

Organization and regulation of the port industry: Europe and Spain.

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1. Introduction

In most countries in the world, practically all imports and exports are done by sea. Maritime transport requires port facilities to facilitate the interchange with land transport or interior navigation. Thus, efficient ports are needed to help the economy in terms of input provision and output distribution.

Sea ports have developed as an answer to the economic demands of their *hinterland*¹ or market area. Their creation and development have been influenced by historical, geographical, political and economic factors, which have translated into different political objectives, management models, property structures and regulatory rules throughout the world.

Traditionally, the port management model has been characterized by the presence of a centralized public agent in charge of the long run planning and provision of most of the port services. Nowadays, in many cases the need to adjust public expenditure has motivated the search for the active participation of the private sector in many countries, not only for the provision of port services but also to construct and develop port facilities.

In parallel, maritime transport has undergone important technological innovations within the last decades, which has increased the demand for port facilities that should be able to cope with last generation vessels and the different forms of packing cargo. This has stimulated the competition among ports in order to attract modern ships and modern freight forms. Besides, intermodality has intensified this competition process, forcing the ports to expand their activities beyond the usual frontiers of the port yards. Thus, the traditional warehouse role played by the ports is slowly losing importance in favor of better and more integrated logistical and physical distribution. These trends have had an impact on the organization and regulation of ports, letting private participation grow in time, deregulating the activities and sometimes leading to complete privatization.

Technological changes have also stressed the importance of specific terminals within the port areas (e.g. multi-purpose², containers, liquid and solid bulk). Therefore, terminal facilities are becoming heavily capital intensive and, depending on port size, more specialized, playing a key role in the choice of port. The private sector is becoming

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¹ The *hinterland* can be defined as that space for which the generalized cost of a port operation is lower than the similar cost using an alternative port.

² A multiple-purpose (MP) terminal is designed to serve heterogeneous traffic, including non-containerized and containerized cargo. It can be transformed into a specialized one (e.g. containers only) by changing equipment.

increasingly interested in this type of activities, which has moved the focus of the competitive strategy from the port to the terminals, making them the most important elements within the port industry. This change of focus is the main element to explain the increase of competition within the sector (*Heaver, 1995*).

The rest of the chapter is organized as follows. The different models of property and management within the port industry are summarized in section 2. Section 3 analyses the introduction of private participation in ports operations as well as the role of the public sector. Economic regulation of port activities is presented in section 4 and continued in section 5 with emphasis on cargo handling. The attempts to design and apply a common policy on ports within the European Union is analyzed in section 6, along with a description of the present regulatory scheme including the Spanish case. Section 7 contains a final discussion.

2. Models of port property and management

A first important characteristic of a port as an economic organization is that it can not be considered as an entity producing a single service. A diversity of activities take place within the boundaries of a port area. Thus, it is quite important to take into account the diverse characteristics of each particular service that may lead to different regulatory schemes, as some present natural monopoly properties while others could be better produced under competition. By the same token, and given that all services have to be produced within a limited area, it is important to analyze the ways and means of inducing coordination and to identify the role of *port authorities* as institutions in charge of the regulation of all facilities and activities that take place within the port.

In general, port authorities (PA) are local or provincial public entities (although some examples of private institutions do exist). Public administration of a port is present in a variety of forms around the world. In some countries, operation management and planning of the port capacity are very centralized, as in Singapore, while in others port authorities are highly autonomous as in the USA. There are intermediate situations where port administration involves both the regional and national governments, as in Australia. It should be stressed that the public nature of a PA does not necessarily imply that the provision of port services is developed by the public sector as well.

