines a wage supplement for all the permanent workers. At the end of the month, they receive in addition to production premium, applied above the volumes, a coin calculated on the days worked (attendance money), whose amount is related, again, to an efficiency indicator, namely the number of crane moves per hour (Gross Crane Rate). This value depends not only on the activity of the quay cranes, but also by those who are below, hence the overall work organization of the container terminal, besides the capacity of the yard, the equipment, and the constraints abovementioned.

The terminal operator therefore, agreed with trade unions, pays to the permanent employees in addition to what is provided by the national contract a premium that is always tied to the Gross Crane Rate. GCR in turn is given by the sum of all the yielded ships of all the cranes started in a month. Supposing that each month on average six cranes are employed per shift, if we multiply per 4 shifts and 30 days, 720 crane launches are done. By adding up the productivity of these 720 crane launches is possible to get the average. In the port of Genoa, the average moves per hour, namely the Gross Crane Rate, are around 25, which mean that in average, a quay crane loads and unloads containers about 25 times per hour. The higher this performance indicator, the more the incentive for permanent workers increases – which means in turn that the more the pool members are productive, the more they (in principle) earn. The Gross Crane Rate is the most important terminal efficiency indicator also because that is what customers (i.e. the shipping companies) want to know. In Genoa, the goal of the main global terminal operator is to increase the GCR by reducing the Cash Cost per Box through this system of incentives to productivity applied to a “polycentric” model of work organization, as previously illustrated. Currently, no permanent workers have been hired, notwithstanding the increase of volumes. For the purpose of this comparative study, the labour cost has been discussed as well – despite the limitations abovementioned –, through the analysis of the Cash Cost per Box. This parameter is also very important, first, because labour cost is included and represents the highest value of the overall cost structure, second, because from this indicator typically the terminal operator develops the tariffs to be charged at the shipping companies in order to obtain profits. The Cash Cost per Box therefore is an important information because it represents a starting point from which the handling charges are determined. For the purpose of this thesis, other items analysed rely on port regulation, governance of the pool, and composition of the workforce, organizational structure of the labour pool, social

organization at workplace, professional training, and changing trends on labour dynamics.

In the following chapter, the Belgian case will be presented, discussed and analysed with a similar structure and approach. The comparative analysis will be summarized and discussed in Chapter VI.

5.1. Introduction

The port of Antwerp is situated in the centre of the Hamburg-Le Havre Range, among the Hanseatic ports, the most efficient ports in the world according to Notteboom (2010). Ranking 11th in the 20 largest ports in the world (Port of Antwerp, 2016) the port is located and developed in the inner side, along the river Scheldt. For those coming from the Mediterranean countries the port of Antwerp can be difficult to frame at first glance, due to its river nature, with docks, locks, barges moored along the canals, and mobile bridges that do not facilitate the orientation. The river bend is sectioned by parcelled spaces, warehouses and storage facilities. The surrounding landscape is flat and spacious. To the north of the river, the borders between Netherlands and Belgium cross the two banks. The North Sea is approximately one hundred kilometres away. The vessels entering the port area, in particular the ultra large container ships are conditioned by the tidal windows of the river and the depth from the estuary to the Western Scheldt.

FIGURE 12: CATCHMENT AREA OF THE PORT OF ANTWERP



Source: Port of Antwerp, 2016

The port of Antwerp¹¹¹ is among the top European logistics hubs, located in the Rhine-Scheldt Delta, the largest port region in Europe in terms of volumes. According to Notteboom, Dutch and Belgian ports together handled 23.9 million TEUs in 2016 (Notteboom, 2017). The Belgian container port system relies on the ports of Antwerp and the coastal port of Zeebrugge. The bulk and break bulk port of Ghent,

¹¹¹ See Vanfraechem for an historical perspective (2002; 2002a), and Vanoutrive (2012) for a short history of the port.

in the process of merging with the Dutch Zeeland seaports, handle a very small volume of containers. As the above figure 12 shows, the port of Antwerp is connected to the European hinterland, with a strong growth of 7,5% in container throughput in 2015 and 2016 (4%). This port, the second largest in Europe, reached just over 10 million TEUs in 2016 (Yearbook of statistics, 2016: 53-65)¹¹², broadening the throughput gap with Hamburg, the third largest container port in Europe (Notteboom, 2017).

The figure 13 and tables below show, for the purpose of this study, the Hamburg – Le Havre Range, which includes the following ports: Le Havre (France, in red), Zeebrugge, Antwerp and Rotterdam (Benelux, in green), Wilhelmshaven, Bremerhaven and Hamburg (Germany, in blue). UK ports are excluded. The Compound Annual Growth Rate (CAGR) of the Northern Range from 2010 to 2016 has been 1.8%, while the total volumes estimated are almost 47 million TEUs. The tables show the specific situation in Germany and Benelux. The figures include both vessels and barge traffics.

¹¹² The statistics provided by the Antwerp Port Authority in the yearbook devoted to containers derive from the cargo handling companies. Transshipment, which is not a consistent value added activity, is included in the figures, and cannot be filtered out. It should be noticed that in the TEU-capacities published on the terminal operators' websites, inland navigation containers are included. TEUs are not registered in the inland navigation statistics of the yearbook. With a ratio of nine ton/TEU (inland), Antwerp Port Authority estimates them to approximately 2.685.427 TEUs. <http://www.portofantwerp.com/en/publications/statistics/yearbook-statistics-2016>

FIGURE 13: THE HAMBURG – LE HAVRE RANGE

Estimated 47 million TEUs (vessels and barges) in 2016, 75% utilization (Source: PSA Antwerp)



Total	Hamburg – Le Havre Range
Volumes 2016	46.8 million TEUs
CAGR 2010-2016	1.8%
Capacity 2016	62.6 million TEUs
Utilisation 2016	75%

Germany	Hamburg	Bremerhaven	Wilhelmshaven
Volume 2016	9.2 million TEUs	5.8 million TEUs	0.5 million TEUs
CAGR 2010-2016	2,1%	2,6%	90,6%
Capacity 2016	12.5 million TEUs	7 million TEUs	1 million TEUs
Utilisation 2016	74%	83%	53%

Benelux	Rotterdam	Antwerp	Zeebrugge (*)
Volume 2016	15.0 million TEUs	12.7 million TEUs	0.4 million TEUs
CAGR 2010-2016	1,5%	2,9%	-8,4%
Capacity 2016	20.1 million TEUs	16.0 million TEUs	1.5 million TEUs
Utilisation 2016	75%	79%	27%

(*) Zeebrugge figures exclude 1.1 million TEUs Ro-Ro volume

The economic importance of the Belgian ports for the national economy is highlighted every year in a financial report provided by the National Bank of Belgium (NBB working paper no. 321 – June 2017). In this regard, it should be noticed that traditionally, cargo handling in Antwerp was carried out by locally based companies (e.g. Hessenatie and Nord Natie, HNN). Gradually, foreign players entered the cargo handling market, in particular in the container business. Break-bulk cargo handling currently involves local and Belgian companies, mostly family-owned, whereas container operators are mainly international firms with their headquarters abroad.

As Vanoutrive explains (2012), two major events changed the market conditions: PSA from Singapore acquired a dominant position in the container business with the acquisition of HNN in 2002 (Vanelslander, 2008). Furthermore, DP World from Dubai took over P&O ports (2005-2006). The strategic terminals in the port of Antwerp are currently managed by global players and multinational companies¹¹³ and for one terminal in particular through forms of vertical integration between a shipping company and a terminal operating company (see Chapter III).

In the last report of the National Bank of Belgium, both the direct and the indirect effects of the economic impact in the sector are analysed. The former concerns the activities related to the presence of maritime and non-maritime enterprises and public services in or near the Belgian ports, while the latter refers to the value added and employment generated by suppliers and subcontractors serving these enterprises and based in Belgium. In the last annual publication, the statistical data covers the period 2010 – 2015, but only the main developments recorded in the period 2014 – 2015 are discussed in detail (NBB, 2017).

Focusing on the variables of value added, employment and investment, the report provides some useful information based on the social balance sheets of the port operators and an overview of the financial situation in the Belgian ports as a whole. With respect to the port of Antwerp, in 2015 the total volume handled came to 208.4 million tonnes, setting a new record. The volume of traffic achieved 214.2 million tonnes in 2016 (+2,8%). Container traffic grew by 4.1% in 2016, to 117.9 million tonnes (10.04 million TEUs, inland navigation excluded). The most notable development in 2016 was the transfer of all MSC services from the Delwaidedock on the right bank of the Scheldt (quay 730) to the Deurganckdock on the left bank of the river (quay 1742). From April 2016, all transatlantic services were switched to the MSC PSA European Terminal on the Deurganckdock, followed by four other services¹¹⁴. The new container terminal MPET¹¹⁵, quay 1742 (MSC PSA Europe Terminal) is managed by a joint venture between TIL (subsidiary of the shipping company MSC) and PSA (Port of Singapore Authority). Both companies established in 2015 Antwerp Terminal Services NV (ATS), who acts as a service organization with approximately 330 employees. ATS is therefore a subsidiary of PSA and MPET, providing permanent dock labour (i.e. recognized workers from the pool), all asset management, engineering and technical maintenance services to the container terminals of PSA and MPET.

Operated by 41 gantry cranes and 200 straddle carriers along a quay of about 3,7 kilometres,

¹¹³ Although the port of Antwerp is mostly carried out by multinational companies, the infringement procedure sent by the European Commission to the Belgian government concerning the organization of port labour, as we shall see, moves from the incompatibility between the national law and the article 49 TFUE, concerning the “freedom of establishment”.

¹¹⁴ PSA Antwerp is the PSA’s largest investment outside Singapore (while PSA is in turn part of the Singapore government apparatus). Considered as the container gateway to Europe, PSA Antwerp operates four container terminals in Antwerp and is connected to 800 destinations worldwide. PSA (including MPET) accounts for 80% of all Seagoing container traffic in the port of Antwerp. Other terminals managed by PSA are Noordzee Terminal, Europa Terminal (where mega-vessels for G6 and CKYHE alliances are handled) Churchill Terminal. DP World from Dubai operates in the terminals of Delwaidedock (right bank) and Antwerp gateway (left bank).

¹¹⁵ Both MSC and PSA have a similar set up in the other port-hub of Singapore, called MPAT, (MSC PSA Asia Terminal). MPAT works almost exclusively for MSC (Source: Interview with the CEO of MSC Belgium).

2.420.000 square meters, and a total capacity of 9 million TEUs, MPET is the largest container terminal in Europe. The reason behind the transfer from the right bank to the left bank (figure 14) lies on the need for a lead shipping company to have a new location outside the locks, not only because its previous terminal in the Delawaide dock (right bank) had reached saturation point, but also because of the increasing size of the vessels¹¹⁶. The Deurgank dock develops along the river and there is no passage through the locks. Between October and December 2016, 129000 truck visits were registered at the new terminal 1742 (in average 2.083 trucks per day). The railway connection and the handling by barges are provided, serving the Belgium, German, Dutch and French hinterland¹¹⁷.

FIGURE 14: PORT OF ANTWERP. RELOCATION OF MPET FROM QUAY 730 TO QUAY 1742



Source: MSC Belgium
Quay 730 in green. Quay 1742 in yellow

The traffic mix at the port of Antwerp changed considerably over the past 10 years. In 2006, containers accounted for 48% of the total volume. By 2016 that share had risen to 55%. In the last years, containerisation reduced the share of conventional general cargo from 11% to less than 5%. The share of dry bulk declined from 16% to 6%. In contrast, liquid bulk increased strongly from 22% to 32% of total traffic in 2016 (NBB, 2017).

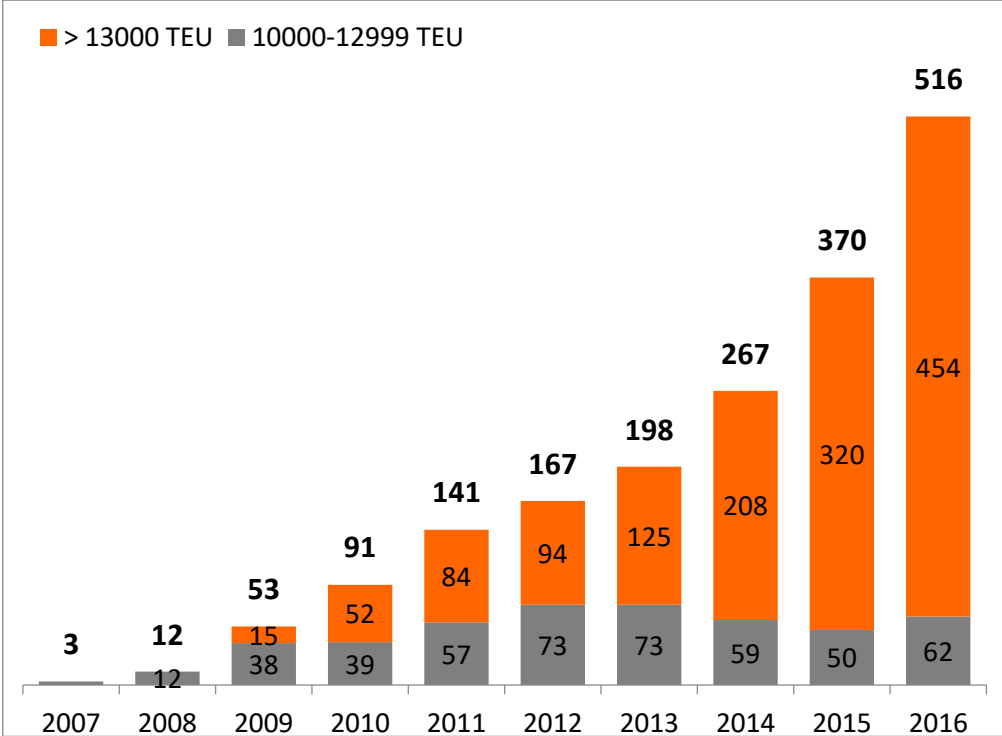
In 2016, the total number of maritime vessels entering the port increased to 14473, whereas in the preceding years the number of vessels had declined steadily due to the increasing scale of the container business. The largest container ship ever handled in the port is MSC Ditte, with a capacity of 19.437 TEUs (August 2016). All the major alliances are calling Antwerp with their mega-vessels. As the figure below shows (figure 15), the port of Antwerp handles 10 weekly services with vessels greater than 13000

¹¹⁶ Source: MSC Belgium.

¹¹⁷ In the port of Antwerp, with respect to the container transport in the hinterland, 58% is done by road transport, 35% by barge transport, 7% by rail transport (Port of Antwerp, 2016)

TEUs (situation in March 2017).¹¹⁸

FIGURE 15: PORT OF ANTWERP. NUMBER OF VESSEL CALLS GREATER THAN 13000 TEUS



Source: PSA Antwerp

For 2016, the most notable investment in the port is the Kieldrecht lock. A further expansion of container capacity is in place through the development of the Saeftinghe zone¹¹⁹.

Direct value added in the port of Antwerp has seen a growth of 9.4% in 2015. The cargo-handling segment benefited from the growth of traffic in the port. This segment continued its uninterrupted growth. While value added increased, direct employment was down in the port of Antwerp’s maritime cluster and non-maritime cluster¹²⁰. However, the latter suffered a bigger contraction. Only a few of the segments saw an increase in employment, namely cargo handling, port construction and dredging, fuel production, other industries and other logistics services (*Ibidem*).

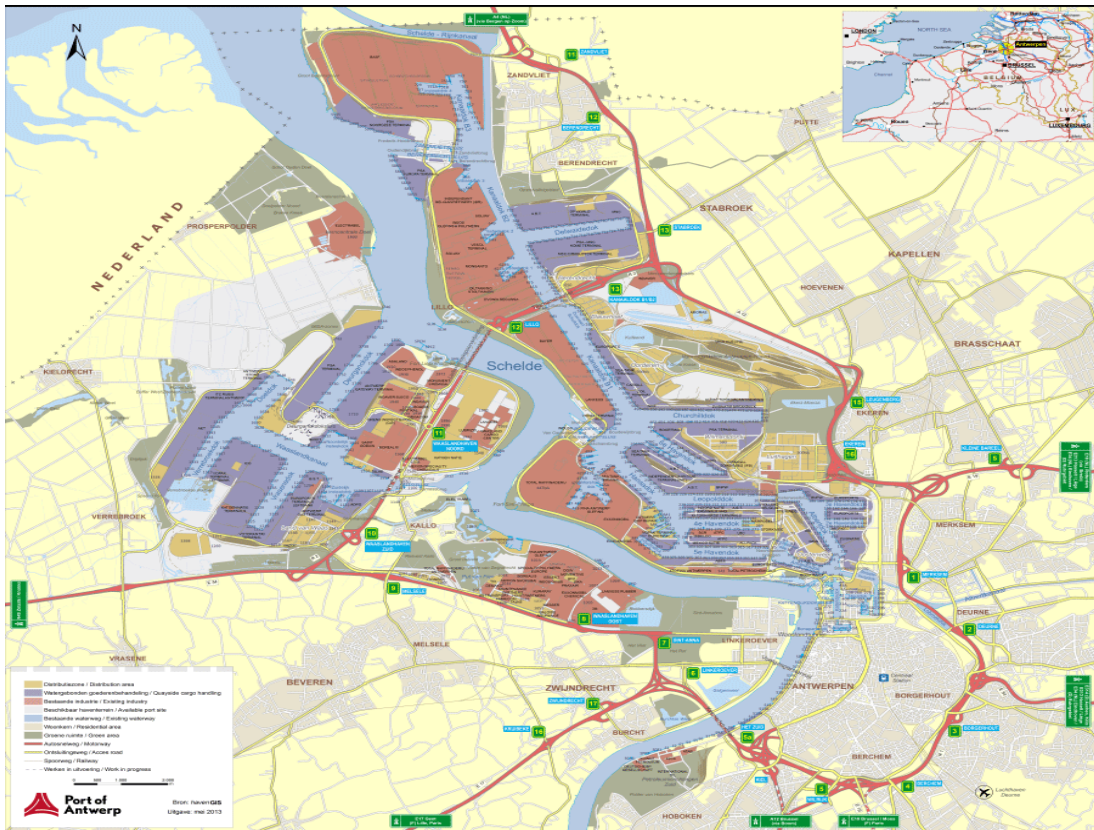
The port of Antwerp extends over a surface area of 13.057 hectares, with 160 kilometres of quay length, 1113 kilometres of railway and 400 kilometres of road. About 530 hectares of warehouses are present inside the port area. Figure 16 provides a map of the port.

¹¹⁸ Source: PSA Antwerp

¹¹⁹ For further information about the port expansion, see also the critical viewpoint of Doel 2020. <http://www.doel2020.org/page.php?ID=324>. See Vanfraechem for an historical perspective about the port development of nautical accessibility and the negotiation between Belgian and Dutch governments for the deepening of the river Scheldt (1999).

¹²⁰ The maritime cluster includes Shipping agents and forwarders, cargo handling, shipping companies, shipbuilding and repair, port construction and dredging, fishing and fish industry, port trade, port authority, and public sector. The non-maritime cluster includes the industrial activities (energy, fuel production, chemicals, food industry, electronics, metalworking industry, etc.).

FIGURE 16: MAP OF THE PORT OF ANTWERP



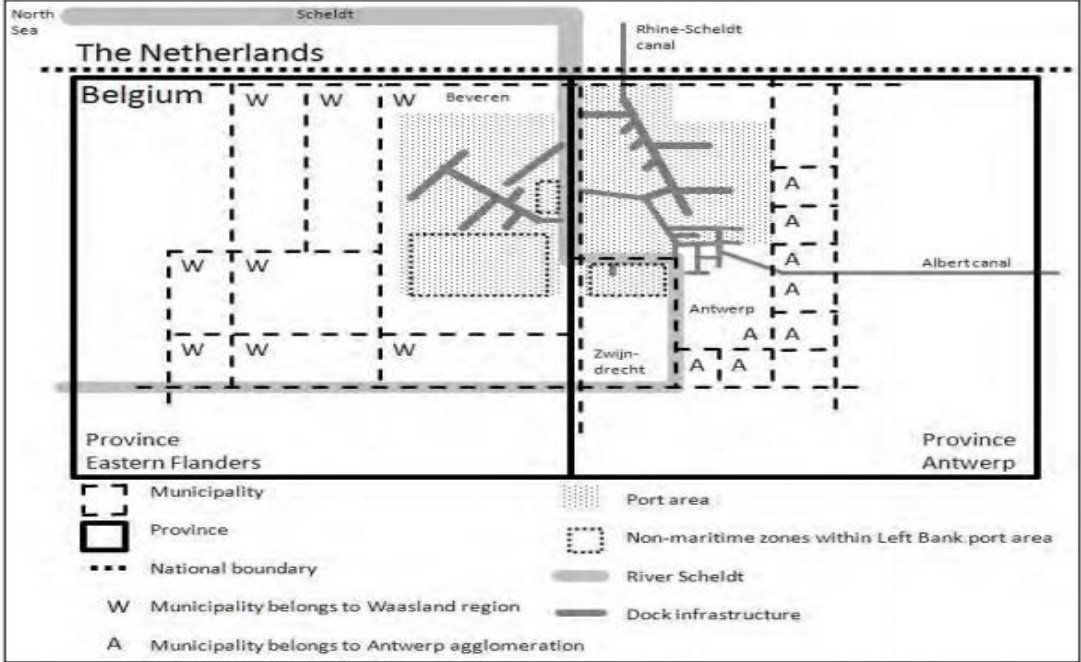
Source: Antwerp Port Authority

5.2. Port governance, port regulation

In line with the Hanseatic tradition¹²¹ and the Landlord model, the port of Antwerp has been managed at local level, although central governments invested significant amounts of money in the port. Since 1960s-1970s, the expansion took place on the territory of other municipalities and provinces (Vanoutrive, 2012). The port authority is a local public body, with a board of directors responsible for general policy, strategy and objectives.

The Port Authority manages and maintains the docks, bridges, locks, quay walls and land. It is not involved in dock labour matters or port labour organization and negotiations. It is also responsible for the efficient passage and safety of the shipping traffic in the Antwerp port area. It provides tugs and cranes, carries out dredging work and promotes the port in Belgium and abroad. The Antwerp Port Authority was established as an independent, municipally owned agency in 1997. With this current governance, the Port Authority has its own decision-making power, a human resource policy, and the possibility to reach joint ventures with other companies or public departments. The unique shareholder of the Port Authority is the city of Antwerp. According to Vanoutrive (2012), the degree of independence of Port Authority has increased in the last years. The figure below shows the various juridical bodies involved in the territory concerned by the port area of Antwerp.

FIGURE 17: MAP OF THE DIFFERENT JURISDICTIONS IN AND AROUND THE PORT OF ANTWERP



Source: Vanoutrive, 2012

¹²¹ As already mentioned in the literature review, Suykens and Van de Voorde observe that there exist different port governance traditions (1998). In Europe, the Anglo-Saxon tradition of independent port authorities differs from both the centralizing Latin tradition (e.g. France, Spain and Italy), and the municipal Hanseatic tradition that prevails in Germany, Netherlands and Belgium.

The definition of dock work is on the first page of the so-called “Codex” – considered as the “bible” of the dockworkers –, namely the larger collective bargaining agreement at port level¹²⁵. In each port, the codex set in detail the prevailing labour regulations applicable within the port. The port-specific Codex contains stipulations on wages and working conditions, compositions of the gangs, etc., and includes a clear description of the geographical area for which the regulation applies. As Notteboom observes, the existence of labour regulation through a Codex implies that competition among operators in the same port (intra-port competition) is predominantly based on service and productivity rather than labour costs. Changes and additions to a port’s Codex are under the responsibility of the competent Joint Subcommittee in which representatives of both employers and trade unions negotiate. The responsibilities of the Joint Committee and the Joint Subcommittees, and the recognition of dockworkers, are arranged in a number of Royal Decrees (Notteboom, 2010).

The article 1 of port of Antwerp’s Codex states: “No person shall be permitted to let persons carry out dock work in port areas by workers other than recognized dockworkers. The failure to comply with this article shall result in the imposition of an additional contribution of 3 times the shift wage and 1.5 times the contribution to the Compensation Fund for Security¹²⁶.”

The law establishes that all cargo-handling activities within the port area are considered as dock work, therefore in principle the Major Act was not limited to the loading and unloading of ships only. The Royal Decree of January 1973 stipulates that dock work¹²⁷ include:

1. All handling of goods loaded on or discharged from seagoing vessels, inland barges, rail wagons or trucks;
2. Related ancillary services on navigable waterways, on the quays or in facilities that focus on the import, export and transit of goods;
3. All cargo handling activities on the quays of industrial premises in the port areas.

All goods entering or leaving a Belgian seaport, and all services related to these goods, should be treated by registered port workers (Notteboom, 2010). The exceptions to this general rule exist in the framework of collective bargaining agreements and rely on the handling of oil products, fishing, etc.¹²⁸.

According to the Major Act, the King sets the terms and conditions for the recognition of dockworkers based on the advice of the joint committee for the port area concerned.