A variety of port organization models exist around the world. They differ according to the degree of direct intervention of the PA on the provision of services. On one extreme, the port authority acts as a *landlord*, i.e., leaving as many activities as possible in the hands of the private sector. In this model, the PA owns the facilities and either rents or gives in concession these facilities to private operators. Examples of this type can be found in the USA, Canada, Australia and Europe. On the other extreme lies the *comprehensive*³ PA model, where the authority is directly in charge of all (or nearly all) responsibilities for the activities within the port area. This case is characterized by a trend to keep the management monopoly, sometimes including cargo handling. Examples of this type can be found in Singapore and many African ports (*Goss, 1990; Heaver, 1995; De Monie, 1994*). The usual case regarding property is that of state owned PA and private operators.

³ *Juhel (1997)* distinguishes two sub-groups within this category: *service ports* and *tool ports*. In both cases the PA owns all the assets, but private firms provide the services in the second case.

When it comes to analyze infrastructure investment, a variety of cases can be found throughout the world. There is a model of local (*municipal*) funding that is used in northern Europe (Holland, Belgium, Germany), where the responsibility on port policy is directly in the hands of the local administrative body. There is a second model where the *State* do the planning and financing of all investments in the principal port network, although the general trend is towards self financing the port system, which can be found in countries in southern Europe and Latin America. A third model is that of *self financing*, where investment funds are provided by private firms or the AP directly using own resources generated by the customers' payments. This model dominates within countries of an Anglo-Saxon tradition (Great Britain and the United States).

3. Private participation in ports

The brief description of the different types of port organization shows clearly that the public sector and the private initiative usually coexist. In fact, the general trend is towards the *landlord* scheme, which implies an increasing involvement of private participation.

As in all economic activities, private firms search for the maximum profit. The public sector in general intends to maximize some measure of social benefit. *Jeffery (1994)* suggests that the public role is mostly that of providing an environmental, economic and social structure that permits progress in port activities, not necessarily through direct involvement in port operations.

Goss (1992) studied the existence of a boundary between public and private sectors in port activities and found a large variety of practices, which suggested that such a boundary was extremely fuzzy or non-existent. As an antecedent, the *UNCTAD (1975)* report at a world level revealed the presence of important differences between the management models in developed and developing countries, although a trend towards an increasing degree of port autonomy was already detected.

There are important theoretical reasons given to justify public involvement in both the development and management of ports, mostly based on either natural monopoly characteristics of some of the services provided, or on market failures, mostly externalities as security or environmental concerns. On the other hand, some of the activities are considered as mandatory "public service" in some countries, as is the case of cargo handling or pilotage and towage services in Spain, which does not imply, however, that they have to be provided by a public firm. Nevertheless, after analyzing the roles of both public and private sectors in port activities, *Jeffrey (1994)* concludes that, depending on a variety of factors, these roles can vary quite importantly. For the public sector, it can go from setting operational standards to the direct implementation of activities, or to provide financial or physical resources to make it possible the operation of the port. Thus, there is no universally accepted division of responsibilities, although, as stated earlier, an increasing role for the private firms has been observed (*Harris, 1989; Ra'anan, 1992; UNCTAD, 1993, World Bank, 2001*).

Private participation has been caused by a variety of elements: the need for new financial sources for infrastructure or equipment, the need to reduce public deficit, or the idea to

increase efficiency in some activities introducing flexibility for adaptation to varying conditions (*Thompson y Budin, 1997*). Other elements are the contribution to commerce growth and the acquisition of port management experience (*Baird, 2002*). The case is that the governments of many countries have decided to deregulate or privatize the main ports. Although some processes of complete port privatization have been observed (e.g. Malasia, New Zealand and Great Britain), the novelty in recent years has been the presence of private firms building new facilities (terminals) through concession schemes. *Bennett (1992)* argues that total privatization is not the only way to increase efficiency and management, stating that the relevant point is to let the organization in charge exploit the port on a commercial basis, providing enough flexibility and the necessary tools to be able to do it successfully. On the other hand, *Eyre (1990)* argues that the ports which are managed entirely by state dependent organizations are more expensive and less efficient, but this has not been supported by the empirical evidence collected by *Liu (1995)* for British ports.