¹²⁵ In Belgium, the bargaining system is characterized by a general collective bargaining agreement at national industry level, and by a collective bargaining agreement at subindustry level. According to the different ports, it is possible to bargain a different collective agreement, in light of the historical backgrounds and the path dependent items. In the port sector, contracts at company level are not common used. Most of the text of Codex is in sub-sectorial level. The Codex of the port of Antwerp – written in Dutch – is only applicable in that port.

¹²⁶ Translation from Dutch.

¹²⁷ In Belgium, the important distinction between intellectual and manual labour takes place. The law that regulates dock labour only talks about manual labour, which means that everything that is not manual labour in the port area does not fall under the law and does not need to be executed with recognized dockworkers. If the distinction in the port area is very logical, it should be noted that in certain cases this distinction is blurred. Port employers, mainly involved in the conventional cargo, typically use all the loopholes in order to overcome the rigidity of the port law and to avoid the recruitment of recognized dockworkers.

¹²⁸ The Article 2 of Codex states the clear definition of dock work.

In general, a candidate has to meet seven conditions to be recognized as a dockworker:

1. Medically fit for dock work;
2. Psychotechnically fit for dock work;
3. Good behaviour;
4. At least 18 years old;
5. Knowledge of Dutch language;
6. Training course, technical aptitudes;
7. Previously not been expelled.¹²⁹

Port companies who employ dockworkers are obliged by the law to join the employers' association, which in the case of the port of Antwerp relates to CEPA (Centrale des Employeurs au port d'Anvers). CEPA has been set up in 1929. From 2004, only the port operators are represented in the board of directors. When a terminal operator exceeds a certain amount of salary in mass pay to dockworkers, then he has right to have a seat in the board of directors. The largest number of seats is devoted to the operators who employ the major number of dockworkers. The most representative companies in CEPA are therefore PSA, DP World, Europort, Sea Invest, Katoen Natie, etc. Also small companies have right to be represented according to the Statute. Approximately, 120 port employers are affiliated to CEPA¹³⁰.

The main role of CEPA is to manage the recognized dock workforce. This employer organization is engaged in the CBA with the unions, and in particular is involved in managing personnel and salary administration of all the dockworkers recognized in the port of Antwerp (i.e. the labour pool). Set up in 1929, two main goals are therefore linked to CEPA since the beginning. First, to structure the labour force to be employed in the port through a list of registered workers entitled to accomplish port labour in the port area (via the mediation of the three trade unions). Second, to set up and organize the central system of payment.

As Notteboom emphasizes (2010), CEPA therefore has the exclusive mandate to act as intermediary for the employers who engage the services of dockworkers in the port area, with the purpose of fulfilling all their obligations arising from this employment pursuant to the application of the labour and social security legislation. However, port employers belong to CEPA, being present in the board. CEPA pays all dockworkers' wages and other benefits in the port of Antwerp, both permanent, quasi-permanent and casual workers. In addition, CEPA has the right to impose a fine in case of breaking the Codex by an employer. The association also has the responsibility for port training of labour force via a training centre (OCHA), which offers obligatory professional training courses for newly registered dockworkers and special schooling for dockworkers willing to move to another job category – with the supervision

¹²⁹ Recognized dockworkers of the labour pool can be expelled (fired) for the Register. They can be called to the commission, and with the mediation of the unions, they can lose the recognition. If a dockworker has been expelled from the list, he can become again a candidate after 5 years of the expulsion.

¹³⁰ Approximately 150 persons are employed between CEPA and the Training Centre OCHA. Source: Interview to the Director of CEPA.

of the port employers and the trade unions.

CEPA deals daily with the blue collars. First, it manages the candidates to be recognized as dockworkers of the pool. Through a specific medical service, the candidate is physically checked¹³¹. If the candidate is physically fit, he passes to the second stage, namely the psychotechnical screening (i.e. an interview with a psychologist). When also this is accomplished, CEPA assesses the good behaviour of the candidate through a certificate delivered by police departments or municipal authorities. When all these conditions are met, the candidate dockworker is sent to the training centre OCHA, where he attends a basic and mandatory training course of three weeks. Then he is officially recognized by the federal government through the joint subcommittee¹³² of the port of Antwerp, formed by CEPA, the trade unions¹³³ and a representative of the federal ministry of labour. Once recognized, the dockworker has a recognition card (whose colour varies according to the shifts).

Three different groups of workers are in the jurisdiction of the joint subcommittee for the port: Dockworkers, logistics workers and craftsmen (e.g. electricians, mechanics, technical related workers for maintenance, etc.). For the purpose of this thesis, only the group of dockworkers will be analysed in depth. Before the change in the legislation according to the infringement procedure, logistics workers involved in the warehouses inside the port area were also considered as recognized dockworkers, organized in a register and obliged to meet five conditions in order to be recognized workers allowed to accomplish port labour in the port area. Currently, after the abolishment in July 2016, this group of workers do not need any recognition, but at the same time, they are still under the jurisdiction of the joint subcommittee. This means that the CBA already existing is still applicable to this group of workers. To date, wages and labour conditions therefore should be the same. The label of “logistics dockworkers” and the recognition procedure have been taken away.

¹³¹ This practice is done both for newly workers and yearly for all the dockworkers of the pool.

¹³² Every industrial sector in Belgium has a joint committee where the collective bargaining agreements are signed by the social partners and renewed each two years. The principle of this body in each economic sector is to have a same level playing field for every employer concerning the labour conditions. In the words of the director of CEPA, the joint committee is “an institution that controls that things are going in the right and same way within a sector, with the supervision of the government”. The respect of the CBA is guaranteed in this way. The joint sub-committees instead are in place on the (sub) level of each port.

¹³³ Three trade unions are involved in the port of Antwerp: BTB (Socialists), ACV-Transcom (Christians), ACLVB (Liberals). Union membership is very high among the dockworkers.

5.3 Organization of the labour pool

To sum up, port labour in Antwerp is ruled by the Port Labour Act (June 1972) together with several royal decrees taken in execution to it¹³⁴. This basic law intended in particular at the creation of a legal basis for the already existing statute of the port workers, which was regulated by collective agreements. The Act provides that only recognized port workers are entitled to accomplish port labour in the port areas. The royal decrees carrying into effect the foresaid Act deal in more detail with the notion of “port labour” and the exact geographical delimitation of each port area. The notion of port labour refers to all handling of cargo in the port areas, with additional specifications and exceptions.

In the port of Antwerp, port workers have to be recognized by the Joint Subcommittee of the port. The Joint Committee is an official body presided by a representative of the Ministry of Labour, in which a delegation of employers (CEPA and companies) and one of workers (trade unions) reside, and which is attended by a representative from the Flemish Labour Office. In view of the recognition as a dockworker of the general register, the candidates have to fulfil seven conditions. The Joint Committee also establishes the working conditions, which are reported in a regularly updated “Codex”. Collective labour agreements concluded in the Joint Committee can be passed into law by royal decree. A Permanent Bureau within the Joint Committee, with joint representation equally, controls the correct application of the working conditions, tries to settle all disputes about working conditions on the spot, and deals with written complaints from employers and trade unions. The decisions of the Permanent Bureau are binding to the parties (CEPA, 2012).

All employers and all port workers in the port of Antwerp are affiliated to the port of Antwerp Employers Association (CEPA, created in 1929). CEPA is in charge of the collective bargaining with the trade unions about wages and labour conditions of the dockworkers. The president of CEPA acts as spokesperson for the employers’ delegation in the Joint Committee. CEPA is also charged with the personnel and salary administration relating to the port workers as well as the accomplishment of social obligations resulting from social legislation and collective labour agreements. On the other hand, all dockworkers are members of one of the three representative trade unions.

The following structural scheme summarizes the services rendered by CEPA (*Ibidem*)

<p>FOR PORT WORKERS</p> <p>in</p> <ul style="list-style-type: none"> - Stevedoring companies - Cargo handling companies 	<p>FOR OTHER EMPLOYEES</p> <p>in</p> <ul style="list-style-type: none"> - All port companies - Companies involved in the international trade, transportation
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¹³⁴ Notteboom (2010) observes that despite the existence of a common legal framework in Belgium, there are quite a number of differences between local port regulations (Codex). For instance, the hiring system differs among Belgian ports.

	and related activities
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COLLECTIVE BARGAINING

<p>Joint Committee for the ports no. 301</p> <p>Federation of Belgian port employers'</p> <ul style="list-style-type: none"> • Working groups • Administrative Commission • Permanent Bureau • Social Security Fund 	<p>Joint Committee no. 226</p> <p>Employers' Federation for International trade, transportation and related activities</p> <ul style="list-style-type: none"> • Working groups • Reconciliation committee • Social Fund
---	--

PERSONNEL ADMINISTRATION

<p><i>Port department</i></p> <ul style="list-style-type: none"> • Wages administration and payment • Accomplishment of obligations resulting from social legislation and other social obligations <p><i>Special compensation fund for family allowances</i></p> <ul style="list-style-type: none"> • Family allowances <p><i>Paid holidays compensation fund</i></p> <ul style="list-style-type: none"> • Holiday Fund 	<p><i>Employers' Federation</i></p> <ul style="list-style-type: none"> • Information concerning social legislation
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PROFESSIONAL TRAINING

<p>Training centre for port workers</p> <p>Training cell Antwerp</p>	<p>Logos – Training Fund</p>
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PREVENTION AND PROTECTION

<p>Common service for prevention and protection</p> <p>First aid, urgent transportation (Social institute of the employers at the port of Antwerp)</p>
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The General Register of the port workers (i.e. the labour pool) includes port workers of rank A and port

workers of rank B who can be subdivided according to their various professional occupations as follows:

- Port workers rank A
 1. Port workers for general work;
 2. Specialized professional categories: forklift-drivers, tally-men, forklift and crane drivers, signalmen, lashers;
 3. Specialized drivers of special engines: crane drivers, crane drivers / special engines, forklift and crane drivers/ special engines;
 4. Supervisory staff: head foremen, foremen, chief tally-clerks, assistant chief tally-clerks;
 5. Assessors of damage to containers.
- Port workers rank B
 1. Port workers for general work (casual workers);
 2. Specialized professional categories (casual workers).

The new entrants are automatically put in rank B, while the sanctioned port workers of the rank A can be put in the rank B as well. The transfer from B to A is possible if sufficient shifts have been performed during a reference period of eighteen months¹³⁵.

According to the nature of labour contract with the port employers, port workers in Antwerp can be further subdivided as follows:

- a) Permanent workers¹³⁶
 1. Supervisory staff (see point A-4)
 2. Professional categories, drivers of special engines (see point A-3)
 3. Professional categories, assessors of damage to containers
 4. Logistics workers
 5. Craftsmen
- b) Casual workers

These workers are also recognized dockworkers of the labour pool; they are hired on a daily basis by means of an unwritten labour contract for a definite period (i.e. for 1 day)¹³⁷.

1. Port workers for general work

¹³⁵ As already mentioned, the logistics register has been abolished after the port reform by a Royal Decree (June 2016). The logistics workers include workers employed on locations inside the port, where the goods are transformed in view of their distribution of forwarding, involving indirectly an apparent added value. The workers involved are warehousemen, logistics workers, fruit graders and fruit packers. These workers are contracted by an employer on a permanent basis. Craftsmen involved in the port area as well are not recognized port workers.

¹³⁶ This is the case of the container terminals. For the cargo handling companies of the terminals of general cargo – to date - is not possible to hire dockworkers from the pool on a permanent basis.

¹³⁷ It should be noticed that among this group of casual workers, there are workers hired on a daily basis, by means of an unwritten labour contract, for a definite but long period, but always by the same cargo handling company. Those recognized workers, called in Flemish by some employers “binnemannen”, are also defined as “Met contract” or “Vaste arbeiders”. They have to be considered as both casual and permanent at the same time. In other words, they are quasi-permanent dockworkers. Typically, they receive daily an SMS by the terminal operating company about the quay they have to work. Indeed, most of them do not go daily to the hiring hall.

2. Specialized professional categories (see points A-2 and B-2)

The table below shows the distinction between permanent and quasi-permanent dockworkers of the labour pool with respect to the job categories.

TABLE 16: PORT OF ANTWERP. CASUAL, PERMANENT AND QUASI-PERMANENT DOCKWORKERS

Port workers general work A+B	Casual	Permanent
Specialized workers A+B	Casual	Permanent
Drivers of special engines		Permanent
Supervisory staff		Permanent
Container tallyman	Casual	Permanent
Logistics workers		Permanent
Craftsmen		Permanent

(Source: CEPA)

The following table shows in detail the number of recognized permanent dockworkers from the pool, employed for ATS on a permanent basis, per each shift and in different container terminals. ATS (Antwerp Terminal Services) is affiliated at CEPA as well. As already mentioned, the company (a holding subsidiary of PSA and TIL-MSC) provides dock labour to the main container terminals in the port of Antwerp¹³⁸.

¹³⁸ During the interviews with some dockworkers, ATS has been defined as an “empty box”.

TABLE 17: PORT OF ANTWERP. DOCKWORKERS EMPLOYED FOR ATS ON A PERMANENT BASIS

Job category	Terminal n. 730/1742			Total group 730/1742	Terminal n. 869/913/420				Total group 869/913/420	TOTAL
	06:00	14:00	22:00		06:00	08:00	14:00	22:00		
Assistant chief tallyman	15	14	10	39	10	5	8	7	30	69
Head foreman	11	11	8	30	6	0	6	4	16	46
Lasher Head foreman	2	2	2	6	1	0	1	1	3	9
Driver	171	181	97	449	93	1	115	34	243	692
Chief tallyman	4	15	8	27	8	0	9	2	19	46
Foreman	35	36	31	102	16	4	15	12	47	149
Lasher foreman	7	6	6	19	3	4	3	4	14	33
General worker	24	18	18	60	9	2	5	5	21	81
Crane driver	46	47	41	134	23	0	24	12	59	193
Lasher	13	15	11	39	4	0	6	2	12	51
Tallyman	33	22	18	73	19	1	14	7	41	114
Total	361	367	250	978	192	17	206	90	505	1483

Own composition from different sources

Besides the casual workers employed on a daily basis and the semi-permanent dockworkers, the dockworkers employed for the main container terminals are working under permanent contracts with ATS (and at the same time, they are members of the labour pool). In total, they are 1483. It is a separate labour contract that grants to these workers of the pool a certain amount of working days. Two reciprocal advantages have been identified in this system by the HR manager of the main global terminal operator:

We want to give to the workers a kind of security, and obviously, we need the security to be able to employ them and to have enough dockworkers to make sure that our operations are run on a smooth way. That's why we are engaging dockers with fix contracts, to have that guarantee and because we see that there is more and more specialization. It's important to have every day the same people on your terminal, for the operations, for your flexibility. You make sure that the Gross Crane Rate is ok, that there is a lot of productivity. You are sure that they are knowing all the procedures, that's why in container terminals we are using a lot of fixed dockers, also because we have a fixed volume or a very important volume, that's why we are able to take them in a fix contract [Interview with HR manager, Antwerp 2017]

Therefore, in the port of Antwerp, the main container terminal operators prefer to hire permanent workforce for the reasons abovementioned, but at the same time the provision of casual, qualified workforce is in place if needed, in case of labour peaks.

In principle, all the dockworkers are part of the labour pool, with the same conditions. Permanent

dockworkers also belong to the pool, but in this case, they do not need to go daily to the hiring hall for the hiring sessions, because they have a separate labour contract with ATS – negotiated by the unions as well. When the employer wants to end their permanent labour contract, he has to give them notice, or pay an indemnity to end that labour contract. However, as soon as their labour contract is ended, these dockworkers come back into the labour pool, in the hiring hall through a fall back option – i.e. they can be hired by another port employer, or they can work in a casual way. This is a key aspect of the pool system in the port of Antwerp. Once the permanent contractual relationships with a port employer are ended, these workers always remain part of the pool, but as long as they have fix contract they are employees of ATS. As long as they have a labour contract with ATS, they are not allowed to work with other employers in the port. In addition, permanent workers have 52 out of 65 working days guaranteed by the company. Dockworkers for general work can be employed on a permanent basis in container terminals as well. In any case, permanent workers earn the same wages of casual workers of the pool. The main difference is the certainty of the working days. The wages however vary according to the shifts, the job categories, and therefore the skills. Typically, port workers for general work are however employed in a casual basis. Only for full container terminals, it is possible to work also via contracts on a permanent basis. This detail depends always by the decision of the terminal operator to provide a permanent contract or not. Permanent workers belong typically to specialized categories, e.g. supervisory staff, crane drivers, drivers of special engines, etc.

Currently all casual dockworkers must report, in principle, daily at the hiring hall located in the city-centre – called in Dutch *het kot* – at the time of the engagement session of the shift to which they have been assigned. The hiring hall is owned by the city of Antwerp and functions in collaboration with the Flemish Labour Office (VDAB), which has the supervision task.

For Monday to Friday, calls are held four times a day:

- At 7:00 H for the dayshift
- At 13:00 H for the afternoon-shift
- At 14:30 H for the morning-shift
- At 15:15 H for the night shift

On Saturdays there are only three calls (at 7:00 H, 13:00 H and 14:30 H) which are optional. On Sundays and public holidays the hiring hall is closed. It should be noticed that in 2017, after many years of discussions, the hiring system started to be partially digitalized (only one shift). The aim is to engage the casual workers through a hiring system based on a software, via *I pad*. This way, casual workers could not report themselves anymore to the hiring hall in the long run. Many casual workers, in addition, do not need to report daily to the hiring hall. This is the case of the quasi-permanent workers, who are engaged daily, in a casual way, by the same employer.

The hiring hall has been described by some workers interviewed as something “like a labour market”. In Flemish, dockworkers call the hiring hall “the pigsty” or “cowshed”, because of those balloons from

which the supervisory staff negotiate the number of men needed for the shifts on behalf of the port employers. When entering the hiring hall, currently the casual dockworkers are obliged to record electronically their presence. Subsequently, there is an eight minutes “free call” during which time the employer or his representative (e.g. foremen, or other supervisory staff) is allowed to engage the dockworkers of his choice and vice versa. If, after eight minutes the demand of labour force has not been met, the port workers of at least 50 years old are entitled to a further engagement period of 2 minutes.

Dockworkers who have not been engaged are entitled, if they have recorded their presence and if the demand has been met with, to an unemployment indemnity, borne by the National Labour Office. Port workers of the rank A are furthermore entitled to supplementary attendance money which is borne by the Social Security Compensation Fund – Port of Antwerp. The daily unemployment indemnity and the attendance money together amount to 66% of the prevailing basic wage. Port workers of the rank B are not entitled to the attendance money, but only to the unemployment indemnity. As already mentioned, if at the end of a shift a dockworker is re-engaged by his employer for the next day (with an interruption of at least 10 hours), he has not to report at the hiring hall.

Besides the strengths of this hiring system, evidenced also by the high performances in the port of Antwerp, one of the main weaknesses often mentioned by the employers refer to their obligation to pick from the pool also workers who they would not pick in other circumstances. In fact, if an employer needs additional workforce, and in the pool there are few casual workers available, there is no choice: the employer is obliged to pick among those remained workers. Nevertheless, being the hiring hall the reproduction of a “free market”, in principle also the dockworker can choose the port employer he prefers.

For Port workers of the General Register, the normal working time comprises 36 ¼ hours per week or 7¼ hours per shift, from 06:00 H on Monday to 05:45 H on Saturday. Working on Saturdays and Sundays is optional¹³⁹.

There are four shifts: the dayshift and three other shifts covering a period of 24 hours.

- Dayshift: from 8:00 H to 12:00 and from 12:30 H to 15:45 H
- Morning shift: from 6:00 H to 10:00 H and from 10:30 to 13:45 H
- Afternoon shift: from 14:00 H to 18:00 and from 18:30 H to 21:45 H
- Night shift: from 22:00 H to 02:00 H and from 02:30 H to 05:45 H

The lunch break is not paid and is not included in the working time. The day shift may be extended by two hours for the finishing of cargo and against payment of overtime wages at the rate of 150%. This applies equally for the finishing of ships carrying containers, Ro-Ro ships, bulk carriers and loads of fruit, at the end of all shifts. In unforeseen circumstances, overtime is also permitted. Assessors of damage to containers may be occupied during the following divergent working hours: from 10:00 H to

¹³⁹ The port of Antwerp is active 24 / 7, all the year, excluded the days of Christmas and the 1st January.

14:00 and from 14:30 H to 17:45 H. In connection with the redistribution of the work available, the port workers of the general register are entitled to a day off with full pay after the effective completion of 25 tasks.

To summarize, the General Register of port workers in Antwerp is composed of permanently employed dockworkers (who always work for the same employer), semi-permanent and casual workers. The only difference with the Italian case is that in the port of Antwerp also the permanent workers belong to the pool, whereas in the case of Genoa, permanent workers are employees with a different status in respect to the pool members. However, both in Genoa and in Antwerp, the permanent workforce covers the highest and qualified job categories, whereas the casual workforce is divided between the quasi-permanent workforce and the dockworkers employed in a casual way. In the port of Antwerp as well, hence private operators involved in container handling employ just key workers, high skilled and supervisory staff as regulars, whereas in Genoa also the supervisory staff has a double nature. In the Belgian case, casual workers are employed daily from the labour pool, through the hiring hall, which is managed jointly by CEPA and government officials of the National Labour Office (VDAB). There are four hiring sessions per day for casual workers (dayshift, morning shift, afternoon shift and night shift). About two thirds of all casual workers are effectively quasi-permanent or semi-regular, working daily for the same port employer on a regular basis. The casual nature of dock labour in the port of Antwerp refers to the possibility of all the dockworkers to return to the hiring hall whenever they like, besides their contractual framework. When demand is low, terminal operators can return surplus dockworkers to the hiring hall as well. The guaranteed payments, for casual dockworkers and returned quasi-permanent dockworkers confronted with a short or prolonged period of unemployment, are mainly financed by the federal government via an unemployment benefit and partly also by the employers via a special fund.

5.4. Composition of the workforce

Given the same starting point of all the recognized dockworkers and the absence of an incentive system to productivity (not allowed for safety reasons), the question raise about the reason behind the labour productivity in light of the composition of the workforce. Dockworkers of the port of Antwerp are often cited for having a strong record when it comes to labour productivity (Notteboom, 2010). Nevertheless, why a dockworker in the port of Antwerp should be productive if he is not incentivized as in the Italian case? According to Notteboom (2010), the gang system in the port is key to the motivation and productivity of the dockworkers. Each gang/team is managed by a foreman, who has an important role in motivating and coordinating the dockworkers of the gangs. A so-called *ceelbaas* (only few in the labour pool) oversees several gangs working on the same ship. Both the foreman and *ceelbaas* work on a permanent basis for the port employer. In this regard, a crane driver and a foreman suggest that the reason of the labour productivity has to be found in the “labour culture” of the dockworkers in Antwerp. One important incentive is linked also to the job careers, the professional upgrading and the opportunity to be hired in a permanent basis by port employers. Workers, in this way, are motivated in light of their future:

We are all paid the same, there are no incentives. The incentive for me in doing things good and not the other way around is chauvinism. We are proud to be dockers. That’s simple. You don’t want to deliver bad work, nobody does, no docker in Antwerp want to produce something bad. Most dockers know that there is a port from here only 100 km, Rotterdam it’s on our neck, and they have automated terminals. [Interview with a permanent dockworker, Antwerp, 2017]

There is something related also to the career. That’s the old thing, everybody is the same, bottom line, you start as docker, and a docker has his wage, every docker is paid the same, but a driver is paid a little bit more than a normal docker. As foreman I get paid a little bit more than a crane driver. You don’t do it in the first for the money, you want get higher on the scale, on the latter, but automatically once you move up in the latter you get paid better. I am foreman and when we work at our quay, there are 25 foremen that day at work but every foreman gets the same pay, and if I do 300 containers and my colleagues do 250 and the other does 400 we all get pay the same. Everybody does the best of his effort to get the productivity going but you can have a ship with many problems, and automatically your productivity drops, it is not up to you. It is also that the specialized job, crane driver, straddle carriers, foreman, they are all directly related to the firm they have the contract with. A firm gives a contract to people who are involved, who want to do their best or are willing to work hard, not to lady people [Interview with a permanent foreman, Antwerp, 2017]

A similar answer has been provided by a HR manager of the main container terminal in the port with regard to labour productivity:

If you ask why productivity in Antwerp is high, maybe I will say you something you will find very strange but... because dockers are proud to be dockers. And it’s true. They are

proud to have high productivity, sometimes they belong to generations of families employed in the port, so they are really one community, they stick together, proud to do so, and that is the key, their motivation, and their seniority. The way of handling, the way of working, but also their engagement, I think this makes the difference; this is a very important part of productivity [Interview with HR manager, Antwerp 2017].

With respect to the composition of the workforce, another important aspect concerns the status of the quasi-permanent dockworkers previously mentioned. By looking at the port labour system by the viewpoint of various social actors, in that way the president of VOKA Alfaport explains this “strange connection between casual and permanent labour”, underlying the peculiar relationships between status and contract among the Belgian dockworkers:

In Antwerp there is a very strange connotation about casual labour, it was only done recently by CEPA and Alfaport that we try to find out officially if Antwerp dockers are still casual workers. The majority of them still have a causal relationship, so there is not a permanent labour relationship between them and their employer; they still are employed via the pool. A large majority of them are working 4 out of 5 days a week for the same company, day in day out, year in year out. So officially, they still are casual workers, in practice they are working to the same company. There was very strong connection between groups of workers and some companies. This is not a crazy idea. The employer has also a guarantee of good stable labour force, trained, that knows the terminal, the goods to be handled, is logical. The only think is that for instance in case of strikes or social conflicts, even now in 2016, the Antwerp docker is extremely proud and finds it extremely important that he still is a casual worker. Whereas you see that the actual situation is changed... they find so important to remain casual workers, when in practice they are not casual workers, in practice they work for the same company. It has to do with symbolism. They want to keep their status, which is related somehow with symbolic liberty. You have not this freedom if you are engaged daily with the same employer [Interview with the Director of VOKA Alfaport, Antwerp, 2017]

Currently CEPA, jointly with the port employers, is investing in monitoring better the workforce of the pool, trying to set up a system to screen the individual dockworker by the perspective of a HR management. It should however be noted that the relationships between employers and dockworkers is indirect as well as the relationships between CEPA and dockworkers. In other words, there is no clear definition of who is the real employer of the dockworker.

In this way, the Director of CEPA tackles this point:

Of course, every dockworker knows CEPA, it is like an institution in the port sector, so they know it and they know that we are monitoring and managing many things. We set up also in the last years communications with dockers, they get every 2 months basic information about what is going on, we try to keep them a little bit more informed than in the past. We try to keep the conversation going; we try to feel with the dockers if they have problems with alcohol, drugs, or troubles that they have, so we try to set up these conversations to get more information. We try to put them back on track. [Interview with the Director of CEPA, Antwerp 2017]

A critical problem by the viewpoint of the employers, emphasized during the interviews, refers to the system of sanctioning. An employer can make complaints via the joint subcommittee about the behaviour of the port workers employed, but it is very hard for him to “fire them”. Typically, a port employer points on the “emotional account” in order to loyalty a dockworker, as explained during an interview by a port operator. As in the Italian case, the dockworker in Antwerp does not respond directly to the internal hierarchy of the cargo handling company, besides its “hybrid” contractual relationship with the company in Antwerp. The role of (permanent) supervisory staff (e.g. foremen, head foremen, etc.) is crucial¹⁴⁰ in the mediation between the cargo handling company and the dockworkers.

Another important role in disciplining the workforce is given by the unions. The relationship between the employer and the dockworker, as in the port of Genoa, is not as close as it is with in a normal company, because of the casual nature of the dock work. However, in Antwerp the role of the unions is pivotal with respect to the port of Genoa. Besides the negotiations for CBA at national and at local level (e.g. the “Codex”), the role of unions is to defend the dockworkers in their daily problems, to provide assistance when there are difficulties at the workplace, in the hiring procedures, etc. The majority of the dockworkers, indeed, are members of one among the three unions. The socialist union is the most representative (BTB) followed by the Christian union (ACV) and the liberal union. BTB is affiliated at European level with the ETF, whilst ACV is affiliated with the IDC.

The shop stewards, directly employed by the unions, are union delegates who typically were former dockworkers. They stand at workplace, assessing whether the Codex is respected, or whether some issues occur between the employers and the workers, trying to solve disagreements. Concerning the work disciplining, as the secretary of one among the three unions explains:

We as union also, even our members, we can sanction them. If they are not working enough, if they are fooling the system, is possible that we sack them, jointly with the commission of the Joint Subcommittee. In consensus with the employers’ organization CEPA and the co-operators of the federal government of the Minister of Labour, port workers can be sanctioned if they do not perform their task well, if they really want to cheat the system. We are there to defend them but they are worth to defend. We as union we try to clean up the system even if it is against some of our members [Interview with a union secretary, Antwerp 2016].

Unions hence have a tight relationship with the workers. They represent a reference. The three unions are typically involved also in the recruitment, explained during the interviews as well. Again, as in the case of Genoa, dock labour is inherited in Antwerp, with the difference that in Antwerp the unions mediate this process:¹⁴¹ However, in Antwerp this is more linked to the past, since currently this practice is not used anymore:

¹⁴⁰ Foremen, in this regard, are called “social regeling” as well in Flemish.

¹⁴¹ Unions provide the names of the candidates’ dockworkers to CEPA. 288 dockworkers have been recruited in 2016 (Source: BTB union)

In case of problems, there is the union and when the workers have been recognized after 3 weeks of training we also play our role, we give feedbacks to CEPA, we tell them couple of things they have to take into account. Then each trade union plays its role. We have a waiting list, something that the employers do not like, a list of candidates that we cannot discriminate with respect to race, gender, etc. 10000 candidates are currently on our waiting list. Of course there are different ways of recruiting, we are giving to the people the chance to become a dockworker but they have to follow the conditions, they have to succeed but also we take into account the fact that their father was dockworker, their family... it's not really an obligation, like in the past. We also take into account unemployed people. For instance one come to the office and want to become a dockworker, we are going to see in our waiting list, he is already on list for a couple of years, and he is now unemployed, we give the chance but he has to do it himself. Then we have for instance the grandfather that was a dockworker for 40 years, he was member... we take into account different measures, but it is also the right of the unions of course, that we have decisions in that. It is an attitude; it is not really an obligation [Interview with a union secretary, Antwerp 2016]

The bargaining power of the unions is further explained during the interview to the general manager of the main logistics operator in the port involved in conventional cargo. By referring to the possibility to hire workers outside the pool system (parallel system) the interviewee stresses the “contamination risk”:

What people try to avoid in the port of Antwerp is contaminating one company with two systems, whereby you have dockers and non dockers. We try to avoid that. Because the risk that the dockers will say that the other needs to be a docker as well is too high. Unless it is intellectual labour, this is not a problem, but what I will never do in this company, even if I do out of this company activities for which obviously no dock labour is necessary, I will not put those guys in the same group, because it's too easy to open attack for the unions [Interview with the general manager, Antwerp 2017]

In the following table, the composition of the workforce is divided per permanent, casual, ranks and job categories. Logistics workers are also included, despite the recent abolishment of the Logistics Register. Among the dockworkers of the labour pool in the port of Antwerp, more than 300 are women, employed mostly as tallyman in the container handling process. The total amount of recognized dockworkers belonging to the labour pool is about 6125. Logistics workers with safety certificate are 1541.

TABLE 18: PORT OF ANTWERP. COMPOSITION OF THE WORKFORCE

General Register*

Port workers rank A	Active	Suspension	Total
Port workers for general work	1335	168	1503
Other categories	1353	140	1493
Drivers	210	27	237
Forklift drivers	517	28	545
Signalmen	56	14	70
Lashers	324	35	359
Tallymen container	12	7	19
Tallymen Gen. Carco	51	5	56
Polyvalent Tallymen	183	24	207

	Active	Suspension	Total
Permanent workers	1591	37	1628
Workers for general work (permanent)	69	3	72
Lashers	43	0	43
Tallymen container	115	7	122
Crane drivers	16	1	17
Crane drivers / drivers of special engines	228	2	230
Drivers/ forklift drivers/ Drivers of special engines	1113	24	1137
Supervisory staff	968	25	993
Head foremen	123	2	125
Lasher Head foremen	13	0	13
Chief tallymen	93	3	96
Foremen	451	13	464
Lasher foremen	114	3	157
Assistant Chief Tallymen	154	3	157
TOTAL PORT WORKERS RANK A	5247	370	5617

Port workers rank B Active Suspension Total

Port workers for general work (casual workers)	377	20	397
Other categories (casual workers)	105	6	111
Drivers	0	0	0
Forklift drivers	5	2	7
Signalmen	0	0	0
Lashers	72	3	75
Tallymen container	19	0	19
Tallymen gen. Cargo	2	0	2
Polyvalent tallymen	7	1	8
TOTAL PORT WORKERS RANK B	482	26	508
TOTAL PORT WORKERS RANK A+B	5729	396	6125

*314 women registered dockworkers.

Logistics workers with safety certificate

	Active	Suspension	Total
Warehousemen	1313	13	1326
Fruitpackers	44	4	48
Fruitgraders	0	0	0
Logistics workers	160	7	167
TOTAL LOGISTICS WORKFORCE	1517	24	1541

Situation on 30/11/2016

Source: BTB Union

The following table shows the evolution of the number of dockworkers (Flanders Commission, 2016). In the period 1980-2015, the number of recognized dockworkers (General register) in the port of Antwerp decreased from 9270 to 6131 people. This is due to the increasing containerisation. In 2015, the general contingent decreased slightly compared to 2014. The logistics workforce increased slightly. The number of tasks fulfilled in the period 2000-2015 increased from 1.071.813 to 1.193.747. Over the past recent years the number of tasks is staying around the same level, namely between 1.16 and 1.19 million units. The average number of task per dockworker increased from 188 tasks in 2014 to 195 tasks in 2015 (+3.5%).

TABLE 19: PORT OF ANTWERP. EVOLUTION OF WORKERS AND AMOUNT OF TASKS WORKED, 2006-2015

Year	General Register	Logistics workforce	Total recognized workforce	Total amount of tasks performed per year (General register)	Average amount of jobs per worker per year (General register)
2006	6900	1696	8596	1.303.664	189
2007	6819	1679	8498	1.356.651	199
2008	6898	1777	8675	1.377.539	200
2009	6650	1785	8435	1.228.708	185
2010	6240	1827	8067	1.322.822	212
2011	6053	1862	7915	1.170.631	193
2012	6029	1776	7805	1.166.335	193
2013	6160	1741	7901	1.183.817	192
2014	6181	1727	7908	1.162.372	188
2015	6131	1743	7874	1.193.747	195

Source: Own composition from Flanders Port Commission, CEPA, 2015

Inside the port area, therefore, all port employers are compelled to employ recognized port workers of the labour pool to carry out port labour. Only in case of labour pool shortage officially established in the hiring sessions, non-recognized worker may be hired (the so-called *pasman*, namely workers with only the identity card, without recognition card). The outsourcing of dock labour in the port of Antwerp currently occurs only in case of shortages in the labour pool of recognized workers. Pasmen have generally the same wage conditions of the pool workers. However, this can only be done when the VDAB (National Labour Office) in the hiring hall, in a given shift, notices the shortages. In this way, a foreman explains the hiring system when shortages in the recognized dockworkers occur:

In case of shortage of workforce on the terminal, they can send me to the hiring hall to get people. Let's say I need 10 men for the firm at the container terminal, and I have only 5 in the hiring hall. At the end of the hiring session, you get the notice "shortage". At that moment, there are still people walking around who are not recognized dockworkers. They can present themselves. I have the power to say you can go with me or you cannot go with me. I make the balance, is it safe to take them or not? I call the firm and I explain that I have 5 out of 10 but I have 5 non recognized people who want work, then the firm says ok or no, but that are not recognized dockers. That can be anybody from the street as long as he is 18, capable of understanding Flemish, physically fit... That is a system that goes on from the beginning of the docks, we call it "is gonna work with his identity card". That is the way we call in Flemish, *Pasman*. In this case, the ID card is a pass, and I take his card, because they need it to make his payment. There are also a certain number of people, which are known to be regular *pasmen*. The firm has already a list of people with phone numbers in case of shortages in the recognized workers. Mostly of the pasmen are put on pooling on the twist locks. That is not rocket science. They never go to put an "identity card man" on a crane or on a straddle carrier. This trend is growing according to some categories. For

instance, the tallymen, the firm wanted to do this with OCR (Optical Character Recognition system). They put stop of making tallymen for a while, but now the system doesn't work like they want so at this moment they got still keep working at the old way, with the old tallymen, but there is shortage of tallymen, because of the stop for a while in training them. Now with the increasing volumes and the bigger ships they still need tallymen, so in that category you see more and more pasmen, because they cannot follow to train people. [Interview with a foreman, Antwerp, 2017].

As we shall see in the following sections, many of these aspects are under an ongoing process of transformation, due to the port labour reform implemented after the infringement procedure sent by the European Union to the Belgian government with respect to the organizational model of port labour.

5.5. Labour cost and wages

For the port workers of the General Register, the rate for the dayshift constitutes the basic wage, linked to the fluctuations of the cost of living index: each time the index rises by 1,60% the basic wage is increased in the same proportion. The wages for other shifts are calculated as follows:

- Morning shift: basic wage + 5%
- Afternoon shift: basic wage + 15%
- Night shift: basic wage + 50%
- Saturday shift: basic wage + 50%
- Shifts on Sundays and public holidays: basic wage + 100%

Ordinary supplements of wages, paid for each worked shift, refer to the following items:

- Lump sum premium: for each task performed a lump sum premium is paid to the workers; this premium is not integrated in the wages.
- Allowance for travelling expenses (walking time): all dockworkers are entitled, per shift, to a lump sum allowance covering their travelling expenses from the hiring hall to the site of employment.
- Supplements according to status for:
 - Head-foreman and chief tally clerk: shift wages + 50 %
 - Foreman, assistant chief tally clerk, watchman-inspector: shift wages + 25%
 - Forklift driver, forklift and crane-driver, signalman: shift wages + 1 H overtime
 - Crane driver, crane driver special engines, forklift and crane driver / special engines: shift wages + 2 H overtime.

Particular supplements of wages are granted under specific conditions:

- Overtime: when working overtime, the dockworker receives a supplement of 50% on the hourly rate of his shift.
- Supplements for handling dirty or inconvenient cargo: in addition to the supplements provided for in the Codex the foresaid Permanent Bureau may allow on the spot and at the dockworkers' own request, additional allowances when justified by the nature and condition of the cargo as well as in special circumstances. When handling damaged cargoes from damaged ships, a supplement of 50% is allowed.

According to the abovementioned calculation for the wage shifts, the table below provides the minimum wage rates related to the job categories, the shifts and the hours. It is clear from the table that the amounts change according to the shifts and the job categories. It should be noted that typically dockworkers in Antwerp are assigned to the same shift for longer periods.

TABLE 20: PORT OF ANTWERP. MINIMUM WAGES PER CATEGORY, SHIFTS AND HOURS

Category	Dayshift 08:00 – 15:45		Morning shift 06:00 – 13:45		Afternoon shift 14:00 – 21:45		Nightshift 22:00 – 05:45		Saturday shifts		Sunday-holiday shifts	
	Shift/€	Hour/€	Shift/€	Hour/€	Shift/€	Hour/€	Shift/€	Hour/€	Shift/€	Hour/€	Shift/€	Hour/€
General worker, Lasher, Tally clerk	133,37	18,40	140,40	19,32	153,38	21,16	200,06	27,59	200,06	27,59	266,74	36,79
Foreman, Assistant chief tally clerk	166,71	22,99	175,05	24,14	191,73	26,45	250,08	34,49	250,08	34,49	333,43	45,99
Head foreman, Chief tally clerk	200,06	27,59	210,06	28,97	230,07	31,73	300,09	41,39	300,09	41,39	400,11	55,19
Signalman, Forklift driver, Forklift driver with qualification of crane driver	160,97	22,20	169,02	23,31	185,12	25,53	241,45	33,30	241,45	33,30	321,93	44,40
Crane driver, Straddle-carrier driver, Forklift driver with qualification of crane driver and special engines	188,57	26,01	198,00	27,31	216,86	29,91	282,84	39,01	282,84	39,01	377,12	52,02

Gross values. September 2017

Extra shifts	Shift/€	Hour/€	Overtime/€
Week	138,92	19,16	28,74
Saturday	208,38	28,74	43,11
Sunday-holiday	277,84	38,32	57,48

Source: Own elaboration from Codex

The basic salary of the warehousemen amounts to 75% of the basic salary of a recognized port worker for general work. With respect to the logistics workers, despite the abolishment of the logistics registers, the labour conditions have not been changed. Minimum hourly rates have been determined for logistics workers (for unskilled workers, skilled or polyvalent worker and for foremen). The basic salary for an unskilled worker corresponds approximately to 66% of the basic salary of a port worker for general work.

The Belgian social legislation comprises a number of social advantages for all the Belgian workers, the principal being:

- Health and disablement insurance: in the case of sickness or accident occurring outside of employment, payment in lieu of wages is granted as well as partial reimbursement of medical expenses;
- Insurance against industrial accidents and occupational diseases: payment in lieu of wages is granted as well as the complete reimbursement of medical expenses
- Birth grant and family allowances
- Annual holidays (vacation)
- Unemployment insurance

- Pension scheme

In addition to social advantages granted by the social legislation, dockworkers are entitled to further fringe benefits most of which are borne by the Social Security Compensation Fund – Port of Antwerp, created in 1946. Though financed exclusively by employers' contributions, this fund is jointly managed. Its main task consists in protecting the dockworkers against possible prejudices resulting from the casual nature of port labour, by providing a guarantee make-up (CEPA, 2012).

The advantages borne by the Compensation Fund refer to the attendance money already mentioned for the rank A of the register of dockworkers in case of unemployment. In addition, agreed with the National Labour Office, a system of supplementary holidays has been worked out in favour of the dockworkers of the general register who could fail to qualify for the full holiday entitlement. The allowance for each supplementary holiday amounts to twice the social security allowance.

The Social Security Compensation Fund is charged with the payment of the public holiday pay to the casual dockworkers of the general register. The National Labour Office intervenes for an amount equal to the daily unemployment allowance whereas the foresaid Compensation Fund makes up the difference. The public holiday pay is equivalent to the basic wage increased by a lump sum for the dockworker of general work, tallyman, lasher and watchman; the wage of the category (i.e. the basic wage increased eventually by the supplement according to the status) for the other dockworkers.

An annual allowance is paid to dockworkers of the rank A, when they retire, providing that they have ceased their professional activities after having been registered for at least fifteen years. In addition, this group of workers receive a lump sum payment when they retire. An indemnity in case of withdrawal of recognition on medical grounds is provided. Dockworkers of the rank A in this case are entitled to a one-time severance payment. The amount of this benefit varies according to the nature of the accident or illness (labour accident, professional disease or not) and according to the seniority in the port industry. All dockworkers who are entitled to an industrial award, receive, as a token of appreciation, a special bonus, the amount of which varies according to the importance of the award.

Particular regulations for elder workers are in place as well. dockworkers of the rank A having reached the age of 55 years and having a seniority in the port industry of at least 20 years, may apply for a medical examination by the industrial doctor in order to get the benefit of these particular regulations. When the doctor confirms their diminished fitness for all kinds of dock work, they are released from any further employment and receive 95% of the normal social security allowance (unemployment benefit + attendance money). They only have to report at the hiring hall once a month. From the age of 60 years onwards, all dockworkers have to retire, provided that they have a professional career of 45 years.

Other advantages are in place by both the Compensation Fund and the Employers. A New Year gratuity and conjuncture allowance is paid out in December to the dockworkers of the general register; its amount depends on the number of shifts performed during a reference period of 1 year from the 1st

October until the 30th September. As soon as the workers have been recognized as a dockworker, they receive one pair of safety shoes or half boots. The charges are born by the employers (2/3rd) and the Social Security Compensation Fund-Port of Antwerp (1/3rd). The other necessary working and protection clothing (e.g. working clothes, working gloves, safety shoes, rain clothing winter clothing and a safety helmet) borne by the employers. Later on, the protective and safety clothing is replaced on the basis of a system of points granted in function of the shifts worked. The workers are free to choose their outfit according to their personal needs. They are also entitled to an allowance for cleaning and maintenance of the working clothing.

With respect to the advantages borne exclusively by the employers, a fixed amount per shift is paid into a special Trade Unions common Fund with a view to the payment of a trade Union's bonus to all affiliated dockworkers.

Dockworkers who have been registered in the labour force for at least 5 years are entitled to a number of seniority holidays as follows:

- Seniority of 5 up to 9 years: 1 day
- Seniority of 10 up to 14 years: 2 days
- Seniority of 15 up to 19 years: 3 days
- Seniority of 20 up to 24 years: 4 days
- Seniority of 25 up to 29 years: 5 days
- Seniority of 30 up to 34 years: 6 days
- Seniority of 35 years and more: 7 days

When a fatal industrial accident occurs, the next of kin of the victim are entitled to an indemnity, the amount of which varies according to the family situation of the victim.

The employers reimburse their personnel part of the expenses incurred when using public transportation to and from the hiring hall, on the basis of an official list. When using their own means of transport they receive an allowance for each shift accomplished or day of registered unemployment. The amount of this allowance is fixed according to the distance between the domicile and the hiring hall and is adapted to the increase of tariffs established for public transport.

All workers can benefit from an insurance that grants, in case of hospitalization, the reimbursement of all expenses, which are not covered by the national health, and disablement insurance. For the permanent workers the insurance premiums are paid by the employer; for the casual workers the premiums are paid by a special fund.

According to the General Regulations governing the protection of Labour, CEPA has organized since 1955 for the whole port community, both a Common Committee and Common Service for Prevention and Protection. The duties of these Committees are the observation of the regulations concerning the well-being at work (adapted by the law in 1996). The head of the Common Service for Prevention and

Protection is assisted by five prevention consultants and five permanent delegates. This body¹⁴² plays an important part in the training of dockworkers. The Service indeed stimulates the sense of safety in the theoretical courses at the Training Centre for dockworkers and takes care of safety training courses in the companies. All port companies who have not set up on their behalf a proper medical service are obliged to affiliate themselves to an External Service for Prevention and Protection (MEDIWET), which is entrusted with advising and supporting the affiliated companies in the domains of preventive medical examinations and risk management (CEPA, 2012).

Typically, CEPA checks the number of shifts performed by the dockworkers on the terminals. With respect to the container terminals, the overall number of shifts is checked (i.e. both for permanent workers and for casual workers). The collection of those figures is made on a yearly basis. On a monthly basis, there are differences according to the specific period of the year. By checking the number of the shifts on a yearly basis, it could be possible to deduce approximately the number on a monthly basis. All the dockworkers in the port of Antwerp have right to 20 holidays and a set of supplementary day offs. The average of day offs per year is approximately 6 weeks or 30 working days. Therefore, on a yearly basis, the average of shifts¹⁴³ is 154. Bearing in mind the wage supplements, and that in the port of Antwerp a system of incentive to productivity is not allowed, the table below shows an overview of the shifts performed in 2016 according to the job categories of the dockworkers (both permanent and casual).

TABLE 21: PORT OF ANTWERP. OVERVIEW OF SHIFTS 2016

Category	N. of Shifts
PORT WORKERS FOR GENERAL WORK (CASUAL)	306.695
FORKLIFT AND CRANE DRIVERS (CASUAL)	40.080
FORKLIFT DRIVERS (CASUAL)	97.142
SIGNALMEN (CASUAL)	6.465
LASHERS (CASUAL)	75.702
TALLY-MEN (CASUAL)	50.408
SUPERVISORY STAFF	214.620
CRANE DRIVERS (PERMANENT)	2.304
CRANE DRIVERS/SPECIAL ENGINES (PERMANENT)	37.985
FORKLIFT AND CRANE DRIVERS/SPECIAL ENGINES (PERMANENT)	231.267
PORT LABOURERS FOR GENERAL WORK (PERMANENT)	18.163
LASHERS (PERMANENT)	9.896
TALLY-MEN (PERMANENT)	27.324

Source: CEPA

¹⁴² Once a month, the Common Service reports to the Common Committee for Prevention and Safety on its activities. In this Common Committee, joint discussions are engaged between the delegation of the employers, composed by representatives of the professional organizations of the port sector, and the representatives of the trade unions.

¹⁴³ Source: interview to the director of CEPA, Antwerp 2017

It should be reminded that there is no difference between labour wages of the rank A and rank B. Only when they are unemployed, port workers from the rank A have right, on top of the unemployment indemnity from the federal government (70, 55 € - gross value), the attendance money from the Social Security Fund (15, 14 € - gross value). Rank B gets only the unemployment indemnity. According to the director of CEPA, in this way, jointly with the system of sanctioning, the overall workforce of the labour pool is somehow disciplined as well:

You can be put back from rank A to rank B when you do not walk within the lines, when you do not go to the hiring hall for instance, or when you do not perform enough shifts. We have systems that monitor for every dockworker the number of shifts that he is performing. If he is not reaching the target he can be sanctioned from rank A to B, but if he works, he does not feel anything financially, because when he works the wages are the same. Only when he is unemployed there is a financial implication. It is like an incentive for him to work [Interview with the Director of CEPA, Antwerp, 2017].

In the port of Antwerp, besides the distinctions abovementioned, the workforce is totally represented by the pool of recognized dockworkers, whose payroll is provided by CEPA. Wages of dockworkers are weekly paid. Officials of CEPA have three sources of information concerning these payments: the employers for the shifts performed on the quayside (digitalized information); the hiring hall (through the National Labour Office VDAB) and CEPA offices themselves, who monitor daily who is unemployed and check other data related. CEPA gets information for shifts on Monday and Tuesday from the port employers concerning the previous week. A software compares all the data coming from these three sources. Typically, on Wednesday the file is ready, and on Thursday morning is sent to the bank. A second procedure often is in place on Thursday, in order to solve the eventual anomalies. Therefore, the employers are invoiced for the payments of the gross wages to the dockworkers, since CEPA pays them net wages in advance. Finally, the employers have to pay the gross invoice in 5 days to CEPA¹⁴⁴.