According to *Cullinane et al. (2001)*, the empirical evidence does not permit a simple inference regarding property and port efficiency. Nevertheless, the international experience seems to suggest that private involvement in some port services has indeed improved the output (*Estache et al, 2002*). There is a general world trend towards the *landlord* scheme, which means that the PA keep property on infrastructure in order to avoid private monopoly power on some essential assets (land or space), letting port operations and investment in both maintenance and equipment be done by private firms. This is in line with the pioneering analysis and recommendations by Bayley and Friedlaender (1981), who suggested that separation between transport activities that present clear scale economies (infrastructure provision) and those that do not (operations) was cost efficient, letting competition rule in these latter. In the great majority of countries, the public sector keeps a key role in planning, investment, development and regulation of ports (*Baird, 2002*).

For synthesis, the introduction of private participation in the port industry seems like a feasible and potentially desirable road to adapt this sector of the economy to a new and more competitive environment, in which ports require modern management and equipment in order to satisfy the maritime transport demands. The collaboration between the public and private sectors seems convenient, such that the former moves from being a direct operator to a regulatory role and the latter takes advantage of the adaptability to market conditions, increasing efficiency induced by competition with others.

4. Regulation of port activities

The active introduction of private participation generates in some cases a need for regulation in the provision of some services, in order to prevent potential actions leading to inefficiencies due to local monopoly power. Such a case is more likely to occur in small ports with captive traffic, because of the inadequacy of competition within the port and the difficulty of competition between ports. Thus, regulation of port activities is a key aspect within the new strategic trend, not necessarily in the hands of port authorities themselves.

A usual way to introduce private participation in ports is through contracts between the private and the public entities. Thus, the contract is the obvious tool for the regulator. Its form will depend on the initial conditions prevailing at the port, on its size, and on the

specific activity under consideration. Contracts present a wide variety, ranking from concessions (*Building, Operation and Transfer, BOT*), where the private firm is given temporarily the port site for constructions and operations returning the facilities afterwards, to licenses for the provision of a given type of service⁴. The choice of the most adequate alternative will depend on the objectives of the regulator and the restrictions faced. An important element to consider is the condition of asymmetric information of the parties involved, as the firms usually know their costs and demand conditions better than the regulator.

On the other hand, the most usual regulatory systems to prevent abuse from a dominant monopolist is the application of maximum prices (*price cap*) and the limitation of firm profits through the rate of return. Hybrid regulatory systems contain pricing elements as well as profit limits. The advantage of *price cap* is the incentive towards efficiency, as a cost reduction makes profit grow under given prices. The disadvantage is that captivity of demand combined with price limits provokes an incentive to diminish quality and to increase environmental damage as part of a pseudo cost reduction strategy. The rate of return regulation diminishes capital risk and its cost because of a guaranteed profit rate, but has no incentives towards efficiency. The hybrid systems aim at combining the advantages of both systems while preserving product and environmental quality.

Thus, contract design and price regulations seem to be the most appropriate tools to introduce private participation in port activities preserving quality and inducing efficiency. See *Guash (2003)* for a review of empirical evidence regarding concession contracts.

Of course there are cases in which regulation might not be needed or play a minor role. This is when competition is feasible, as it has agreed advantages as an instrument to induce discipline on economic agents intervening in a given market. Whether competition is both feasible and desirable will depend on the traffic volume moved within a port. This has been analyzed by *Kent and Hochstein (1998)*, who established traffic thresholds to determine the type of competition that is feasible. Even when no competition is feasible within the port, the need to regulate prices would be subject to possible competition between ports. If this is the case, the role of the regulator can be reduced to a periodical control on prices in order to prevent potential collusion among competitors providing similar services within the port or within alternative port sites. It is worth noting that, in general, competition has increased within the port industry as a whole, but this does not have equal impact on all ports or all activities. It depends on many aspects, as location, type, level and structure of traffic served, and so on. Within the European Union, an open debate is going on regarding public subsidies to ports, as they could be an undesired limit to competition.