With respect to the Cash Cost per Box (CCPB), namely the total cost that a container terminal operator pays to handle a container, labour composes the main value in the Belgian case as well.

As the table showed in the previous section, for a generic Global terminal operating company, the streams highlighted in yellow determine the CCPB. The findings for the CCPB in the port of Antwerp have been elaborated from different sources, and refer to a container terminal vertically integrated, managed by a global terminal operator. However, due to confidentiality it has been not possible to obtain more details or concrete figures. What it has been possible to know is that the labour cost per box is between 50-55% compared to the Revenue per box (RPB). About 85% of CCPB is dock labour related.

¹⁴⁴ Source: Interview with the Director of CEPA, Antwerp 2017

TABLE 22: PORT OF ANTWERP. STRUCTURE OF THE CASH COST PER BOX

COST OF SALES Wages and Salaries Contract Labours Running, Repair and Maintenance Power and Fuel Rental of Equipment and Facilities Other Direct Charges
Total Cost of Sales
OVERHEADS Management / Royalty Fee – Local partner Management / Royalty Fee – Multinational Group Concession fees Property Tax Rent & Rates Wages & Salaries Other Overheads
Total Overheads
Approx. 60 € Cash Cost per Box (CCPB)
Labour Cost per Box is 50-55%% with respect to Revenue per Box; 85% of CCPB is labour related

Elaboration from different sources

By these relative figures, it is possible however to argue that the CCPB in the container terminals of the port of Genoa is higher than the CCPB in the container terminals of the port of Antwerp. If the CCPB in Genoa is approximately 95,00 €, in Antwerp this should be approximately 60 €. In other words, the cost structure to handle one container in Antwerp is lower than in Genoa. Several factors can be underlined to explain this gap between the CCPB in a North European and a South European port. First, market reasons: the higher competition (intra, inter-port and across the chain) of the Northern range implies a different strategy of the chain actors, which is however the result of social relations of production, bargaining power, etc. Second, the gap is due to the fact that in a container terminal of the port of Antwerp, besides the business model and the management structure, less workforce per container handled is involved. Being the labour cost the fundamental component of the CCPB, the (social) organization at workplace affects heavily the overall value. It should be reminded, indeed, that in a container terminal of the port of Antwerp the straddle carriers substitute the yard trailers and the reach stackers, which are present in the container terminals of the port of Genoa. Therefore, in principle less workers are necessary to handle one container in Antwerp from the ship to the shore and vice versa. On the other hand, wages per capita of these workers employed in Antwerp are higher with respect to the wages per capita of the workers employed in the container terminals of the Genoa port. There is enough empirical evidence therefore to state this difference: lower Cash Cost per Box and higher wages per capita in Antwerp; higher Cash Cost per Box and lower wages per capita in Genoa.

It should be noticed that the ratio between the amount of containers handled and the workforce employed in both ports/ container terminals would give an idea of this gap, as well as the wages of the

dockworkers in Antwerp with respect to the dockworkers in Genoa.

These findings show that, in a certain sense, the occupational port labour system in the Italian case remunerates more people by distributing lower wages, whereas in the Belgian case it remunerates less people by distributing higher wages. However, the incidence of labour cost does not change so much in both contexts, but tends to be similar, being the difference mainly a matter of labour quotas differently distributed (and socially produced). Paradoxically, the organization of port labour in Antwerp replicated in Genoa would require as a preliminary condition the exclusion of a certain amount of workforce currently employed in the port operations. The main difference therefore concerns the greater or lower socialization of costs.

In turn, these settings have an impact on terminal productivity. In the port of Antwerp, the Gross Crane Rate is between 30-35 boxes per hour¹⁴⁵, at least 10 times higher than the GCR in Genoa. This is due to several factors (i.e. labour force composition, work organization at quayside, terminal layout, endogenous and exogenous factors, facilities, capacity, gang system, motivation and structural constraints). Following the previous reasoning, in Genoa the social equilibrium is given by a lower productivity compared to the Belgian case, acknowledged by the port actors involved in order to keep higher workforce in the port operations (and hence social peace). The port labour system in Genoa, implicitly accepted, absorbs more work than in the port of Antwerp, but at the same time, the model is less efficient in terms of performances. In Antwerp, these current trends are recognized by the unions, whose main strategy is to “defend the core” (Dorigatti, 2014), as also explained by a union’s secretary and other port actors, in light of the ongoing port labour reform:

The most important thing that we are afraid is that for instance the employers can come to the port of Antwerp and employ dockworkers themselves outside our system. That is the parallel system. Their goal is that it should be possible to hire their own people; maybe it is a bit crude to say it like that but from Bulgaria or Romania or whatever. They want to hire their own people and want to employ them near to our dockworkers for that kind of jobs, low skilled jobs, but we have high skilled dockworkers, we have a famous training centre for the safety of our workers. We have many problems that the employers could be able to bring their own people with low skills, we also manage to have the negotiations and make it very difficult for the employers. Then there is the problem of the language. Can you imagine if an Antwerp dockworker works close for instance to a Romanian worker who doesn’t understand the language? [Interview with a union secretary, Antwerp, 2016]

The table below shows an overview of the wages of the dockworkers in the port of Antwerp related to the categories and the dayshift in the container terminals, bearing in mind that in this port four daily shifts of 7 ¼ hours take place (36 ¼ hours per week). The values refer in average to the gross wages per category, including all the components of remuneration expected in a payroll (the wage supplements abovementioned such as the lump sum premium, allowance for travelling expenses, etc.).

¹⁴⁵ Information elaborated from different sources.

TABLE 23: PORT OF ANTWERP. WAGES OF A DAYSHIFT

Category	Minimum and Average wages Dayshift (H 08:00 – 15:45)
Dockworker for general work, Lasher, Tallyman	Minimum 133,37 € Average 281,04 €
Crane driver, Straddle carrier driver	Minimum 188,57 € Average 363,00 €
Foreman, Assistant-chief-tally clerk	Minimum 166,71 € Average 326,10 €
Chief-tally clerk, Head-foreman	Minimum 200,06 € Average 382,89 €

*Gross values

Source: own composition from CEPA

With respect to the automation processes, the issue has been addressed during some interviews. The idea among the maritime economists about the automation refers mainly to the new terminals, which will have different technicalities and design if related to the existing terminals. Empirically, this is partially true. The new container terminal MPET for instance, transferred from the right to the left bank and built from scratch, has not introduced a different model with respect to the previous terminal¹⁴⁶. Cranes and straddle carriers, indeed, are in place also in the new container terminal. However, it will be possible that in the future scenario, the new container terminal in Saeftinghedok will have a different setting. In this way, the reasons why currently automation in Antwerp is not widespread are explained by dockworkers:

Here in Antwerp we have a certain knowledge because of the history. At the moment, automation does not get through because it is not flexible enough. In our operations, if you want to change a complete shift-loading plan, you can do that and it happens. In an automated terminal, you can't change anything because is too rigid. That is currently our strength here, you can change plans in one hour, and at the moment the amount of containers we handle here with one gang is still higher than the amount of an automated terminal. To come here the ships have to come up the river, it is about 3 to 4 hours sailing, when they go back is the same, other 3-4- hours. I use to hear all the times about our flexibility, our know-how, our speed, good connection to the hinterland. That's why the shipping companies come here [Interview with a foreman, Antwerp 2017].

The perspective of the port employers involved in container handling seems not different. The sharing idea is that in the port of Antwerp a complete automation is in contrast with the path dependent and historical “organization of the improvisation” typically in place at quayside, and in the nature of port labour. Nevertheless, the scenario might change in the future. Currently the system in Belgium is not

¹⁴⁶ The container terminal managed by DP World in Deurganckdok has automated stacking cranes on the yard with respect to the container terminal MPET

automated such as in the neighbour port of Rotterdam (e.g. Maasvlakte II). Some tasks are being set without the human labour, e.g. the tallymen substituted by the introduction of the Automatic Container Recognition (ACR). The “human factor” in the port of Antwerp therefore is more “flexible” with respect to an automated terminal:

That is something that started in the first industrial revolution and it is still going on and it will continue. Of course it will continue. And if you can work with, if you can automate certain processes, it has an effect on your results and your efficiency, of course, every company will try to do so. But you also have to invest in your employees. They are making those things work, and maybe there will be an uncertain process such as less dockers, but maybe you will need more technicians, specialized in all those new automated systems. So you still will need to invest in training in other kind of areas, IT, engineers, other profiles, but it will be an ongoing transformation as it is always been. Of course we look at the costs, always we try to reduce the cost as every company has to do. As labour and dock labour is very important element in our CCPB, of course we want to be more productive, we want to try to increase our GCR, of course, we always have to be on top of these things to be competitive, in Antwerp, in our region, in Europe and in the world. [Interview with HR manager, Antwerp 2017]

Such overview shows how composite is the port labour system in the Belgian case, and to what extent the labour arrangements in the port of Antwerp present commonalities with the labour arrangements in the Italian case, besides the distinct contexts. Dock labour pool in the port of Antwerp is structured, mainly based on the existing labour regulation and by means of CBA, Codex, etc. Both permanent employees of the terminal operators and casual dockworkers are recognized and belong to the labour pool. The professional training is managed and organized by an institution together with port employers and unions. These dynamics are routinized throughout the time and legitimated further by the composition of the workforce, in which unions are strongly involved, facing the social role of multinational market players locally situated.

5.6. Dock labour systems and European port policy: the Belgian reform

As it has already mentioned, in 2016 port labour reform took place in Belgium after the infringement procedure¹⁴⁷ sent by the European Union¹⁴⁸ to the Belgian government, concerning the port labour system. The reform has been the result of several meetings between trade unions, CEPA, and members of the Belgian Ministry of employment. The port law has been changed in order to meet the constraints coming from the European Commission¹⁴⁹.

Verhoeven (2015) provides an historical overview of the European port policy. In short, the European Commission identified already in a non-published note from 1970 two main goals that would characterise all of its attempts to develop a common port policy. On the one hand, the Commission aims to reach a regular application of general Treaty rules, in particular with regard to competition and the basic internal market freedoms. On the other hand, it wants to ensure a balanced development of European ports. Both objectives stem from the fundamental principles of the EU Treaty are interlinked and can therefore not be seen as alternatives (European Commission, 1970).

In 1974, the Commission set up a Port Working Group from port authority representatives, which produced the first version of the so-called “fact finding report” on the institutional and administrative structure of European ports (1977). The report illustrated the considerable diversity in the organization, management, operations, finance and legal obligations of the ports surveyed in the then eight Member States of the European Union. The opinion of the experts was that these differences however did not seem to provoke serious distortions of competition. The Commission concluded that, in so far as seaports were an essential link in the Community’s transport chain, they would be covered by the general development of the common transport policy (Verhoeven, 2015).

In the early 1990s, the European Commission developed the European infrastructure network through the concept of the Trans-European Transport Networks (TEN-T), with a set of initiatives and

¹⁴⁷ The infringement procedure started from the complaints sent to the European Commission by a (multinational) cargo handling company based in Belgium, involved mainly in the general cargo and in logistics activities (e.g. warehouses in the port area) and by several interim agencies. Katoen Natie – which has a stake also in the inland terminal of Rivalta Scrivia in Italy – has been among the companies against the port labour system in the port of Antwerp. Container handling companies did not complain the current organizational system.

¹⁴⁸ Every action taken by the European Union is founded on treaties approved by all Member States. A Treaty is a binding agreement between EU member countries. It sets out EU objectives, rules for EU institutions, procedures on how decisions are made and it defines the relationship between the EU and its member countries. Treaties are amended to make the EU more efficient and transparent, to prepare for new member countries and to introduce new areas of cooperation, such as the single currency. The European Union was established through the Maastricht Treaty (1993) and the latest modifications came about through the Lisbon Treaty (2007). Under the treaties, EU institutions can adopt legislation, which the member countries then implement. EU legislation usually comes in the form of Directives and Regulations. Member States need to transpose the former into national legislation, whereas the latter apply directly http://europa.eu/eu-law/decision-making/treaties/index_en.htm

¹⁴⁹ As Verhoeven summarizes (2015), the three principal policy-makers of the European Union are the European Commission, the European Parliament and the Council of the European Union. In short, the Commission can be seen as the executive power, which formally holds the main initiative to propose new policies and laws. The legislative powers are in the hands of Parliament and Council. The former is directly elected by EU citizens and the latter represents the interests of EU Member States. Initially, Parliament only had an advisory role, but its powers greatly increased over time. Today, both institutions generally have equal weight in the legislative process.

policies based on the original 1970 objectives that would constitute the core of the European agenda for ports.

The European Commission adopted in 1997 its first publication on ports, the Green Paper on Sea Ports and Maritime Infrastructure (1997). In addition, the Commission suggested producing a regulatory framework aimed at a more systematic liberalisation of the port services market, which met the opposition in the European Parliament itself. Despite the scepticism of Parliament, Member States and actors of the port sector, the European Commission published in 2001 a communication on the improvement of quality services in ports, whose operational part was a Directive proposal on market access to port services, as encouraged by the interests of the European Ship-owners (European Commission, 2001). Included in the Directive proposal, the article on self-handling was object of political debate, characterized by trade union protests and focused mainly on labour-related aspects of the proposal, which had a broader aim. According to Verhoeven, the aim of the Directive proposal was to establish rules for market access to port services, including the use of transparent selection procedures. On the other hand, these supposed rules would have deregulated the market access of port services. The opposition to the Directive mainly came from north European ports, which saw their particular governance system threatened, whereas the south European ports agreed commonly, in order to improve their competitiveness by correcting the perceived imbalance in Europe (Verhoeven, 2015). The Italian port authorities, for instance, saw in the Directive a confirmation of the reform programme that produced the port law n. 84 / 1994, already imposed upon them through decisions of the European Court of Justice and the European Commission, as previously mentioned.

The European Parliament rejected the Directive Proposal in November 2003, and the final downfall of the Directive came in January 2006, provoking a remarkable precedent, since a legislative proposal of the Commission rarely fails to find political agreement twice (*Ibidem*).

After that, in 2007 a communication of the Commission on European ports policy (2007) facilitated by the lobbying activity of ESPO, integrated the maritime policy and formed part of its freight transport agenda. The communication's actual policy proposal were spread over six years, including port performance and hinterland connections, sustainable capacity expansion, modernisation, level playing field and legal certainty, port-city dialogue and port labour issues. Moreover, the proposals were essentially of a non-legislative, "soft law" nature. The implementation of the 2007 policy programme led to a series of guidelines on the implementation of Community environment legislation to port development, proposals to reduce administrative barriers, and the establishment of a sectoral social dialogue committee on ports (started in 2013). A new ports policy package was issued in 2013. The Commission identified eight areas of action, among which the connection of ports into TEN-T, modernisation of port services, attraction of investments, promotion of social dialogue, innovation, etc. With respect to the legislative proposal on market access to port services, the proposed regulation was softer than the original port services' Directive. Market access rules were balanced, making room for

exceptions. Moreover, cargo handling and passenger services were not covered, officially because horizontal Directives on concessions and public contracts were being prepared. However, the response from stakeholders has not been positive, in particular concerning the establishment of legislation on market access to port services. The European Parliament and Member States have responded in sceptical terms as well. The Council of Ministers in 2014 endorsed the exclusion of cargo handling and passenger services and added the possibility for Member States to exclude pilotage services as well from the proposal, by further limiting its scope. In any case, the legislative procedure is still ongoing (Verhoeven, 2015).

Today, this short overview gives an idea of the approach adopted by the European institutions in the last years and the difficulties in reaching the objectives fixed. It should however be reminded that in the transport sector, several liberalisation processes took place after the peculiar approach of the European policies (e.g. civil aviation, first wave of rail liberalisation, cabotage regulation, inland navigation, road transport). In this context, the attempts to liberalise port services, included dock labour systems, always failed so far. From here, the idea to create a port communication through a “soft-law” method came out, in order to provide new practices and strategies to reach the abovementioned objectives.

Currently, the liberalisation of European port services – still governed by varying national regulations – is faced by the European institutions on a legal way, through a different strategy based on the infringement procedures addressed to each European country separately. After Belgium, indeed, also Spain has been object of infringement procedure for similar reasons. Whereas the infringement in the former has been recently withdrawn, in the latter is still open.

The opinion of the Commission on the compatibility of dock labour pools is that dock labour schemes can be compatible with Treaty rules unless these would be used to prevent suitably qualified individuals or undertakings from providing cargo-handling services, or to impose on employers the workforce that they do not need (2011). The responsibility therefore has been done to the European social partners through a sectoral social dialogue¹⁵⁰.

The Sectoral Social Dialogue Committee for ports is a form of coordination formed by social partners, established in June 2013 with the support of the European Commission. It involves FEPORT (representing the interests of terminal operators and stevedoring companies) and ESPO on the side of port authorities, and ETF and IDC with respect to the unions. The committee “work jointly to contribute to the improvement of working and living conditions for the people employed in the sector as well to the competitiveness and productivity within EU ports”¹⁵¹.

The decision to launch the social dialogue between stakeholders has to be interpreted in light of these

¹⁵⁰ Verhoeven (2011) states that ports in several Member States continue to struggle with restrictions imposed by dock labour schemes “that gravely affect their competitiveness”. Empirically, this is only partially evident, since the port of Antwerp, where the pool system applies, ranks among the most competitive and efficient ports worldwide. The general cargo sector in the port of Antwerp however is not performing well in terms of volumes handled (and the employers who complain about the pool system in Antwerp at European level come from this sector).

¹⁵¹ Statement adopted after the meeting in Brussels on 12th December 2014.

processes. However, even in the Treaty rules, some articles contemplate the possibility to develop a social dialogue. Moreover, this instrument – already foreseen in the Treaty – prescribes an extremely powerful tool. In fact, if there is an agreement in the social dialogue between social partners, and if it is not in contrast with the principles of the Treaties, it can be adopted as Directive by the Council only with an information of the Parliament, and without the possibility for Member States to change the agreement between the social partners. In other words, if social partners of the social dialogue reach an agreement, this agreement as it is becomes an EU Directive of the Council.

The social partners have been identified in one representative per Member State, from the employer side and one per Member State from the employee side. In the social dialogue for ports, ESPO and FEPORT represent both the employers' associations, whereas ETF and IDC represent the employees' associations. The agenda is set by the social partners themselves, and the Commission can give only some hints. Two main issues addressed so far have been health and safety, and training and qualification¹⁵². The final step for the social dialogue should be to address the employment conditions. Recently, social partners have elected their own chair, and the Commission does not have to chair the meetings any longer.

As previously mentioned, one of the main issues at European level is the governance and the management of the dock labour pools at national level. In this way, an official of the European Commission expressed the question of the exclusivity of the pools.

I was once asked by a representative of dockers organization: what do you have against the pools? I said: I have nothing against the pools. *You can have as many of them as you want.* The problem is the exclusivity of a single pool, and the fact that it is a close profession without any possibility for people to access this profession, and without the possibility for a company to employ outside the pool. This is the problem, if you have a pool which functions well is not a problem but if I am a company I want to be able to employ someone permanently and not through the pool. And we still get complaints. Even now. It is a complicated situation. However the social character of the pool can be maintained without the closed shop. For the moment, we rely on complaints [Interview with an official of DG Move].

Belgium received on 28/3/2014 a letter of formal notice¹⁵³ from the European Commission concerning the organisation of port labour, as laid down in the Law of 8 June 1972 and in implementing regulations and collective agreements. The European Commission sent the infringement to Belgium because the port labour organisation was in contrast to the Article 49 of the Treaty¹⁵⁴ on the Functioning

¹⁵² Training and qualification are complex topics to address, since they are related with the access to the professions and, by the perspective of the European institutions, this is linked with monopoly regimes in some European countries.

¹⁵³ European Commission. Lettre de mise en demeure – infraction n. 2014/2088

¹⁵⁴ The article 49 TFUE states: “Restrictions on the freedom of establishment of nationals of a Member State in the territory of another Member State shall be prohibited. Such prohibition shall also apply to restrictions on the setting-up of agencies, branches or subsidiaries by nationals of any Member State established in the territory of any Member State. Freedom of establishment shall include the right to take up and pursue activities as self-employed persons and to set up and manage undertakings, in particular companies or firms within the meaning of the second paragraph of Article 54, under the conditions laid down for its own nationals by the law of the country where such establishment is effected, subject to the provisions of the

of the European Union (TFEU).

Specifically, five infringements on freedom of establishment were identified by the European Commission:

- 1) The prohibition from hiring non-registered workers and the ‘obligation’ to choose them from the “General Register”;
- 2) The restriction on the type of contract: indefinite duration is authorised only in exceptional circumstances;
- 3) The obligation to set a very detailed and extensive gang composition per each shift¹⁵⁵;
- 4) The prohibition of multi-tasking or polyvalence;
- 5) The mandatory registration of logistics port workers.

According to the letter of formal notice, the Belgian authorities argued and justified these “restrictions” for two main reasons: First, the general interest to reconcile flexibility and availability of port labour with the protection of the workers intervening in port operations. Second, the need to ensure the quality of the services provided by qualified, skilled port workers, and the need to ensure the safety during port operations. In this regard, the position of the Commission is that “a public regulation less restrictive on port safety and labour conditions would allow obtaining the same objectives of safety and quality” (Lettre de mise en demeure, 2014).

- On 11/12/2015, after many meetings with the European Commission and the social partners, the Belgian Minister for Employment submitted an action plan to the European Commission. The timing of the Action Plan provided the development and entry into force of a solution to the letter of formal notice by 1 July 2016.

- On 26/4/2016, a preliminary agreement was reached between the social partners. This agreement was confirmed by the trade unions and employers.

- A key element in the pre-agreement has been the adoption by the port workers themselves of a referendum (from 31 May 2016 to Tuesday 14 June 2016) concerning the labour reform¹⁵⁶.

- The draft was also presented to the European Commission, with the consequence that no further steps in the procedure were adopted after the letter of formal notice. In other words, the procedure was

Chapter relating to capital. Consolidated version of the TFEU – Part three: union policies and internal actions – Title IV: free movement of persons, services and capital. Chapter 2: Right of establishment – Article 49. *Official Journal* 115, 09/05/2008 P. 0067 - 0067

¹⁵⁵ In the port of Antwerp, the number and the composition of a gang are obligatory according to the Codex, which defines all these details with respect to each type of cargo. Before the reform, it was not allowed to reduce the number of workers in a gang for an employer. In light of the commodity handled, different criteria were settled in detail about the number of workers to be employed. The problem in this regard refers mainly to the handling of project and general cargo. During the interview with a manager of Katoen Natie, the gang composition has been defined as “archaic”. Unions have always posed a veto concerning changes in the codex about the gang composition. The reason is in the following union statement: “we are not going to sacrifice jobs now for jobs tomorrow”.

¹⁵⁶ “I want to call on all port workers this opportunity with both hands to intervene and to approve the draft agreement. Employers should also be aware of the value of this agreement. Social peace linked with more possibilities concerning recruitment and a modernisation of the existing system, represent a progress compared to today” (Minister for Employment Kris Peeters. Press release, Minister of Employment, 2016).

“put on hold”.

- The Royal Decree and the collective agreements have been signed and published in the State Gazette. The European Commission took formal note of this and stopped the infringement procedure in May 2017.

- To date, since the launch of the talks, six meetings with the European Commission services, 29 meetings with social partners, 6 official correspondence with the European Commission took place.

On 12 December 2015, Deputy Prime Minister and Minister for Employment Kris Peeters, European Commissioner for Transport Violeta Bulc found an agreement on an Action Plan to reform the organisation of port labour. Belgium has reached the Belgian action plan to transpose legislation by 1 July 2016. The reform will then be implemented stepwise, spread over 4 years.

As regards the content of the draft, the wet Major - which constitutes the framework for port labour – remains unmodified. The main features of the draft agreement are as follows:

1) The recognition of port workers is maintained. The recognition of logistics port workers is withdrawn. A single safety certificate will give them the access to the port area;

2) In the long term, there will be the possibility to hire dockworkers outside the labour pool (parallel circuit), through short and long-term contracts as possible.

3) By way of derogation from the procedure of the gang compositions is accelerated and shall be regularly reviewed.

4) In a number of cases, multi-tasking¹⁵⁷ is also possible, but without making concessions in the fields of safety, and without any negative impact on training and wages.

5) The parallel circuit or system states that recognized workers will also be recruited outside the pool, provided that the 7 conditions are met. The eighth condition refers to the labour contract for those workers hired outside the labour pool: its duration will corresponds to the (temporary) duration of the recognition. A gradual process has been established in order to hire dockworkers outside the pool:

As from 1 July 2016, only port workers with contracts of indefinite duration can be hired;

As from 1 July 2017, only port workers with contracts of at least 2 years;

As from 1 July 2018, only port workers with contracts of at least 1 years;

As from 1 July 2019, only port workers with contracts of at least 6 months;

As from 1 July 2020, port workers for all contracts (e.g. daily contracts) can be hired.

To date, the royal decree is changed, but no terminal operators tried to hire a dockworker outside the pool. According to the director of CEPA and other port actors, the future scenarios in light of these changes are still uncertain. It should be noticed that the fieldwork in Antwerp has been carried out during this unclear period, whereby the reform was in place, but the infringement procedure had not yet been

¹⁵⁷ Liberalisation of training also occurred after the infringement procedure. From July 2016, every institution can offer training programs. Government will set up criteria to both institutions and content of training programs.

withdrawn. No strikes during this period have been reported.

There is no final decision for the Commission. We don't know, up until now we do not know, everything is a little bit uncertain, but still Belgian law is already changed because it was asked by the Commission, now we are waiting if the Commission is satisfied about what the Belgian government has done to meet the infringement procedure. [Interview with the Director of CEPA, Antwerp 2017]

Will the labour reform change the future strategies of work organization by the terminal operators involved in the container business? It is clear from the scheme related to the timing of recruiting dockworkers from a parallel system that currently for port employers is not convenient to hire outside the labour pool. In this way, the HR manager of a terminal operating company answers:

That's a difficult question, because the port has been organized in a certain way for several decades, where it was mandatory to use the pool. We didn't have the possibility to recruit outside the pool. We see the benefits of working with the pool, and we will have to see how the possibility of recruiting outside the pool will be organized, what will be the way, which categories will be used. There is a timing, from the first possibility to hire workers with open ended contract and then in the later stage it will be shorter contracts... it is gradual change, it is brand new, obviously unions are looking at this, so I don't know. I can imagine that for some specific functions... let's see how this will evolve, it is new possibility. If you hire outside the pool, these workers will still be all under the same collective agreements, whether they are hired inside or outside the pool, the same CBA will be applicable. We will see, obviously it is something brand new that still has to be implemented, is too early to see what will be the effect of this reform. We as container terminal operators are using the pool, we are benefiting from the pool, and we are not directly the initiators of the change. We were not the demanding party [Interview to HR manager, Antwerp 2017]

On 17 May 2017, the Commission has decided to end the infringement procedure. The monitoring of the reforms the Belgian government has initiated to address the grievances identified in the Letter of Formal Notice of 2014 started, as well as the negotiations between the social partners. After a long wait, the solution proposed by the Belgian government was positively assessed by the Commission and the infringement procedure was withdrawn. However, what seems to be the end of a path is the beginning of a new phase for the European ports¹⁵⁸.

In the letter¹⁵⁹ sent by the Commissioner to the Ministry of Employment is possible to read the following statements:

“The decision to close the case was motivated by the wish to create legal certainty for the reform to be implemented as soon as possible and that is conditioned upon the full and timely implementation of what was agreed between us. The terms of this agreement are as follows:

¹⁵⁸ ETF (European Transport Federation, 12 may 2017). “Open letter to Transport Commissioner on the reality of port work”. Dockers' section news. <http://mail.sttik.be/t/ViewEmail/r/51A4091EACF64A742540EF23F30FDED/A4DBAF6EBADB6BDD6B5BE456C00C2519>

¹⁵⁹ Brussels, 17/05/2017 – European Commission. Letter from Commissioner Bulc to Mr Peeters. Ref. Ares(2017)2520456

- The effective phasing out of the pool until 1 July 2020, which means that no legal or de facto restriction to hire workers outside the pool shall exist for the category of workers concerned, and in particular, that the recognition procedure for short-term port workers is based on objective and non-discriminatory criteria, including the training requirements for dockworkers, and guarantees that recognition is granted quasi-automatically when all conditions are met;
- The guarantee that the solidarity contribution to be paid by employers recruiting workers both outside and inside the pool is being used entirely to the benefit of all port workers;
- The conclusion and effective application of a CLA that allows for the abolishment of the multi-tasking requirements by 1 July 2020 for workers with specific qualifications and by 1 July 2023 for those with general qualifications, including an exception related to “unforeseen circumstances” limited to cases of *force majeure* such as extreme weather events;
- A regular review of existing gangs composition and a procedure for derogations that together ensure that existing and future gang compositions do not present an unjustified restriction to the freedom of establishment;
- The guarantee that safety certificates issued to logistics workers will not re-introduce a de facto recognition procedure.

The Commission will continue monitoring closely the implementation of these measures to complete the reforms initiated by the Belgian government, based on a monitoring plan. It has to be clear that if the conditions of the closure that we agreed upon are not respected and the above elements not effectively implemented, the Commission will not hesitate to open again an infringement procedure.

I trust that you and your services will do your utmost to facilitate a constructive dialogue between all partners in order to allow this reform to work in practice”.

With regard to the possible scenarios, the role of CEPA in light of the port labour reform would change. The criteria of recruitment must be the same also in case of hiring outside the pool. Employers who will hire workforce through the parallel system will be obliged to respect the seven conditions and all the procedures for the recognition as the dockworkers inside the pool. The difference refers to the time of the recognition, which will be equal to the duration of the contract. The wages, as well, would be paid by CEPA. The choice for the employer to hire personnel in the long run would however not be limited to the labour pool.

Changes will concern also the liberalisation of training. Other structures beyond the Training Centre OCHA can organize training courses for dockworkers. Employers could decide to provide training outside OCHA, although they pay a contribution for it. In this case as well, the problem of quality standards occurs. Different level playing fields would produce a gap. Therefore, it is important to maintain certain standards, especially concerning safety issues, often raised during the interviews to the dockworkers:

You are never sure about what is going to consider safety, it is more and more going downside this aspect. With people who are trained in doing their job every day, it is much safer to work with. Everybody knows the danger, it comes from up, it comes from the side with straddle carrier drivers. Who is trained to turn in that treadmill has no problems, but put somebody out of the street in the middle of it, give him an hour and maybe he is dead. He does not know from where is gonna come the danger, and that’s the problem with

pasmen as well, it is an extra factor who puts a load on everybody shoulder [Interview to a foreman, Antwerp 2017]

By the viewpoint of the workers interviewed, the liberalisation processes of the port services, and the infringement procedures related, all derive from the attempt to reduce labour costs in the ports. These pressures, according to their perspective, come from the market players of the global supply chain:

The problem come from the shipping companies, the big shipping companies are ruling the all market, they are forming alliances, they are making commercial agreements, and they are putting pressure not only to stevedoring companies but also to labour organization and governments. They are putting pressures on their own prices because they are conquering each other so hard to get as much as containers on their vessels, because the vessels are bigger and therefore there is overcapacity. So the container vessel rate is dropping so hot that they must get their profit somewhere else. And where can they get it? Only in the handling. And what does it mean handling? That's our wages. But if you pay peanuts, you get monkeys. Do you understand? They think they gonna liberalize all the sector and then it would be better but what is gonna happen? We will have unskilled people who are loading and unloading ships [Interview to a foreman, Antwerp 2017].

The constraints coming from the search for economies of scale by the market players across the chain, jointly with the ongoing port reform processes, are currently affecting the organization of port labour in the port of Antwerp. Nevertheless, the empirical findings provide a picture in the middle of this path, during a changing moment. Nobody, among the actors interviewed during the fieldwork, has been able to foresee the real impact of these trends (market pressures and institutional changes) with respect to the future scenarios of port labour organization in Antwerp and in Belgium. Most likely, concerning the so-called “parallel system”, the role of interim agencies will increase, jointly with a revival of casualized labour done by workers with different labour rights with respect to the recognized dockworkers of the labour pool. In this way, a general manager of a cargo-handling company (general cargo) gives its viewpoint, again emphasizing the crucial role of the unions:

The only real gain is to be able to contract outside the pool. And the gain depends completely on the reaction of the unions once you start hiring outside the pool. What will the reaction of unions be? Will they retaliate? Will they allow it? People from outside the pool will most certainly not be unionized, so they lose power. The pool system is not a bad system. What is the problem with the pool? First of all is expensive, second you don't have control of who you can hire, but the advantage of the pool is that today I can hire one and tomorrow I don't need to hire one, and there is a pool of people that we know, that they have the experience. Now our opinion is that we can replicate the advantages via an interim office outside the pool without all the disadvantages. The on job training depends on the company, if I take a person from outside the pool via an interim office I know that if he doesn't have the know-how I will have to give it to him [Interview with a general manager, Antwerp 2017]

On the other hands, both groups of workers will be under the same CBA. For some crucial questions, therefore, there are no answers to date, and it is difficult to forecast. In the words of the Director of

CEPA:

Maybe [these changes] can have an effect on the need of dockers. Now a container terminal operator needs everyday a certain number of dockers. It changes according to larger vessels. Probably it will change the situation for container terminal operators; maybe they will decide to hire less people with permanent contract. Now they need this people more or less every day, but in the future, they may need them a lot and then not a lot. Maybe they will decide to hire less people on a permanent basis and more people on a casual basis. Maybe. I don't know. [Interview to Director of CEPA, Antwerp 2017]

Nevertheless, what is undoubtedly taking place is a slow institutional change at national level, coming from the European port policies and previously from the complaints sent by multinational companies to Europe. These deregulation trends need to be interpreted for the purpose of the study. By drawing upon Streeck (2009), the ongoing gradual liberalization processes in the European port labour system could be seen as a slow transition of modern capitalism, which, from *Durkheimian* institutions, leads to the *Williamsonian* institutions (Streeck, 2009; Borghi *et al.*, 2017). To say it with the German social scientist (2009), if the *Durkheimian* institutions exercise a public authority, *Williamsonian* institutions are conceived by market players to increase the efficiency of trade and transaction costs. The distinction between these two types of institutions, “Durkheimian” and “Williamsonian”, are claimed to represent diverse modes of embeddedness of economic action in a social order. The transition observed in this case as well is from the organized to disorganized or from non-liberal to liberalized capitalism as a process in which Durkheimian institutions gradually become more Williamsonian (Ibidem: 155). Durkheimian institutions constitute an obligatory public order, social facts, a constraining external reality that in principle is not possible to adopt, reject or change (Durkheim, 1968 [1894]).

Two types of political-economic institutions (Source: Streeck, 2009)

<u>Durkheimian</u>	<u>Williamsonian</u>
Authoritative organization	Voluntary coordination
Creation of obligations	Reduction of transaction costs
Public order	Private ordering
Government	Governance
Obligational	Voluntaristic
Exogenously imposed	Endogenously contracted
Third party enforcement	Self-enforcement

By imposing on actors obligations that they would not voluntarily accept, Streeck observes that Durkheimian institutions exercise governmental authority. Sanctioning is in the hands of a third party representing somehow the whole society. Williamsonian institutions, by contrast, are devices for non-market though market-responsive and indeed market-driven coordination of economic behaviour. They are purposely and voluntarily constructed by market participants to increase the efficiency of their

exchanges (Streeck, 2009: 155). While Durkheimian institutions may *contain* markets, Williamsonian ones *grow out* of markets. Where public institutions provide government, Williamsonian institutions offer governance through “private ordering”, they arise from below through voluntary agreement, representing shared rational interests in optimally efficient trading relations. The gradual Liberalisation process in the European ports, then, may be described not as abolishment of institutions tout court, but as a slow move from Durkheimian institutions to Williamsonian ones. The empirical findings from the port of Antwerp photograph this ongoing shift exactly in the middle of the pathway, in relation with the trend emphasized by Streeck with respect to the German industrial relations. By this perspective, there will be always differences between port labour systems among the countries determined by path dependent items. What is however important to grasp is “the big commonality that lies behind the differences” (Streeck, 2009), namely the retreat in contemporary capitalism of institutions imposing and enforcing collective public obligation on economic actors, in favour of voluntary, privatized institutions of the Williamsonian kind. The transition is indeed commonly shared, besides the cross-national pathways, and in our empirical case, is boosted by the European institutions through negative integration port policies (Scharpf, 2010).

5.7. Professional training

Due to the complexity and the technicality of dock labour, every new worker as already mentioned has to receive in order to be recognized a systematic training on safety and on professional tackling of port work. For that purpose, the port employers have set up a centre for vocational training. The centre is part of CEPA, but they both represent two separate entities. OCHA is controlled by a jointly managed non-profit institution “Training centre for port workers” (OCHA). The board of directors is made by the port employers themselves. In addition, the unions are involved in the training centre, although with lower involvement than in the past¹⁶⁰. The objective of this institution, as described in the statutes is “welcoming and training of workers in view of their recognition as port workers and the organization of training of recognized categories of dockworkers”. The first training course started in 1980. OCHA is well known abroad, and gives also consultancy concerning professional training in ports worldwide.

The training centre consists of five classrooms, a learning-hall with simulators, a polyvalent room, an office and refectory for the teachers, a refectory for the trainees and the necessary changing rooms and sanitary facilities. There are three sheds and an open area of 3500 square meters for the practical exercises. Dockworkers are evaluated after 18 months before becoming official workers. The operational cost of the training centre is financed by the employers. The Flemish Labour Office participates for a small part in the global cost of the training centre. On the other hand, the trainees get the unemployment benefit borne by the National Labour Office¹⁶¹. The budget is approximately of 5 million per year. Any port employer has to pay an invoice for the contribution in training, in order to finance the port training centre. They are constrained by the CBA to pay 1.9% of their growth wage for training and if necessary, they have to pay additional contributions, as explained by the general manager of OCHA:

Sometimes at the end of the year, when there is not enough money in then CEPA needs to ask their members to pay additional contributions because at the end all our functioning of OCHA needs to be paid. So if this is not enough, the members of CEPA need to pay more, the employers need to pay more, which is not so good of course because they don't like to pay. But they use all facilities over here to train their people so... if they would do it in another company it would cost a lot of money as well. It is regulated and it is not an issue. Of course, they don't like it but that's something else [Interview to General Manager of OCHA, Antwerp, 2017].

It should be reminded that, given the high productivity of the dockworkers in the port of Antwerp, the training system in place is beneficial for the employers. In this regard, their obligation to invest in

¹⁶⁰ In the past, the instructors of OCHA were members of the unions. However, unions are involved in the board of directions of OCHA as well.

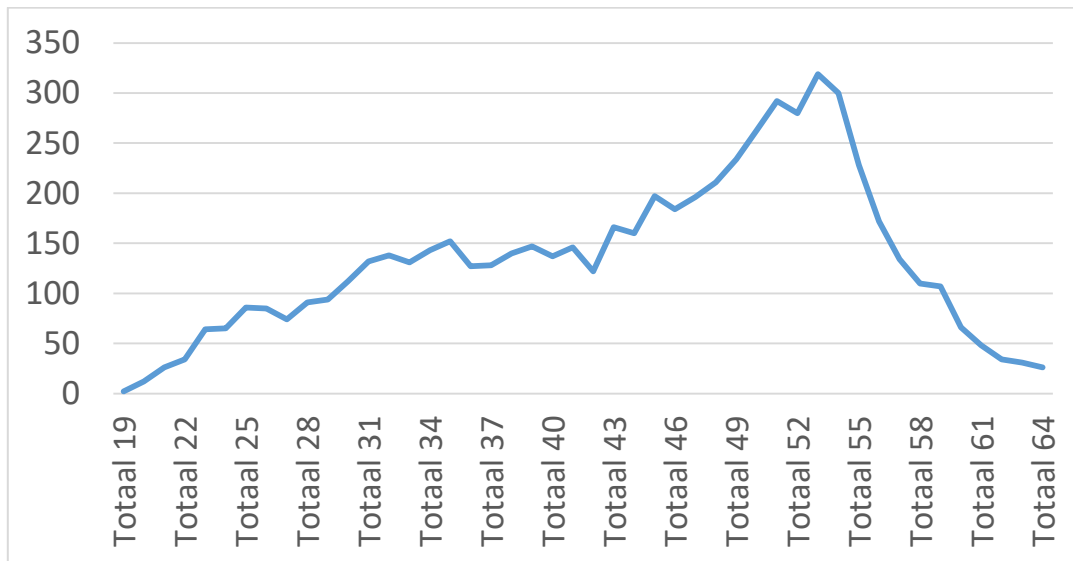
¹⁶¹ With respect to the training course of dock engine drivers, for instance, the course is accessible to recognized dockworkers and is spread over 4 weeks. After theoretical and practical training, the trainees have to take final theoretical and practical tests. In the case of a negative evaluation, they may take a *repechage* course. During the training, dockworkers are entitled to the unemployment benefit borne by the National Labour Office and a supplement paid by the employers. Other training courses are for different job categories.

the training centre may be seen as a “beneficial constraint” (Streeck, 1993).

Port companies appeal regularly to the Training centre, to organize certain training sessions. In addition, the Provincial Safety Institute of Antwerp has certified the Training centre for dockworkers for the organization of a number of training sessions and the delivery of the attestation of Safety Health and Environment Checklist for Contractors.

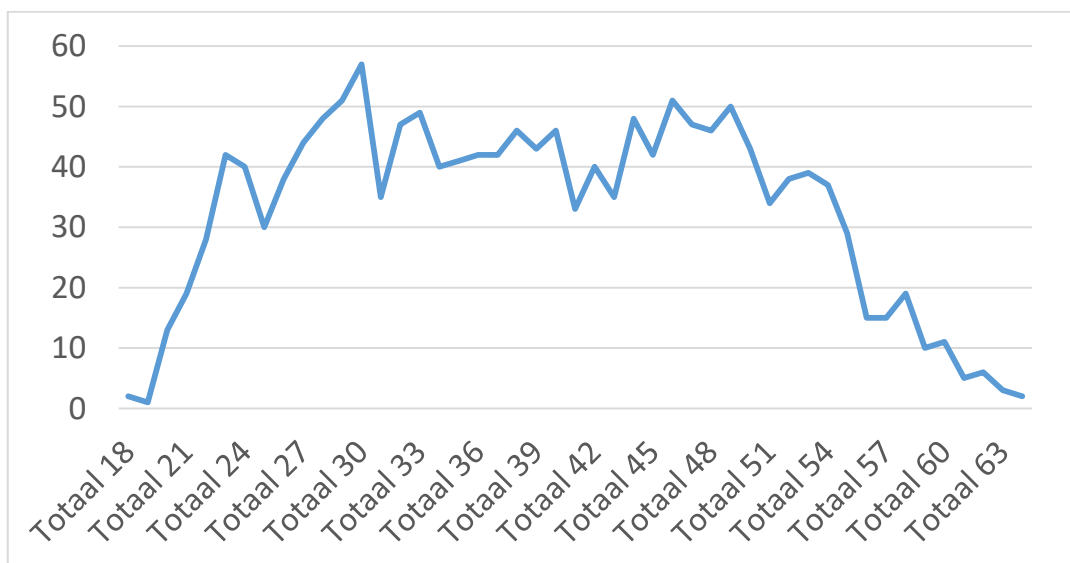
The figures below show the age of dockworkers of the pool and of logistics workers (situation in 2016), followed by the number of courses and of trainees in the last years.

FIGURE 19: AGE OF DOCKWORKERS IN THE PORT OF ANTWERP. GENERAL REGISTER (2016)



Source: CEPA

FIGURE 20: AGE OF LOGISTICS WORKERS IN THE PORT OF ANTWERP (2016)



Source: CEPA

TABLE 24: PORT OF ANTWERP. NUMBER OF COURSES AT THE TRAINING CENTRE

	2016	2015	2014	2013
LOGISTICS WORKERS	14	23	20	28
GENERAL WORKERS	18	12	13	19
DRIVERS OF ENGINES	11	11	10	6
LASHING AND SECURING	5	3	6	10
SIGNALMAN	2	0	0	4
TALLYMAN GEN: CARGO	3	2	3	4
TALLYMAN CONTAINER	6	3	2	3
STRADDLE CARRIER	83	65	36	10
GANTRY - SIMULATOR	9	13	10	5
GOTTWALD - SIMULATOR	20	8	10	4
TOTAL	171	140	110	93

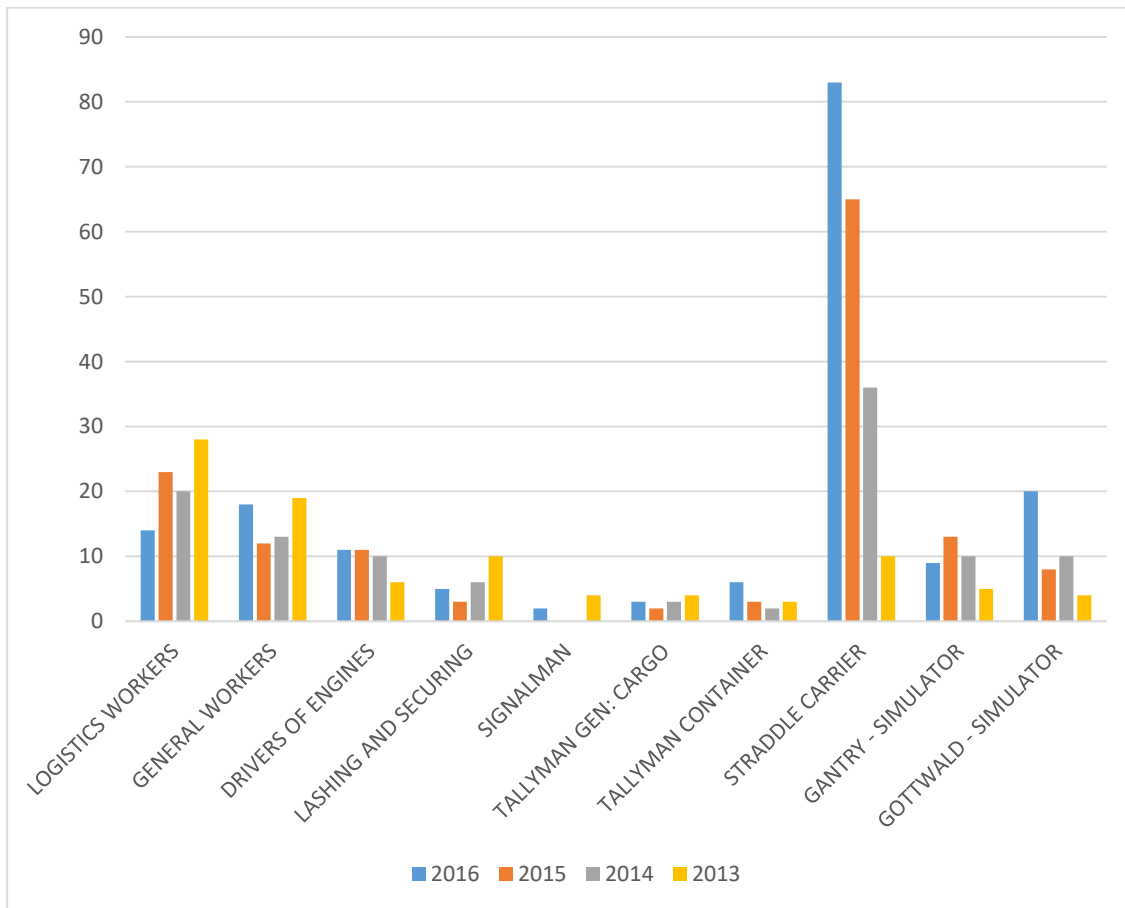
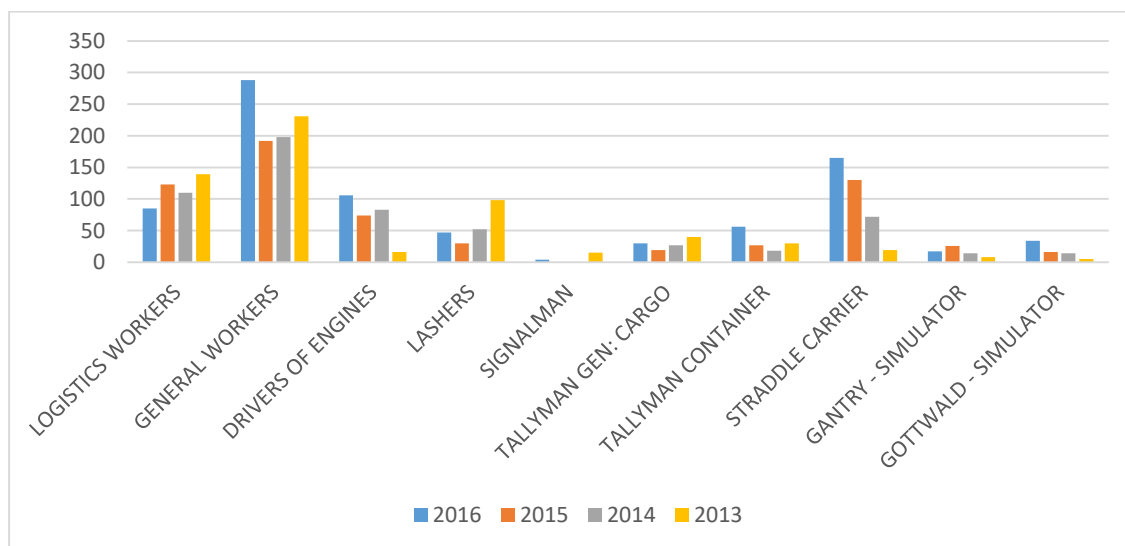


TABLE 25: PORT OF ANTWERP. NUMBER OF TRAINEES

	2016	2015	2014	2013
LOGISTICS WORKERS	85	123	110	139
GENERAL WORKERS	288	192	198	231
DRIVERS OF ENGINES	106	74	83	16
LASHERS	47	30	52	98
SIGNALMAN	4	0	0	15
TALLYMAN GEN: CARGO	30	19	27	40
TALLYMAN CONTAINER	56	27	18	30
STRADDLE CARRIER	165	130	72	19
GANTRY - SIMULATOR	17	26	14	8
GOTTWALD - SIMULATOR	34	16	14	5
TOTAL	832	637	588	601



Source: CEPA

Besides the obligations for basic training, workers are trained for different categories also according to the needs of the companies, in particular with respect to the specialized categories (e.g. permanent workers such as crane drivers, engine drivers, supervisory staff, etc.). When port companies want, dockworkers are motivated to be trained in OCHA. Their reference is therefore important for the advancement of job careers of the workers, who start all from the same level, as normal, recognized dockworkers. The advancement of careers is given by a mix between the voluntarism of the dockworker and the will of the port companies related to their needs. In this way a dockworker explains the mechanism of training:

In general, we all start in the port of Antwerp as normal dockers, from the beginning; you cannot start as foreman or as crane driver. Normally everybody starts from the same level, and then you develop your own skills. One goes for the tally, another for the hard work, it

is up to you but you must have the opportunity to get somewhere. You can really want to be a crane driver but if no firms are interested in you don't become a crane driver. In my case the same thing. You want to be a foreman but if there is no possibility or room to get extra foremen you stay a docker, you don't get a step further, unless somebody or a firm tells to you ok there is a possibility, let's test you. However, there is no multitasking for the less qualified jobs so far, in the sense that a crane driver is a crane driver but normally we are drivers, for forklifts, thugs, and straddle carriers. A crane driver is mostly an addition to that package, a large addition [Interview to a foreman, Antwerp, 2017].

Besides OCHA, typically port companies also provide training at company level, in order to extend training for their specific needs at workplace. Foremen for instance receive further training at company level, since the company wants to make sure that they lead workforce in the right way. This is the viewpoint of a HR manager:

OCHA it is an important instrument for us. Discussions are made on how training has to be organized, what are the priorities that have to be set. We are involved in management of OCHA and also in how training courses have to be implemented, which focuses we need to do, the key elements to look at, also looking at training on leadership, on how to work safe. OCHA give the initial training but also other courses. We try to keep our dockworkers in every category providing necessary additional training needed to make sure that they could maintain the productivity. They are trained with new cranes technologies, for the procedures and so on. I don't think that is a constraint to pay the contributions for OCHA. Let's say there is no OCHA in Antwerp. We as company would have to invest or do all the training OCHA is providing. It will be more expensive. At company level we want more training, giving separate training courses, but we are glad to pay. We are also engaged in making OCHA doing the right training, we benefit as a company. It is an investment in training of the employees, so they are more productive, more professional, and you will gain money. You spend money to gain money. But we are looking always at the costs. [Interview to a HR manager, Antwerp, 2017].

To sum up, the port labour system in the port of Antwerp, allowed by the current regulatory scenario, might change in the future due to the abovementioned factors. In the long run it could be possible that port employers will reduce the amount of permanent workers and increase the recruitment of non-permanent workers through the parallel system provided by the port labour reform. The balance between "make-or-buy" decisions however – a decision again produced by the social relations of production – is delicate as in the Italian case. Terminal operators need to find always a meeting point, given the current constraints at regulatory level, the market requirements and the ongoing processes of change.

On the other hands, the integration of the permanent workforce is mediated by the role of the unions and the rigidity of a formalized and structured organizational model. To date, pool members divided in permanent, quasi-permanent and casual workers (and *pasmén*) typically manage all the phases of the operations in line with the organizational structure of the terminal operators. In the meanwhile, the key tasks are provided by permanent workers, and to the casual workers it is asked to accomplish less skilled tasks. In the short run, this relationship might vary as well, as in the Italian case.

It is further acknowledged that the cause of "peaks" as motivation for the consistency and employment of casual workers in the port of Antwerp has almost no reason to be. The majority of the

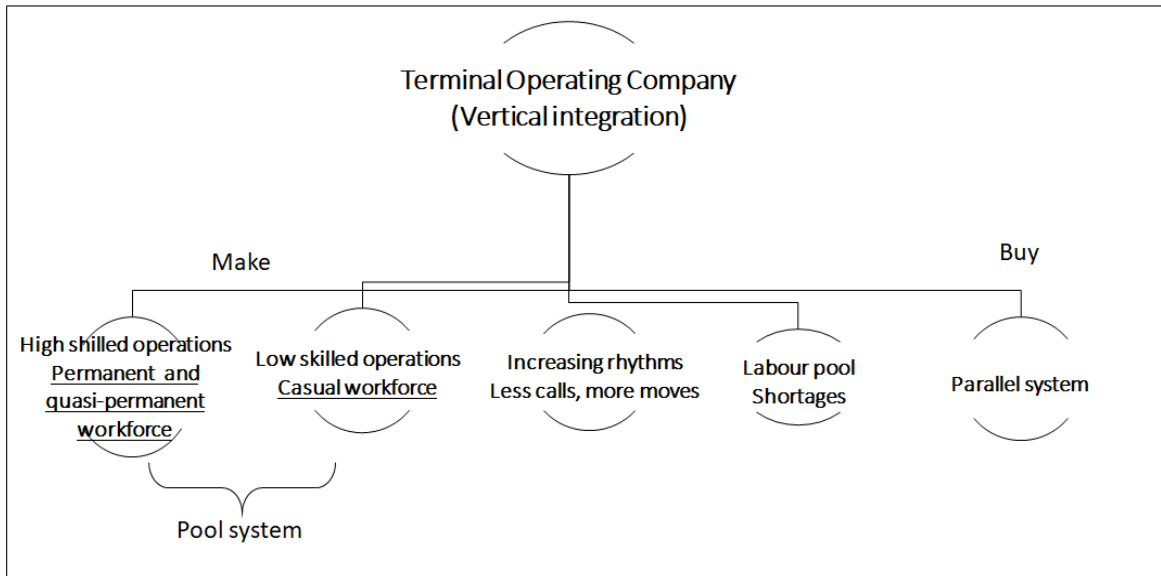
Pool workers are employed mostly on permanent and semi-permanent basis. In the major container terminals, they represent a structural and not extraordinary component of the whole workforce. On the other hands, the number of the workers employed is not daily the same. The empirical evidence in the port of Antwerp shows that the main terminal operating company – in a start-up phase – behaves in essence as the other container terminals in Antwerp, providing itself by its own permanent workforce – who always belongs to the labour pool –more or less open to the employment of casual pool workers on a constant and unplanned basis.

Finally, in the Belgian case, the professional bias observed in the port of Genoa is not taking place, being the professional training a constitutive item of the port labour system that fosters professional growth and career development, despite the attempt to deregulate training as well through the ongoing port labour reform.

The figure below provides a synthesis of the organizational model at workplace in the port of Antwerp, focusing on the container terminals and in light of the ongoing changing processes. Given the institutional, material and structural constraints, the work organization of a terminal operating company vertically integrated with a shipping company is characterized by a hybrid model based on a structured pool system, where incentives to productivity are not allowed by the law, whereas multitasking and multiskilling will be possible under certain circumstances in the future. Permanent and quasi-permanent workers are employed for high skilled operations, and permanently hired by a subsidiary of the terminal operating company and the shipping company for fiscal reasons¹⁶². The casual workforce is employed for low skilled functions, and it belongs to the pool as well. Only in case of labour pool shortages, the terminal operating company typically employs outsourced, non-recognized workforce through the hiring system. The empirical evidence from the Belgian case shows a trend in the process of changing, represented by the eventual “buy” decision taken by the terminal operating company towards the employment of workforce via the parallel system provided by the new port reform. This trend is mainly due to both the market pressures coming from the needs of the shipping companies along the maritime supply chain and the changing institutional setting. The impact of mega-ships on the container terminals generates pressures in the port of Antwerp as well, with a shrinking of the handling time and increasing rhythms.

¹⁶² It should be noticed that some interviews to the management of ATS and PSA have not been conducted due to the non-availability of the actors involved in providing information on labour dynamics.

FIGURE 21: PORT OF ANTWERP. ORGANIZATION AT WORKPLACE AND NEW TRENDS



5.8. Labour organization at workplace

The operations that constitute the main activity of a container terminal in the port of Antwerp do not differ from the other ports in Europe. The main difference in Antwerp, with respect to Genoa and besides the material constraints, as already mentioned refers to the facilities used. In Antwerp, the straddle carriers substitute both the yard trailers and the reach stacker. Therefore, the typology of means is lower at quayside – and less workforce is needed to handle one container from the ship to the shore. Another important distinction is the vertical integration between terminal operating companies and shipping companies. Typically, in this business model, the profit of the container terminal is not the priority such as in the case of a pure stevedoring company who manage it. The other features related to the tax maximization system in a case of vertical integration have been addressed in the previous chapters.

Finally, another important difference concerns the space – hence the volumes –, which is greater in the port of Antwerp. The two main reasons of the move from the right to the left bank of the main container terminal, already explained, refers to the size of the terminal capacity, therefore the saturation point reached in the container terminal on the right bank, and the increasing size of vessels. However, just after this move the new container terminal was also affected by overcapacity determined by the increased traffic and volumes. With respect to the Gross Crane Rate, typically, in the port of Antwerp, the average is between 30 and 35 moves per hour, but currently the new container terminal is not performing at these levels.¹⁶³ The situation in one of the main container terminals of the port transferred on the left bank of the river is still in a start-up phase, with several issues to solve, as it has been explained by an operative dockworker:

We are discharging boxes and we are putting them on boxes we need to charge again. Straddle carriers are putting boxes on another one and three hours later they have to move it again. Of course this affect the productivity of the terminal. At that moment the productivity is dropping. The firm asks us solutions? We understand what's the problem but we don't understand how a firm has to ask us why they put the container on top of the other one. So for example, the management suggests to take one container out of the ship, put it down and exactly at the same time, we take another one and we put it in again, ok? It could increase a little bit but... for example I put one, I go back empty, I have relaxation moment, I can relax my back. Then if it is continuously, the pressure for me goes up higher. The firm wants a solution for this structural problem on the yard. We don't know how to handle this problem. That's goes beyond our imagination. They relocated the terminal to the left while at the right we were doing well, with good rates. Now at the left bank, with the same straddle carriers, same people on the cranes, it's not working. How does it come? It is all structural, time of decision-making, management, planning of the yard... Normally we don't interfere in that branch, it is inside, the white collars, but they always shift the problems to the blue collars, they want to have clean hands, white collars are all employees. They are not part of the labour pool. [Interview to a dockworker, Antwerp, 2017]

¹⁶³ According to the viewpoint of some dockworkers employed in this new container terminal, the productivity is currently similar to the GCR of Maasvlakte II, the fully automated container terminal in the port of Rotterdam managed by APM Terminals.

This statement reveals also the increasing pace of work produced by the huge amount of volumes handled. The same concern has been raised by the CEO of MSC Belgium:

On the right bank, we had the chance to grow fast but slowly. Whereas here in the left bank is all that one, we have difficulties with personnel, you have to react faster. We have problem with overcapacity, the terminal is not yet ready. In one day, it will be better. It's like putting a shoe of size 40 and you have 43. It hurts. We need another mind-set. We had a terminal working fantastically, it was the best of the world in my eyes. Now all of the sudden on the other side nothing is working anymore. There are many things working but people are focused on the things that are not working, and I mention to everyone, it is not ready yet, it will be ready and then you will see something better, but this has to grow gradually, the operations are too big. The size of the operations is huge. We need to find a modus operandi. [Interview with the CEO of MSC Belgium, Antwerp 2017]

On the other hands, the main container terminal analysed in the port of Antwerp underlines the conflicting interests between terminal operators and shipping lines, and the fact that the client of the terminal operator is at the same time a partner. This is an important distinction to take into account for the comparative analysis. How to deal with this divergent view in case of joint ventures between shipping companies and terminal operators? Again, in the words of the CEO of MSC Belgium:

With great difficulty. They try to maximize their profit on the terminal, we try to maximize the vessel load, and the freight, is the big difficulty we deal with. Here there is a paradox, that we are confronted with now, because we are not really client, not really a vendor, not really a partner, so it is a bit vague situation, it is a bumpy relationship, but it is logic, if you confront with the size of this terminal. [Interview with the CEO of MSC Belgium, Antwerp 2017]

Nevertheless, the main issues come from the increasing amount of volumes handled by this container terminal (as a result of the increasing size of vessels), able to accommodate simultaneously three Far-East services with the size of 18.000 TEUs per vessel every week. This implies a different design of the terminal, another management and a new "mind-set", as observed by the CEO of MSC Belgium, who summarizes the impact of mega-ships on work organization in the port of Antwerp as well:

Among those services, some of them are discharging and loading up to five, six, seven, eight thousand moves per ship. Now if you have that number of containers, this has an effect on everything. On how the work is done but also the traffic, the mobility around the terminal. So if a vessels far east comes in with big discharge or load functions in the week end what do you see prior to the week end is all these boxes coming in, and after the week is all the boxes coming out, resulting in traffic jams nearby the terminal. So we need to rethink, and that's why we opened the terminal now day and night, for operational purposes. Then you have traffic spread over a long period in time, which is good for the community. Of course, not all of these vessels discharge those volumes but these vessels have an impact throughout the week, so all week is very busy. Since the size has grown and the volumes also, also the terminals need to be big, but the consequence is that the

work has to be organized in a completely different way. This is what's happening today.
[Interview with CEO of MSC Belgium, Antwerp 2017]

In the port of Antwerp, the vessel reaches the port and berths on the terminal after having sailed along the river, according to the tidal windows, and thanks to the pilot's service. Once berthed, the moored vessel waits for the quay crane to unload the containers leaving the terminal and load the incoming containers onto the ship. The containers unloaded with the quay cranes are placed on the ground. Then the straddle carriers take them and put them on the yard. Typically, in a container terminal of the port of Antwerp one gang for every crane (mandatory minimum number) is composed by two general dockworkers, one foreman, one head foreman (on the ship), one tallyman, three straddle carrier drivers and one crane driver. The lashing team is apart from the gang. The general dockworkers during the operations get twist locks off or on from the containers moved by the crane driver from the ship to the shore or vice versa, according to the loading or unloading processes. The foreman is on top it, keeping constant checking to all kinds of issues involving safety, security, productivity of the operations. The foreman is the manager of the team standing between the workforce at quayside and the management:

Normally I am always with two same dockers, but tallymen change, crane drivers change, straddle carrier drivers change. In my case, there are gangs completely settled, always the same, it all depends on how important you find it to have a complete same gang. I always say, and that is the giving think in the port of Antwerp, that you must and can work with everybody. Normally, a foreman goes to the hiring hall and he chooses out of the crowd his team, that's the way we work at the port. Now more and more with specialized commodities and specialized terminals we have complete same gangs because it is easy, everybody knows each other, what they must do, so always the same two dockers, and all the rest it depends on day to day. You just have to be able to work in a team like an oil machine. It is a team job. Considering the teams, we see when young dockers are introduced they all have the same fire, we try to tell them, it doesn't work like this, it doesn't help to be competitive against each other. First thing safety. There are two dangerous moments in a career of a dockworker: the moment he starts because he doesn't know anything and he gets learn everything, and the moment he thinks he knows everything. That's again a danger and once you pass at the second point you become old, you have a level that they gonna go crazy to surprise you, you think to know everything, that is a second dangerous moment. It is always changing the environment, you have to adapt all your time in your career [Interview with a foreman, Antwerp, 2017].

To conclude, given the existing regulations and the exogenous factors affecting the changing trends in port labour, the Belgian case shows that by the viewpoint of a container terminal operating company it is useful to have own permanent workforce, again with a right mix of quasi-permanent and casual workforce as well. To date, terminal operators prefer to internalize some operations of the cycle – by having permanent, specialized and supervisory workforce of the labour pool – and on the other hands, they employ for some other operations casual workforce provided by the quasi-permanent and casual of the labour pool. The figures retrieved do not allow us to assess exactly how much permanent and non-permanent work is incorporated in a container. In this regard, the development of a common, synthetic

measurement productivity indicator, able to put together the Gross Crane Rate, the amount of permanent workforce with the amount of non-permanent workforce required, by linking to it the labour cost per box, is difficult to obtain in both cases, given the structural distinctions. Furthermore, the regulatory constraints can have “beneficial” effects on the actors involved, the performance and the contractual system of port labour, but the deregulation processes may also be detrimental in this regard. Finally, it seems that there is attention to these issues by the port operators in Antwerp – at least with respect to the container handling process –, whose aim is not just to keep the labour cost as low as possible.

Given the specific structural, material and institutional constraints of the Belgian case analysed, the hypothesis that port labour is a significant variable in value production, destined to reduce its role with a rise of contingent, casual labour, seems to be confirmed in the port of Antwerp as well. This trend is in light of the ongoing reform process of the port labour system in Belgium and the shift abovementioned of the institutional asset.

In this chapter, port labour structure has been observed in detail, in one of the most efficient ports in Europe, taking into account a variety of items by the viewpoint of different actors jointly with the data collected during the fieldwork. In short, also in the Belgian case, it turns out that the changing processes of the port labour system are driven by pressures that are both internal and external to the ports, but the power relationships in place differ, due to the crucial role of the unions. At the same time, labour dynamics in the port of Antwerp are influenced by the strategies of a multiplicity of actors – i.e. shipping companies, terminal operators, European institutions, etc. – who act along a variety of spatial scales, with a cascading effect that, again, from the global container business leads to the social organization at workplace. The institutional changes, at national and supranational level, seem to support such dynamics, driven by the European deregulation policies, besides the mitigation of the conflicts at the level of the social dialogue for ports in Europe. The points underlined in the infringement procedures tackle different aspects, from the increasing flexibility (e.g. composition of the gang) to the possibility to hire non-unionised workforce outside the pool (parallel system). Being the less skilled jobs casualized by the abolishment of the Logistics register, the gradual process of the parallel system will probably introduce throughout the years a different – more precarious – labour pool, without the same labour rights of the recognized dockworkers of the existing pool managed by CEPA. On the other hands, currently an important amount of workers has been recognized in the recent years by the Joint Committee, due to the increasing amount of volumes handled in the port.

As it has been underlined in the previous chapter, the peculiar features of labour organization in the container terminals of the port of Antwerp rely on (changing) fair labour standards, professional upgrading and training, high productivity established by the gangs employed, and the right mix between permanent, quasi-permanent and non-permanent workforce. The terminal productivity is important, but at the same time, the vertical integration model of the main container terminal in Antwerp provides a less clear picture due to its “Chinese boxes” model.

A port such as Antwerp is located in a region with different alternatives for shipping companies, with more competition across the maritime-logistics chain, intra and inter-ports. This also motivates the workforce in being productive, as the empirical findings show. By the viewpoint of the shipping company, the port of Genoa is located in a region with less competitors.

What contributes to productivity in the container terminals in the port of Antwerp? To sum up, the empirical findings show that training and professional upgrading are extremely important, as well as the role of supervisory staff in coordinating the gangs. In Antwerp, permanent workers covers the highest and supervisory tasks, they are high skilled and multifunctional under certain circumstances, whereas the non-permanent workers have the possibility to improve their skills throughout their job careers. However, they both belong to a single, structured, and unionised labour pool.

The process resulting from the increasing size of vessels has led to an increase of productivity standards and a concentration of rhythms in the container terminals of the port of Antwerp as well.

The intensification of pace has an impact on the operations. The hybrid model emerged from the empirical research, and the slow erosion of those structures that over time have been formed in order to protect working conditions in ports, suggest a common transition driven also by exogenous factors. A process of slow de-structuring of the pool system occurs via the ongoing port reform who started by the complaints of multinational firms at European level.

As emerged from the fieldwork conducted in Belgium, therefore, the strategies of a multinational terminal operating company to maximize port labour performance in terms of productivity and flexibility - in relation to costs - fluctuate mainly towards the internalization of the operations and the use of quasi-permanent and casual workforce, both through the pool system. These strategies should be analysed in light of the institutional constraints and opportunities in which the terminal operating companies operate, but also in relation to the composition of the workforce. In Antwerp, the operational labour is carried out by a pool strictly organized (and a logistics workforce already tackled by the liberalization processes). The functioning of this system seem to be profitable for private terminal operators, who benefit from the pool system, whilst the dockworkers of the labour pool suffer an ongoing change that will display gradually a different scenario in the long run.

In parallel with the increasing market pressures and the institutional changes, the path dependent routines still matter for the European ports besides the different specificities. By analysing other factors linked to labour dynamics by the viewpoint of the maritime-logistics chain, it can be argued that the critical point of the goods is still the port segment, the central one. Outside, before and after, across the chain, goods are served by liberalized and deregulated labour conditions. The crucial concern, for the future, is to see which leg will contaminate the other.

It is acknowledged the importance of the logistics hub of Antwerp in the European port landscape and worldwide. The port of Antwerp, as it has been illustrated, is among the first European ports in terms of throughput, efficiency, competitiveness, performance, labour productivity, etc. However, best

practices concerning dock labour schemes and work organizations in Antwerp (with respect to Genoa) are currently threatened and critically judged at supranational level. The acknowledged efficiency and productivity of the Belgian port worldwide did not prevent the European Commission from initiating an infringement procedure concerning the labour organization, in contrast with the principles of the Treaty. This raises many doubts for the future of the (best) port labour regimes in Europe in relation with the political approach of the European institutions in this field.

Chapter VI. Comparative analysis

As previously highlighted, the assumption in this thesis is that the strategies of the market players across the maritime-logistics chain are shaping dock labour arrangements and work organizations in the European ports and container terminals. For this reason, the observation of dock labour dynamics requires an “intermodal gaze”. In order to test these processes, a multi-level comparative analysis has been designed. To sum up, two ports, and two container terminals managed by the same global terminal operator have been selected throughout Europe. The institutional variables, both at national and supranational level, have been considered. The idea has been to identify and compare the set of constraints that affect the way in which dock labour is organized in two different ports characterized by dock labour schemes and labour pool systems.

Starting from the strategic behaviour of one global terminal operator in two distinct contexts, the comparative research has identified the relationships between exogenous pressures, and dock labour systems and settings at workplace. A “drill down” to the port sector has been carried out (Blomme, 2014). In the analysis, particular attention has been paid to the main elements that characterize the organizational models of labour implemented both by the different ports selected and by the same cargo handling company operating in different environments and involved in the container industry. The comparative analysis between two cases situated in different contexts highlights the specific role of the constraints in the changing dynamics of dock labour schemes in Europe.

The cases, as already mentioned, have been selected through the *most different system design* criteria (Fideli, 1998) for better identifying the sharp similarities.

As Fideli points out, two objects are comparable if they have at least one common property. Two conditions are further required to carry out a comparison: a certain similarity between the facts taken into account, and a certain dissimilarity between the environments in which these events occurred.

The comparison is conceived as a cognitive operation that by its nature works in harmony with the principle of binary opposition between differences and similarities. In this thesis, the approach used, and the criteria of case selection, have been to detect uniformities in the differences, commonalities of the varying institutional embodiments (Streeck, 2011).

The first step for qualifying the profile of the cases therefore has been to define ideally the starting point in the processes of deregulation and the market/institutional pressures / constraints related to the port environment in the maritime-logistics chain. The landing point, thus, has been to select the most representative cases among the European ports for the purpose of the abovementioned design, in which the responses to these exogenous factors seem different, in order to challenge this initial characterization. It has been demonstrated in this thesis that dock labour systems and work organizations in the European ports are based on economic, but also social conveniences. The operational and local-relational practices and patterns are sedimented over time.

Two distinct cases have been observed in the previous chapters. Common and shared transformations, besides the ways to address the external pressures, have been identified in the increasing degree of flexibility and the changing institutional regulation that fosters such dynamics.

A multi-scalar approach of comparison has been carefully conceived – from global to European, national, local, port levels –, given the intrinsic nature of ports, territorially embedded and at the same time connected into the global supply chains.

Being the exogenous pressures the *primum mobile*, the main purpose of this criterion of comparison has been to highlight the fundamental commonalities of two distinct cases instead of focusing on the superficial differences. The ports selected, which are located in two distinct countries, both belong to a Landlord management model, and both are characterized by the presence of the dock labour scheme – differently managed and organized. The main difference lies on the institutional assets of both countries, the labour regulation, governance structure of the labour pool and on a set of organizational patterns. In this study, the cross-national comparison between two European ports has been established by taking into account the object of comparison (dock labour schemes and labour settings in two ports/container terminals) and the properties of the cases selected (impact of the exogenous pressures on container terminals, labour pool systems, organizational models, labour setting at the workplace). In short, bearing in mind the table 7, the following items have been mostly identified in both cases and compared:

- Dock labour scheme, pool governance and organizational structures
- Labour organizations at workplace
- Composition of the workforce
- Training systems
- Employment relations.

By drilling down to the container terminals of the ports selected, the Key Performance Indicators (KPIs) have been further analysed and compared:

- Container terminal productivity (Gross Crane Rate)
- Dwell time (Vessel turnaround time)
- Terminal Handling Charges (THC)
- Cash Cost per Box (CCPB), Labour Cost per Box (LCPB)
- Wages

The cases selected should extend to similar cases the predictability of the results from the comparative design. It is possible, indeed, to set up further comparative analyses between the European ports.

Starting from this research strategy, the cases identified for the cross-national comparison are both representative and comparable, given the significant differences between legal systems in Italy and Belgium.

These cases allow us to explain further how the external factors shape and constrain port labour

arrangements, provoking adaptation or not to the market requirements. In addition, the cases identified provide useful instances in order to observe to what extent they refer to a particular situation, or to processes that are far more general. The impact of market requirements on port labour systems in Europe is therefore observed by exploring similar dynamics under different conditions, in the ports of Genoa and Antwerp, between two distinct cases positioned in principle *on the same level*.

In the previous chapters, the profile of the cases, the strengths and weaknesses of both port labour systems in Genoa and Antwerp have been analysed in depth, identified and contextualized. Besides the different schemes, similar approaches have been recognized in both cases (informal labour agreements, increasing flexibility, changing institutional trends, make or buy decisions, etc.). It has been demonstrated that the de-structuring processes of the organizational patterns are crossing these ports / container terminals, besides the constraints partially common among the cases selected and partially specific to each of them. The idea or possibility to export one “best practice” model from one social context to a different environment has been criticized as well, since this supposed replicability is not guaranteed in this transfer. In particular, being the European port policies clearly in contrast with the national regulations of port labour systems, the critical point relies mainly on the criteria of evaluating a practice (especially by the viewpoint of the European institutions), and not to the effectiveness of a good practice.

Comparing and analysing two port labour systems in different contexts with the theoretical approaches discussed in the Chapter I is a plausible operation by an epistemological viewpoint, and a necessary cognitive operation, but the findings show that this is not an easy task. It has been demonstrated that the global value chains are influencing the way in which labour is organized in different circumstances. Significant and visible isomorphism processes, notwithstanding the institutional path dependencies and the specific global production networks, occur in the European port business with respect to labour dynamics. The homogeneous pressures engage with the history at national and local level, the institutional structures and organizational practices that dictate the differences among the cases analysed. This in turn reveals a process in which such differences are more and more converging. The differential is explained partially by the context in which the actors operate.

The differences noticed during the analysis of the case studies may in fact overcome what really matter, namely the commonalities. For the purpose of this thesis, it is more important to highlight what the cases selected are sharing, and not only what differentiates them. Once carefully settled, the comparative empirical research not only assesses the feasibility of the comparative method in this field of enquiry – by recognizing the limitations as well –, but also explains to what extent the strategies of the major (market and institutional) players along the maritime-logistics chain in highly different contexts are equally affecting port labour systems throughout Europe.

After introducing each case profile with their peculiar governance and regulations, it has been shown to what extent, in both cases, the container operating companies cope with the search of the right

equilibrium between “make or buy” decision, in light of the institutional assets specific in each case selected. Both the container terminals analysed benefit from the pool system according to the dock labour scheme to which they have to deal with. Beyond the different dock labour scheme and work organization, a similar division – or fragmentation – between permanent and casual workforce has been noticed, with all the intermediate statuses determined by the labour contracts. The table below displays in synthesis the empirical findings of the comparative analysis between the ports selected according to the items taken into account in the previous chapters.

TABLE 26: COMPARING DOCK LABOUR DYNAMICS. EMPIRICAL FINDINGS

Variables	Port of Genoa	Port of Antwerp	Notes
Dock labour scheme	Direct and indirect workforce – pool system	Pool system (under reform)	Different hiring system, common exogenous pressures
Labour pool governance and management	Non-structured	Structured (under reform)	
Organization at quayside	Polycentric model, multi-tasking, incentives to productivity	Hybrid model, gang system, “emotional account”	“Make or buy” decision
Professional training	Not coordinated Professional bias	Coordinated (under reform) Professional upgrade	“Beneficial constraint” in Antwerp
Employment relations	Conflictual (Social peace)	Collaborative Union bargaining power	

The comparative analysis emphasizes the distinctive contexts of the cases. Two dock labour schemes have been studied in depth, both characterized by a pool system, differently managed and commonly affected by the exogenous pressures along the maritime-logistics chain. In the Belgian case, the structured model under reform might be conceived also as non-structuring in the future, but the empirical evidence has shown the difficulty to provide a forecast. In the Italian case, the non-structured nature of the labour pool management refers mainly to the informal relationship between labour pool and port employers. The work organization at quayside differs according to the legal constraints of each case. However, the dilemma faced by the terminal operating companies is the same, between internalizing or purchasing, to some extent, dock workforce, given the labour regulations in place in the ports and at national level. Labour productivity is mainly produced by the polyvalence and the incentive schemes in the Italian case, whereas in the Belgian case this is due to the peculiarity of the gang system, and the “emotional account” emphasized by the employers in order to retain the workers. Although in a changing process, the training system in the port of Antwerp has been described as a “beneficial constraint” for the employers, whereas in the port of Genoa a professional bias has been observed. Along this line, the comparative analysis shows that one of the main items differentiating the Italian case from the Belgian case is not only the setting of the labour pool, nor its features provided by the legal frameworks and schemes. The principle in the Belgian case is that a port worker, before being inserted in the port

operations should have acquired a proper knowledge, a training and the experience both of the tools that will have to handle and the environmental conditions in which he or she will have to operate. Such a setting provides also the expectations of the dockworkers in terms of job careers, in this way incentivized in being productive. The difference is therefore between the meanings of dock labour as only a dependent variable of production, or a cost that needs to be cut as much as possible – training included – and dock labour as something that needs investments and resources in order to obtain high performances. In other words, the gap is in the consideration of the *value* of the workforce.

Finally, with respect to the employment relations, in Genoa the conflictual relationship among the port actors is mitigated by a social peace to be maintained in spite of the ongoing external pressures. In Antwerp, the power relationships are characterized by a strong role of the unions, whose bargaining power is crucial in providing a set of labour conditions inside the port.

The following table summarizes the comparative analysis of the port performance indicators studied in both case studies and discussed in this thesis (Table 27).

TABLE 27: COMPARING PORT PERFORMANCE INDICATORS (CONTAINER TERMINALS)

Variables	Port of Genoa	Port of Antwerp	Notes
Container terminal productivity (Gross Crane Rate)	20 – 25 boxes (Moves per hour)	30 – 35 boxes (Moves per hour)	KPIs – Average per crane working hour
Cash Cost Per Box (CCPB)	Higher Approx. 96,00 € 66% with respect to RPB 75% labour related	Lower Approx. 60,00 € 50-55% with respect to RPB 85% labour related	Limited data availability
Labour Cost Per Box (LCPB)	Higher Approx. 64,00 €	Lower	Limited data availability
Terminal Handling Charges (THC)	Higher	Lower	Limited data availability
Wages	Lower	Higher	

In the port of Genoa, the average per crane working hours is ten time lower than in Antwerp, given the work organization at quayside and the constraints abovementioned. Concerning the Cash Cost per Box, as previously underlined, in the Italian case this parameter is higher than in the Belgian case, with the labour cost per box higher in the Italian case than the labour cost per box in the Belgian case as well. However, the limited data availability does not allow us to provide a more detailed analysis about the costs. It has been however possible to establish the difference in terms of relative values, and the empirical evidence of this difference. Terminal operators apply the tariff to their customers starting from this parameter, whose labour cost corresponds to the main value. In fact, the lower amount of CCPB in the Belgian case is mainly – but not exclusively – due to the organization at workplace, the terminal size, the different facilities (e.g. dimensions of the terminal, straddle carriers instead of yard trailers and reach stackers, etc.), and a lower number of workforce employed to handle one container with respect to the Italian case. The fundamental component of CCPB is labour, and this in turn entails the

commercial tariffs for the shipping companies, defined as Terminal Handling Charges (THC). Supposing that in the Italian case, one team of dockworkers required to load and unload a ship is made of twelve workers, and in the Belgian case one team of dockworkers required for the same job is made of nine workers, the CCPB in the second case is lower.

Wages, in turn, refer to the countries in which companies operate, the collective bargaining settled, etc. Labour cost per capita, indeed, is higher in Belgium. However, the number of workforce per container handled is the key aspect to set a proper comparison between the terminals, linking the productivity to the cost structure.

By consequence, also the Terminal Handling Charges paid by the customers of the terminal operators in principle are higher in the Italian case than in the Belgian case. This occurs besides the difference in the business models in the north European ports (vertical integration between shipping company and terminal operating company) and the south European ports (pure stevedoring companies) and other specificities in each case.

Finally, it has been assessed the difference of the wages in both cases (and the distribution in terms of occupational contexts), which are lower in the Italian case and higher in the Belgian case, as it is further shown in detail in table 28 (minimum and average wages per one shift, and minimum wage per hour). It should however be noted the different amount of hours per shifts in the ports analysed.

TABLE 28: COMPARING WAGES

Port of Genoa. Dayshift H 06:00 – 12:00			Port of Antwerp. Dayshift H 08:00 – 15:45		
Category	Shift / €	Hour / €	Category	Shift / €	Hour / €
Pool members Yard trailer driver, Lasher, General dockworker	61,90 Approx. 140,00	10,31	General dockworker, Lasher, Tally clerk	133,37 281,04	18,40
Supervisory staff (permanent)	86,55 220,00	14,42	Foreman, Assistant chief tally clerk	166,71 326,10	22,99
Supervisory staff (quasi-permanent)	75,45 Approx. 185,00	12,57	Head foreman, Chief tally clerk	200,06 382,89	27,59
Crane driver	69,79 160,00	11,63	Signalman, Forklift driver, Forklift driver with qualification of crane driver	160,97	22,20
Driver of reach stacker, Transtainer, etc.	65,61 140,00	10,93	Crane driver, Straddle-carrier driver, Forklift driver with qualification of crane driver and special engines	188,57 363,00	26,01

The empirical evidence shows how in the Belgian case shipping companies and global terminal

operators, particularly in the container business, increasingly demand direct employment for a significant number of their own workers, whereas casual workers are deployed during periods of peak demand. This setting in principle does not differ from the Italian case. In addition, the changing dynamics caused by exogenous factors are provoking a higher deployment of casual workers in Genoa, whereas in Antwerp this trend could be envisaged in the future, with the new possibility given by the ongoing port reform.

Besides the different dock labour schemes, port employers in both cases hire a large part of the dockworkers daily, via “informal agreements”, on an almost continual basis (the quasi-permanent workers or semi-regulars in Antwerp, the pool members of MOE in Genoa).

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, opening up new decision-making prospects for transnational terminal operating companies in the European ports. In this frame, dock labour policies to date have not been carried out, except for the regulation (and de-regulation) processes, mainly driven at supranational level and then acquired at national level. In other words, the organizational models of labour in the European ports seem to be undermined by the processes of globalization, competition along the entire logistics chain, and *Europeization* of the labour policies.

The general trends towards open and autonomous pool systems, temporary agencies, push for continuous working flexible and variable shift lengths, have not received too much attention in the scientific literature. On the other hand, some issues are object of delicate debate and conflicting positions between the actors involved, while needs and market rhetorics are brought forward by the European institutions (Thomas and Turnbull, 2016).

Besides the different pace of change between European ports, it is acknowledged a slow process of deregulation of the forms of protection from external tensions that port labour is undergoing in Europe. A tendency that faces resistance by a workforce capable of paralyzing and disrupt with a single strike in one of the leading European logistics hubs, the smooth and seamless flow of goods along the maritime-logistics chain.

Given its anomaly and its implicit negotiating mechanisms, the port business is still a dimension in which a non-capitalist organization of labour persists. The ongoing “iron arm” between status and contract of the port labour, as well as the status problem, reveals a changing process with different responses and strategies of adaptation, case by case, by the actors directly involved. What will be the future scenario, when this process will be finished, is still unknown. However, by looking at the European port policies implemented so far, it is possible to talk from now about a different past, a similar future, when dealing with the European ports. Although it is hard to provide comparisons between ports and port labour systems, as they usually operate in different economic, legal, social and fiscal environments, the goal of the following thesis has been to fill this gap. This thesis has tackled the main

tendencies and key issues of port studies in general, by the perspective of port labour regimes in particular. It has investigated distinct but analogous situations in which the logics of the global supply chain shape the organizational structures of port labour, besides the specific contexts, in light of the socio-institutional features.

Conclusions

This comparative study has focused on dock labour systems in two European ports, with particular attention on the container global industry. The research carried out aimed at analysing the impact of the market players' strategies along the maritime-logistics chain on dock labour dynamics in the last years, stressing the role of the institutional, material and structural constraints. Two main objectives have driven this study:

1. To analyse the linkages between the strategies of the major players along the maritime-logistics chain and the labour settings of the terminal operating companies in two highly different contexts, questioning whether these strategies are affecting dock labour systems equally or differently;
2. To investigate the role of the institutional variables – both national and supranational – in the orientation towards isomorphic trends.

Moreover, by comparing two distinct cases, the study aimed to answer the following research questions:

1. *How is the search for economies of scale achieved by market players along the maritime-logistics chain shaping port labour systems, schemes and work organizations in the European ports?*
2. *To what extent do terminal operating companies respond to the constraints driven by market players, European policies and national regulations, in order to maximize the performance of dock labour in two distinct ports/container terminals?*

Beyond the peculiar differences between the case studies, it has been shown to what extent the strategies of the market players along the maritime-logistics chain in the achievement of the economies of scale affect similarly port labour systems and work organizations in two distinct European ports / container terminals. The comparative analysis, after being designed in order to grasp the common trajectories in two distinct contexts, demonstrates how the responses to the external (and internal) pressures by the terminal operating companies involved in the container handling are similar in two different ports. These results add a new approach and several insights to the economic literature on port studies, where port labour issues are still overlooked, as well as comparative studies between ports or dock labour systems. These relate to the plausible operation of the comparative analysis in this field of enquiry by an epistemological viewpoint, and to the “intermodal gaze” required when observing labour dynamics in one leg of the overall chain.

Even though the comparison between ports is absent and not recommended in the economic literature – due to objective limitations –, the comparative design and the results carried out in this study show clearly the opposite. A comparative analysis – and not a benchmarking process – between European ports is necessary, useful, and feasible by carefully setting up the criteria of comparison and considering the limitations of the approach adopted. The objective difficulties of comparing ports can be faced scientifically, for instance by starting from the constraints and the multinational nature of the economic

actors involved in the port industry, with their standardized performance indicators. On the other hand, it is the opinion of the author of such study that the methodological rigour and accuracy of a research is measured by the recognition of its limits.

The new and unprecedented scenario generated by the strategies of the chain actors in the port business determines a shift that calls into question the role of the institutional variables both at supranational and national level, as it has been argued throughout this study. The European policies in the port sector show that the forms of protection from external tensions to which port labour systems are subjected are conceived as “restrictions” to the free market by policy-makers mainly at supranational level. The debate between social partners in Europe as well deals with the polarized vision of protections and restrictions, whereby the social rights and fair labour conditions obtained by dockworkers after struggles and negotiations are conceived currently as privileges, especially if compared to the (unfair) labour conditions along the maritime-logistics chain (sailors, logistics workers, truck drivers, and so on). The contradictory situation between European port policy and national regulations of dock labour systems shows that the equilibrium between market requirements and fair labour regulations in the port sector is still a delicate issue. At the same time, the ongoing liberalization processes of the institutional settings in the maritime-logistics chain have been identified in this study as a gradual transition of modern capitalism, which, from *Durkheimian* institutions, leads to the *Williamsonian* institutions (Streeck, 2009; Borghi *et al.*, 2017). To say it with Streeck (2009), if the *Durkheimian* institutions exercise a public authority, *Williamsonian* institutions are conceived by market players to increase the efficiency of trade and transaction costs: in a certain sense, this is precisely the transition attempt in the port industry at European level, notwithstanding the oppositions to these processes.

Dock labour schemes, however, still provide a legal certainty in the national regulations of port labour, despite the existing variety of systems throughout Europe. The legal framework proposed by the European institutions, as we have seen, is far from being oriented towards the creation of a common level playing field. In other words, the supposed common level playing field carried out by the European port policies and regulations concerning port services – and port labour – deals mainly with the liberalisation of the port segment along the (already deregulated) maritime-logistics chain, in line with the neoliberal principles of the European Treaties. Although the European institutions failed so far in the liberalisation of port services by means of Directive – due to the action of social partners, not only the unions –, the changing scenario in the maritime supply chain corresponded at the same time to a new approach based on “soft method” by the institutionalization of the conflict in the port industry. In the long run, these market and institutional pressures will be likely to produce a slow shift from the variety of port labour systems throughout Europe towards a common, deregulated, landscape (i.e. from *Durkheimian* to *Williamsonian* institutions). This slow isomorphism process in turn will probably result in a more uncertain landscape than the existing “incoherent patchwork of jurisprudence and legislation” supposed in the literature (Verhoeven, 2015). The legal certainty at European level does not mean,

indeed, a fair and common regulation of the practices adopted at national level concerning dock labour systems, schemes and port services. On the contrary, in line with the changing market scenarios driven by the strategies of the economic actors (in particular the “undisciplined” shipping companies), the port sector will likely converge towards “different commonalities”. European ports will be still shaped by their own different past embedded in the social fabric, but they will be constrained towards a similar future according to the process of *Europeization* (Scharpf, 2010; Turnbull, 2016). The European port labour system is destined to be affected both by the global market requirements of the chain actors and by the institutional structures at supranational and national level. To this must be added the agency of the workforce involved in these processes, which will be not passive. In short, chain actors and institutional actors – but also scholars – have however to deal with the workforce who handles goods in the pivotal link of the maritime-logistics chain, and its (contractual) power to disrupt the smooth flow and seamless movement of goods. To date, there is no automation that holds this truth. The fragility of the transport chain, indeed, incorporates the bargaining power of the logistics workforce. Port workers will not be watching a structural changing process that concerns them, being the structural properties in which they operate both enabling and constraining (Giddens, 1984). In the relationship between actors and structure of the maritime-logistics chain, a reciprocal interplay occurs and not a determinist unidirectional relationship whereby only the second element influences the first (or vice versa).

It is acknowledged that nowadays for instance, dockworkers and their unions are negotiating not only with the terminal operating companies, but also with their customers and shareholders (due to the vertical integration processes). On the other hand, it is important to highlight the increasing fragility and rigidity of the transport chain. In light of this, the logistics workforce plays a central role. Although stakeholders continuously strive for solutions to render their supply chains leaner, for instance through the 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 dependent variable of production, but also as an active social actor, transformed, resized, but still standing in front of new challenges. The relationships between workforce and transnational companies along the maritime-logistics chain should be read by 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 the European ports. The challenges for the future of dock labour systems in Europe, therefore, should be faced as well by looking across the overall logistics chain, without losing sight of the complex structure within which labour is embedded.

Along this line, this study emphasizes how in the port industry, the structural and regulatory constraints to the (social) action of the cargo handling companies, in relation to port labour dynamics, underline the independent role of the social institutions and the beneficial constraints in shaping the economic action along the maritime-logistics chain (Streeck, 1997). It has been empirically demonstrated throughout this comparative study that socially institutionalized constraints on the rational

voluntarism of interest-maximizing behaviour may be economically beneficial, despite many (maritime) economists are persuaded of the opposite idea of removing social constraints on self-interested rational action, in order to improve the economic performance or port competitiveness (the *laissez-faire* concept). The attempt of the European policies demonstrates that it is always possible to remove the economic constraints in the port industry (deregulation). However, this practice, if excessive, could be detrimental in economic terms for the overall port sector.

Ports are *de facto* the junction through which the global value chains and global production networks occur. Ports (and the intermodal transport represented by the container) are the key link within the maritime supply chains and the global production networks, besides their embeddedness within specific, path dependent, spatial and institutional frameworks. In the theoretical debate between Global Value Chains / Global Production Networks (GVC/GPN), an interesting field of debate refers to the consequences of globalization for the national economies, the variety of capitalisms (VoC) and, in particular, the debate on the institutional convergence as result of the activity of transnational firms (Greco, 2016). Ultimately, in our study it emerges that multinational cargo handling companies behave as dynamic actors seeking new and different opportunities and (structural, material, beneficial) constraints, including the various national contexts, of which they are able to modify the same institutions (Whitley and Morgan, 2012; Greco, 2016). The global nature of the container shipping industry, as well as the constraints and the multi-scalar dimension of the actors involved in the port business, highlights the variety of practices to setting up dock labour arrangements according to the national regulations, the external pressures, and the global production networks within which ports and terminal operating companies are located. However, the commonalities matter in these dynamics. There is room for more empirical studies in this field, aimed at linking together the nexus “firm – territory – socio-institutional context” (Greco, 2016).

The multinational nature of the economic actors in the port sector and across the maritime-logistics chain displays the mutual interaction between global systems of distribution and national capitalisms, it suggests that the study on GPNs can be enriched by taking into account the insights developed by a theory of capitalist diversity (Herrigel and Witke, 2006; Lane, 2008). In line with Lane (2008), the comparative study shows that in certain circumstances, the imprinting by domestic institutions shapes the degree and manner in which a cargo handling company along the maritime-logistics chain pursue competitive advantage in the global supply chain. On the other hand, cargo-handling companies operating in global networks tend to be shaped also by the nature of the market in which they compete. There is therefore diversity within a given model of capitalism in the way sectors and firms respond to global constraints (Lane, 2008; Streeck, 2011). In sum, cargo-handling companies operating in the container industry are influenced at various geo-political levels and multi-level institutional constraints interact with their strategic choices concerning labour settings (Lane, 2008). These aspects can be observed in the – locally embedded – port segment of the maritime-logistics chain and the – global –

container shipping industry with respect to the variety of port labour systems at national level. The set of constraints and regulations that influence the way labour is organized by a transnational terminal operating company in two container terminals located in different ports explains how the strategies of the players across the global supply chains affect port labour systems and arrangements equally, with the mediation of the institutional variables towards isomorphic trends.

The ever-increasing process of casualization of port labour and the slow erosion of those structures that have formed over time to protect working conditions in ports suggest a shift dictated by endogenous and exogenous pressures that cross the entire chain, in particular the cargo handling in the port area. Working conditions in the European ports analysed are influenced by the strategies of a multiplicity of actors across a variety of spatial scales, with a cascading effect that from the global container shipping industry leads to the social organization of labour at quayside. The institutional transition at European level, ultimately, supports such dynamics.

This thesis tries to overcome the limits in the conceptual framework developed by Notteboom (2010), by emphasizing and applying an “intermodal gaze”, which is required for interpreting labour dynamics in the maritime-logistics chain, in particular with respect to port segment and container business. Putting dock labour within this analytical framework has been a necessary strategy to grasp the key aspects of the specific segment taken into account. Emphasizing the variety of dock labour systems in Europe, Notteboom focuses on the market pressures from the main port actors. Shipping companies and other players impose several requirements on ports and terminals based on the needs of the supply chain. Ports and terminal operators have to meet these requirements if they want to stimulate economic growth within the port and the hinterland. According to the author, the requirements of the market players identified in the framework come down to a maximization of the performance of dockworkers in terms of productivity and flexibility, an optimization of the direct costs of port labour as a prerequisite, and a minimization of the indirect costs such as shortages, strikes, incidents, etc. This internal organization takes place within a wider setting of legal and social conditions. The legal constraints are embedded in the appropriate port labour regulation, legislation, and labour regulations in general.

It has been argued in this thesis that the framework of Notteboom presents some limitations for a more detailed comprehension of the existing labour dynamics in the European seaports. In particular, the perimeter of the conceptual framework is well delimited, but the links between the main items of the internal and the external organizations are presented in a deterministic way. This study has demonstrated to what extent reciprocity among the items occurs. Moreover, the market-driven approach of the framework does not correspond alone to the real setting of the port business, which is also driven by social and institutional constraints. The broad purpose of the framework developed by Notteboom produces a shallow overview with few empirical evidences in support. The question of the social and institutional conditions, though mentioned, is not sufficiently elaborated, and the justification of the difficulty in the measurement is not satisfactory. If the “measurement” of such variables is the obstacle,

qualitative methods and comparative studies – leaving aside the “benchmarking obsession” – can overcome these problems with the same rigour provided by other methodological tools. In short, the ongoing discussion on the role of human factor in the European port system deserves an approach much deeper than the one proposed by Notteboom in his framework based mainly on a market driven approach. Needs and actors in this field, indeed, are not only those of the market, especially if we deal with labour dynamics. In addition, by considering market requirements, it should be emphasized that the new scenario emerged after consolidation processes, vertical integrations, increasing vessel size, etc., sharply influence and jeopardizes the business model and the relationships among the economic actors of the maritime supply chain (e.g. among shipping companies and terminal operators). It is therefore partially appropriate to put all the market players at the same level, since each has divergent and conflicting interests, influencing the internal – and the external – organization of port labour in different ways. The framework provided by Notteboom, although inspiring at a first stage of analysis, alone is not sufficient to explain the changing dynamics of dock labour settings related to the complex structure of the maritime-logistics chain. The challenge in this study, thus, has been to explore both the port labour dynamics and the overall structure within which port labour is embedded, in order to overcome the limitations in the abovementioned conceptual framework.

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. For this purpose, the structure of the maritime supply chain developed by Meersman *et al.* (2009) has been illustrated and integrated with additional items for the purpose of this study. The premise of this approach relies on comparing dock labour schemes and settings by considering both the variety of labour regimes within the port segment and along the maritime-logistics chain, which represents the overall frame within which dock labour systems in particular are embedded. The observation of the entire logistics chain fosters an analysis of the complexity of the supply structure of goods, its multi-scalarity, its dynamism, and the labour that incorporates and crosses it.

Compared to the past, port competition takes place predominantly along the logistics chains that connect origins to destinations, involving a multitude of actors, and not only shipping companies or ports. These latter represent the central link of the chain. Ports will try to become a node in the most successful logistics chains to increase their market share and improve their economic impact. The vitality of the ports therefore is affected not only by the requirements of shipping lines or by the infrastructures, but is shaped by a variety of market requirements that cross the entire chain (Meersman *et al.*, 2010). A maritime-logistics chain and the current configuration of the port competition are formed by three integrated dimensions: the maritime activities, goods handling in the port area, and hinterland transport services. The formation of chains, on the other hand, depends on maritime connections, cargo handling operations and distribution to the hinterland. Essentially, large seaports require these three

elements to be competitive, including adequate connections with the hinterland (*Ibidem*).

The structure of the maritime-logistics chain has been enriched with additional elements throughout this study, in order to introduce the questions of how labour incorporated within the logistics chain, and in particular within a specific leg, is changing. In accordance with the approach adopted, the analytical framework of Meersman *et al.* (2010) has been integrated with exogenous variables (e.g. global factors, European regulations) and endogenous variables (e.g. national regulations, dock labour systems).

To summarize, this study underlines four important points: First, the port sector is characterized by a significant complexity and non-transparency, this latter due mainly to the lack of “sharing culture” of the economic actors involved. This is also with respect to the whole maritime-logistics chain, in which ports are embedded. Second, a clear and shared definition of port labour is still lacking, whereas it is clear that we are dealing with an ongoing changing dimension. Scholars, policy-makers and practitioners, however, do not refer to the same meaning for the same words. It is not surprising that the issues of dock labour systems in the European ports have been a field scarcely researched by the maritime economists, and partially ignored by the economic sociologists (with few, important exceptions, highlighted during the review of the literature in Chapter III). 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 a delicate and complex topic, with conflicting interests, strong contradictions and political factors in play. In most of the cases, the economic literature on port studies does not consider at all labour as an analytical category.

Third, as we have seen, port labour systems are currently not at the heart of positive integration at European level (Scharpf, 2010). The study shows how the progressive institutional convergence of the variety of dock labour systems in Europe is driven by the activity of transnational cargo handling companies involved along the maritime-logistics chain and by juridical factors at supranational level. Fourth, port labour systems in Europe are subjected to a *molecularization* process, and to a slow transition towards different commonalities. Moreover, the approach adopted in this study enables us to verify the hypotheses guiding the empirical research. First, given the structural, material and institutional constraints partially common among the cases selected, partially specific to each of them, labour in the maritime-logistics chain remains a significant variable in value production. Nevertheless, there is a general trend towards the growth of casual labour in the port segment, namely the central link of the chain, which has not yet been liberalised, despite the existing attempts. Second, the slow erosion of the institutional basis suggests an ongoing transition dictated by exogenous and endogenous pressures, which results in a progressive institutional isomorphism throughout Europe.

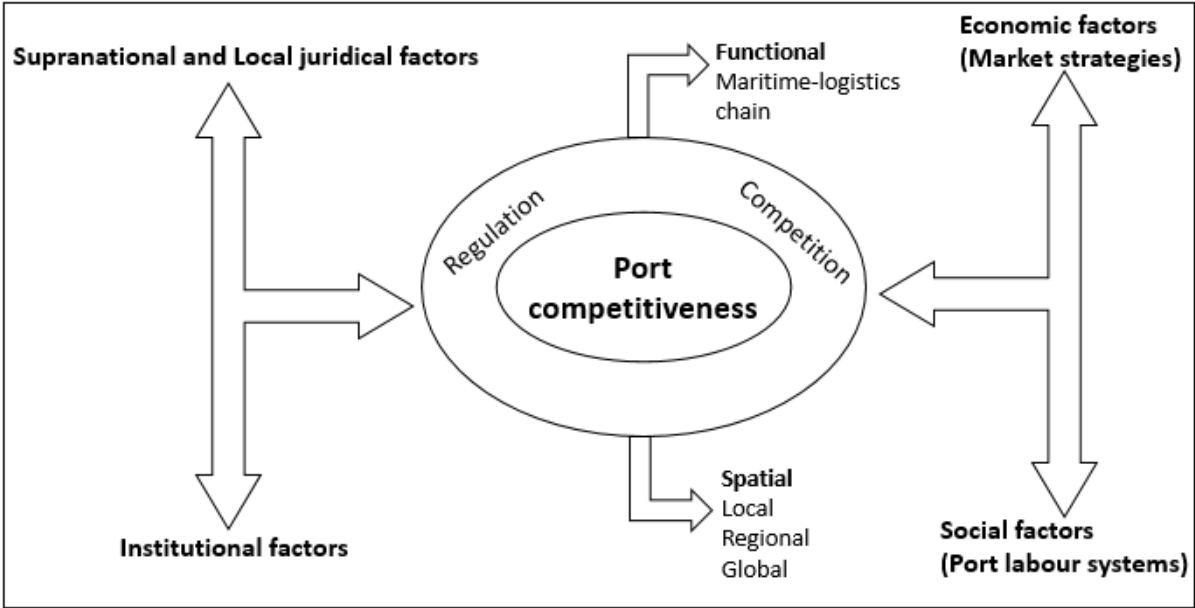
The study further demonstrates that the market requirements can be hardly met with equally important demands such as job stability in an increasingly uncertain scenario, fair distribution of resources, professional growth of workforce, and the capacity of fairly distributing the economic and employment effects of periodic irregularities of activity / inactivity in cargo handling. Furthermore, the

feasibility of “innovative” organizational models and management of labour in ports in line with the European Directives and the national regulations is far from being adopted, given the existing European port policies, legitimated also by the lack of interest by scholars concerning innovation in this manner.

Since ports have been studied by different theoretical approaches, paradigms and perspectives, the effort in the following study has been constantly to foster a multidisciplinary approach between some consolidated streams. The topic faced in this study, indeed, has a theoretical and pragmatic relevance. Ultimately, as the figure 22 shows, from this study it emerges that a multiplicity of (overlapping) elements and drivers affect port competitiveness. Regulatory and competitive aspects have to be jointly taken into account, as well as the functional location of a port along the maritime-logistics chain and the spatial location of a port at local, regional and global level. Likewise, the following factors influence port competitiveness:

- Local juridical factors (e.g. national legislations and ongoing reform processes);
- Supranational juridical factors (regulations from the European Union, compatibility among supranational and national rules, jurisdictions of the European Court of Justice, Social Dialogue, etc.);
- Institutional factors (e.g. port governance, contractual relationships, management structures of dock labour systems, labour regulations)
- Economic factors (market strategies of the global players, convenience of business operations for cargo handling companies);
- Social factors (working conditions, levels and stability of employment and remunerations, conflicts, training, quality of the port labour system).

FIGURE 22: FACTORS AFFECTING PORT COMPETITIVENESS
(Own composition)



The empirical findings gathered during the fieldworks in the ports of Genoa and Antwerp have been presented and discussed in the chapters IV and V. For each of the two cases, the following items have been described:

- Port regulation
- Dock labour scheme, pool governance and organizational structures of labour pools
- Labour organizations at workplace
- Training systems
- Employment relations.

By drilling down to the container terminals of the ports selected, the Key Performance Indicator (KPI) have been further identified and analysed:

- Container terminal productivity (Gross Crane Rate)
- Cash Cost per Box (CCPB), Labour Cost per Box
- Dwell time (Vessel turnaround time)
- Terminal Handling Charges (THC)
- Wages

Chapter VI provides the comparative analysis between the case studies. The empirical evidence shows how the strategic action of the main players along the maritime-logistics chain, jointly with the institutional change, is modifying the working mechanisms of both port labour systems, altering the matching of labour supply and demand, opening up new decision-making prospects for transnational terminal operating companies. In this frame, the organizational models of labour in the ports selected seem to be undermined by the processes of globalization, harsh competition along the entire logistics chain, and *Europeization* of the port labour policies.

The comparative analysis displays to what extent the de-structuring processes of the organizational patterns are crossing the ports / container terminals analysed, besides the constraints partially common among the cases and partially specific to each of them. Significant dynamics, notwithstanding the institutional path dependencies and the specific global production networks, occur similarly in both the ports observed. The homogeneous pressures, however, engage with the history at national and local level, the institutional structures and practices that dictate the differences among the cases. This in turn reveals a process in which, as this study hypothesizes, such differences are more and more converging towards a common trajectory. Dock labour systems and schemes compared in this study are differently managed but commonly affected by exogenous and endogenous pressures along the maritime-logistics chain.

Furthermore, by looking at the port performance indicators, it has been possible to compare the terminal productivity (linked to costs) of one multinational cargo handling company operating in both ports. Despite the limited data availability, this comparative analysis explores how terminal operating companies behave for maximizing labour productivity in light of the dock labour schemes in two distinct

environments. It turns out that terminal operating companies involved in container handling apply the tariff to their costumers starting from the Cash Cost per Box as parameter. The Cash Cost per Box (CCPB) is the indicator that represents how much a container handling company spends only in terms of out-of-pocket costs for each volume unit handled. In this cost structure, labour composes typically the main value. Starting by the value of this parameter, the terminal operator applies the tariff to the shipping company in order to obtain margins.

Being labour cost the main value, the lower amount of CCPB in the Belgian case with respect to the Italian case is mainly – but not exclusively – due to a lower number of workforce employed to handle one container with respect to the Italian case. The number of workforce per container handled is the key aspect to set a proper comparison between the ports/terminals, linking the productivity indicators to the cost structure. By consequence, also the Terminal Handling Charges paid by the customers of the terminal operators, i.e. the shipping companies, in principle are higher in the Italian case than in the Belgian case. This occurs besides the difference in the business models of the multinational terminal operators in the north European ports (vertical integration between shipping company and terminal operating company) and the south European ports (pure stevedoring companies) and other specificities or features in each case. Furthermore, it has been assessed the difference of the wages in both ports (and the distribution in terms of occupational contexts), which are lower in the Italian case and higher in the Belgian case.

The comparative analysis emphasizes the distinctive contexts of the cases as well. Two dock labour schemes have been studied in depth, both characterized by a pool system, differently managed and commonly affected by exogenous and endogenous pressures. In the Belgian case, the structured model under reform might be conceived also as non-structuring in the future, but the empirical evidence has shown the difficulty to provide a consistent forecast. In the Italian case, the non-structured nature of the labour pool management refers mainly to the informal relationship between labour pool and port employers. The work organization at quayside differs according to the legal constraints of each case. However, the dilemma faced by the terminal operating companies is the same, between internalizing or purchasing, to some extent, dock workforce, given the fluctuation of cargo, labour regulations in place in the ports and at national level.

Labour productivity is mainly produced by the polyvalence and the incentive schemes in the Italian case, whereas in the Belgian case this is due to the peculiarity of the gang system, and the “emotional account” emphasized by the employers in order to retain the workers. Although in a changing process, the training system in the port of Antwerp has been described as a “beneficial constraint” for the employers, whereas in the port of Genoa a professional bias has been observed. Along this line, the comparative analysis shows that one of the main items differentiating the Italian case from the Belgian case is not only the setting of the labour pool, nor its features provided by the legal frameworks and schemes. The principle in the Belgian case is that a port worker, before being inserted in the port

operations should have acquired a proper knowledge, a training and the experience both of the tools that will have to handle and the environmental conditions in which he or she will have to operate. Such a setting provides also the expectations of the dockworkers in terms of job careers, in this way incentivized in being productive. With respect to the employment relations, in Genoa the conflictual relationship among the port actors is mitigated by a social peace to be maintained in spite of the ongoing external pressures. In Antwerp, the power relationships are characterized by a strong role of the unions, whose bargaining power is crucial in providing a set of labour conditions inside the port.

Ultimately, the main difference among the cases analysed is therefore between the meaning of dock labour as only a dependent variable of production, or a cost that needs to be cut as much as possible – training included – and dock labour as something that needs investments and resources in order to obtain high performances. In other words, the gap is in the consideration of the *value* of the workforce. There is a sharp distinction in the consideration of the labour value among the case studies, which in any case refer to social relations of production (Marx, 1959). Despite the ongoing pressures and transformation processes, port labour system in the Belgian case seems to fit in the notion of “shared value” (Porter and Kramer, 2011), whereby the creation of economic value also creates value for the social fabric in which ports are embedded. The concept of shared value hardly fits in the Italian case, whereby cargo-handling companies have a more short-term perspective concerning value creation related to port labour dynamics. These latter, to conclude, in order to be interpreted and explained nowadays, have to be however framed within the complex and untransparent handling process of goods along the entire maritime-logistics chain that carries things and brings value from the origin to the destination. Namely from the seagoing vessel to the edge of the dock. From the edge of dock to the yard. From the yard to rail connection, the inland navigation, or the long queue of trucks at the gate of the terminal. And then over across the chain, in the hinterland, from which goods come and where goods are transported.

Interview list

City	Interview number	Company / Institution	Role	Date
Genoa (Italy)	1	CULMV "P. Batini"	Consul	20 th February 2016
	2	CULMV "P. Batini"	Vice-Consul	20 th February 2016
	3	CULMV "P. Batini"	Trade Union delegate	15 th March 2016
	4	CULMV "P. Batini"	Dockworker	21 st April 2016
	5	CULMV "P. Batini"	Dockworker	8 th April 2016
	6	CULMV "P. Batini"	Dockworker	6 th April 2016
	7	CULMV "P. Batini"	Former dockworker / Union member	8 th April 2016
	8	Port of Genoa Compagnia "P.Chiesa"	Retired worker/ former Consul	16 th March 2016
	9	Port of Genoa Compagnia "P.Chiesa"	Consul	19 th February 2016
	10	CAP (Consorzio Autonomo del Porto)	Former employee CAP	15 th March 2016
	11	Port Authority	Planning office manager	4 th April 2016
	12	Port Authority	General Secretary	4 th April 2016
	13	Port Authority	Official	4 th April 2016
	14	UASC Italy	General director	19 th April 2016
	15	Terminal SECH	General manager	10 th May 2016
	16	Terminal San Giorgio	Managing director	19 th April 2016
	17	Voltri Terminal Europe	Head of HR & IR	20 th April 2016
	18	Voltri Terminal Europe	Head of operations	29 th April 2016
	19	Port of Genoa	Permanent dockworker	10 th May 2016
	20	Voltri Terminal Europe	Responsible for safety	12 th May 2016
	21	Port of Genoa	Permanent dockworker	11 th June 2016
	22	FILT CGIL	General secretary	12 th January 2016
	23	FILT CGIL	Union member	12 th January 2016
	24	Chamber of Labour	General secretary	15 th March 2016

	25	Intempo agency	General secretary	24 th March 2016
	26	Assoporti	President	24 th March 2016
	27	Esa Cluster	Shoreside recruitment department director	24 th March 2016
	28	Assiterminal	President	20 th April 2016
	29	Assiterminal	General secretary	12 th June 2016
Livorno	30	Terminal Darsena Toscana	Managing director	27 th April 2016
	31	Port Authority	Official	27 th April 2016
	32	ANCIP	President	27 th April 2016
Trieste	33	Port of Trieste	General secretary	13 th May 2016
	34	FILT CGIL	Union member	13 th May 2016
Koper (Slovenia)	35	KS 90	Union member	6 th June 2016
Rome	36	ISFORT	Project manager	14 th December 2015
	37	Intempo agency	General director	25 th January 2017
Milan	38	Gavio group	HR manager	26 th April 2016
Padua	39	ADL COBAS	Union member	16 th March 2016
Antwerp (Belgium)				
	40	CEPA	Director	6 th December 2016
	41	CEPA	HR manager	11 th April 2017
	42	OCHA	General manager	6 th March 2017
	43	VDAB	Official	11 th November 2016
		BTB (Union)	Union leader	16 th December 2016
	44	BTB (Union)	Secretary	16 th December 2016
	45	BTB (Union)	Union member – shop Stewart	14 th February 2017
	46	Port of Antwerp	Dockworker	14 th February 2017
	47	Port of Antwerp	Dockworker	14 th February 2017
	48	Port of Antwerp	Senior executive	18 th May 2017
	49	ACV-Transcom	Union member - dockworker	20 th February 2017
	50	Alfaport VOKA (Chamber of Commerce)	General manager	12 th December 2016
	51	Flanders Port Commission	Port commissioner	21 st April 2017
	52	MSC Belgium	CEO	7 th March 2017

	53	PSA Antwerp	HR manager	9 th March 2017
	54	PSA Antwerp	Retired manager	22 nd May 2017
	55	Doel 2020	Activist	5 th April 2017
	56	Katoen Natie	General manager	6 th April 2017
	57	Maersk Line	Head of VSA terminal procurement	9 th March 2017
Brussels	58	European Commission	Senior expert	8 th February 2017
	59	ETF	Union secretary	9 th November 2016
	60	FEPOR	President	8 th December 2016
Hamburg	61	Eurogate	Executive Director	24 th February 2017
Le Havre	62	Port of Le Havre	Union member	13 th April 2017

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Appendix 1: Balance sheet of two container terminals in the port of Genoa (2014-2015)

	2014	2014	2015	2015			
	T-1	T-2	T-1	T-2		T-1	T-2
	.000€	.000€	.000€	.000€			
Fatturato	43.839	117.538	38.495	126.338		-	7%
Altri ricavi	537	5.089	651	3.763		21,2%	-26%
Valore produzione	44.376	122.627	39.146	130.101		11,8%	6%
Acquisti	1.607	4.770	1.293	5.032		-	5%
Servizi	11.084	26.436	9.821	29.609		11,4%	12%
Affitti e canoni	2.169	9.863	2.415	10.171		11,3%	3%
Personale	16.399	39.278	16.406	40.608		0,0%	3%
Ammortamenti	2.452	8.531	2.629	8.134		7,2%	-5%
Altri costi	2.002	3.053	2.039	3.019		1,8%	-1%
Totale costi	35.713	91.931	34.603	96.573		-3,1%	5%
Reddito operativo	8.663	30.696	4.543	33.528		47,6%	9%
Gestione finanziaria	-236	-17	-207	14		-	-
Gestione straordinaria	166	497	-368	1.000		12,3%	182%
Utile pre imposte	8.593	31.176	3.968	34.542		-	101
Imposte	3.084	10.513	1.231	11.018		321,7%	%
Utile netto	5.509	20.663	2.737	23.524		-	11%
Dividendo	3.530	19.628	2.549	20.000		-	5%
Teus (n)	447.34 0	1.157.08 0	385.80 6	1.237.22 2		-	7%
Contenitori (n)	281.824	728.960	243.058	779.450		-	7%
Concessioni							
Canoni demaniali							
Dipendenti							
dirigenti	5	5	6	9		20,0%	80%

quadri	6						
impiegati	119	202	239	199	100,8 %		-1%
operai	111	472		467			-1%
totale	241	679	245	675	1,7%		-1%
Stato patrimoniale							
Attività							
Imm immateriali							
<i>Imm. Materiali storico</i>	39.005	180.843	42.785	203.777	9,7%		13%
Imm. Materiali netto	21.200	69.944	23.242	93.072	9,6%		33%
Crediti clienti	7.714	16.962	5.876	18.914	- 23,8%		12%
Crediti gruppo		8.880	288	9.026			2%
Magazzino		2.353					
Cassa ed equivalenti	1.933	35.823	45	4.628	- 97,7%		-87%
Passività							
Mezzi propri	15.856	97.589	15.062	92.421	-5,0%		- 5,3%
TFR	2.323	4.972	2.162	4.810	-6,9%		- 3,3%
Debiti bancari	4.639	9.293	7.244	6.592	56,2%		- 29,1%
Contributi gov							
Debiti fornitori	4.617	13.493	4.883	22.163	5,8%		64,3 %
Debiti gruppo	5.264	8.768	1.966	4.009	- 62,7%		- 54,3%
Debiti leasing	3.192						
Fondi rischi e oneri							
Mq banchina	206.00 0	978.000	187.00 0	978.000	-9,2%		0,0%
metri lineari banchina	526	1.430	526	1.430	0,0%		0,0%
capacità stoccaggio teu				14.140			
Gru banchina	5	12	5	12	0,0%		0,0%
Flussi di cassa							
Flusso gestione operativa	5.670	36.813	2.163	37.739	- 61,9%		2,5%
Fatturato	100,0 %	100,0%	100,0 %	100,0%			
Acquisti	3,7%	4,1%	3,4%	4,0%	-8,4%		-

							1,9%
Servizi	29,9%	25,1%	30,8%	25,8%		3,2%	2,9%
Costo del lavoro	37,4%	33,4%	42,6%	32,1%		13,9%	3,8%
MOL	25,4%	33,4%	18,6%	33,0%		26,5%	1,2%
Ammortamenti	5,6%	7,3%	6,8%	6,4%		22,1%	11,3%
Reddito operativo	19,8%	26,1%	11,8%	26,5%		40,3%	1,6%
Per addetto	.000 €	.000 €	.000 €	.000 €			
fatturato	182	173	157	187		13,6%	8,1%
valore aggiunto	131	135	114	141		13,0%	5,0%
costo lavoro	68	58	67	60		-1,6%	4,0%
imm materiali storico	162	266	175	302		7,9%	13,3%
imm/fatt	89,0%	153,9%	111,1%	161,3%		24,9%	4,8%
Per TEU	€	€	€	€			
fatturato	98,0	101,6	99,8	102,1		1,8%	0,5%
costi operativi	79,8	79,5	89,7	78,1		12,3%	1,8%
dirigenti	2,1%	0,7%	2,4%	1,3%		18,0%	81,1%
quadri	2,5%	0,0%	0,0%	0,0%			
impiegati	49,4%	29,7%	97,6%	29,5%		97,6%	0,9%
operai	46,1%	69,5%	0,0%	69,2%		100,0%	0,5%
totale	100,0%	100,0%	100,0%	100,0%			
Indici di efficienza							
Teu/Mq banchina	2,2	1,2	2,1	1,3		-5,0%	6,9%
Teu/metri lineari banchina	850	809	733	865		13,8%	6,9%
Teu/dip	1.856	1.704	1.575	1.833		15,2%	7,6%
Teu/gru banchina	89.468	96.423	77.161	103.102		13,8%	6,9%
Gru/metri lineri banchina	105	119	105	119		0,0%	0,0%

Indici di redditività operativa							
MOL/Fatt	25,4%	33,4%	18,6%	33,0%	-	-	26,5% 1,2%
Ro/Fatt	19,8%	26,1%	11,8%	26,5%	-	-	40,3% 1,6%
Amm/Fatt	5,6%	7,3%	6,8%	6,4%	-	-	22,1% 11,3%
ValAgg/Fatt	72,3%	77,8%	72,8%	75,6%	-	-	0,8% 2,9%
Indici di redditività finale							
Utili prima imposte/Fatt	19,6%	26,5%	10,3%	27,3%	-	-	47,4% 3,1%
Utili netto/Fatt	12,6%	17,6%	7,1%	18,6%	-	-	43,4% 5,9%
Roe	34,7%	21,2%	18,2%	25,5%	-	-	47,7% 20,2%
Indici di situazione patrimoniale							
Mezzi propri/Debiti bancari	3,4	10,5	2,1	14,0	-	33,5	39,2% %
Mezzi propri/debiti bank+leasing	2,0	10,5	2,1	14,0	-	33,5	2,7% %
Deb bancari/mol	0,4	0,2	1,0	0,2	142,0	-	% 33,2%
Deb bancari e leasing/Mol	0,7	0,2	1,0	0,2	-	-	43,4% 33,2%
giorni clienti	63	52	55	54	-	3,7%	13,3% %
giorni fornitori	112	118	130	178	-	50,5	16,2% %
Indici finanziari							
Dividendo/utile	64%	95%	93%	85%	-	-	45,3% 10,5%
Flusso cassa gest operativa/ricavi	13%	31%	6%	30%	-	-	56,6% 4,6%
Altri indici operativi							
Contenitori/Teu	1,6	1,6					
Teu/nave							

Source: Curi e Dallari