5. Port services and terminals

Economic activity within a port is somewhat complex. Running it successfully requires a set of agents and operations that are integrated in what can be generically called port services⁵. They encompass from the administration provided by the PA to pilotage, towage, supply of utilities such as water and power, cargo handling, catering, shiprepair, and so on.

⁴ See *Trujillo and Nombela (2000)* for a full description of contract types.

⁵ See *De Rus et al (1994)* for a full description of port services.

From an economic viewpoint, services are quite heterogeneous. The analysis of each one requires different approaches in general, taking into account their specific characteristics. Cargo handling requires special attention, as it means more than 80% of the bill of a vessel that arrives to a port for loading and unloading. Increasing homogenization of the cargo unit and technical change in the equipment industry has induced an increasing number of specifically designed facilities for loading and unloading of, for example, containers or bulk. In a relatively short period of time, container terminals have acquired a prominent role in large and medium size ports, where the large volume of this type of cargo makes it economically efficient.

The cargo handling service is usually viewed as one that has to be provided directly by the public sector or by private firms through concession contracts. The large investment usually required for this type of services has been used as an argument to justify private participation. This is why in a large proportion of ports throughout the world container terminals are private although they use public land and have to pay cannon. Because of the private provision of the service, firms operate under regulatory mechanisms regarding prices and profits. As stated earlier, the enforcement rules are stronger depending on the presence of competition within the port or between ports. When the traffic volume in the port makes it efficient to have only one terminal but there are other ports in the neighborhood that exercise real competition, fare regulation could not be necessary as the market mechanism keeps the price levels within reasonable ranges because of the fear of loosing demand in favor of other ports. If traffic through the port is captive, price regulation is necessary. As an example, users of the Mexican ports of Veracruz and Manzanillo have complained because there is no regulation of the single terminals that operate at each location, which seem to be taking advantage of their local monopoly power through large prices.

Size of the port and type of service are two key elements when deciding whether competition is feasible, and how to promote it. Analyzing this requires a profound knowledge of the cost structure of the activity involved. This means not only knowing total costs for different volumes of aggregated traffic, but also the behavior of costs when part of the bundle is produced, i.e. when the mix changes. Cargo handling usually involves moving different things (containers, rolling stock, bulk, non-containerized cargo, to mention some). Whether it is convenient to have one terminal for all needs in a port or many specialized terminals, or many multiple-purpose ones is not a simple matter to investigate. Yet it is necessary for an adequate design of a port policy. Equally important is to know the specific marginal costs associated to the different type of cargo movements, in order to provide a basis for price regulations.

The difficulty that means knowing the cost structure of firms that obtain concession contracts has been usually approached by comparison⁶. However, the direct estimation of marginal costs by product, scale economies (global and specific) and economies of scope, are quite useful in order to determine the number and type of terminals that should be allowed at a port for a given forecast of demand (traffic mix and volume).

From this viewpoint, the work by *Tovar (2002)* is particularly relevant, as it is the first

⁶ This means looking at the price structure of the same services offered by other ports within the region with similar characteristics as the one that is being regulated.

attempt at looking at the cargo handling service in port terminals by means of the estimation of a (multioutput) cost function using Spanish data. Previous research had focused on port activity as a whole or had concentrated on other services. It should be noted that Spain follows the *landlord* model. According to the prevailing law, in order to set the conditions for potential private participation, the PA should base on pursuing efficiency, productivity and reliability. To do this task properly, the PA needs a detailed knowledge of the cost structure of the different activities. In *Tovar (2002)*, the activity of multi-purpose terminals moving mostly containers is analyzed, using data on cost and production of three concessionaire firms in the port of La Luz and Las Palmas. The emphasis is put on the calculation of quantities that are meaningful when dealing with regulation, namely marginal costs by type of cargo moved, economies of scale and scope. These are pieces of information that, although necessary and important, are not readily available to the regulators but have to be calculated from data specifically collected, which gives the analysts an important specialized role.

5.1. Cargo unitization

Starting some decades ago, new technologies for cargo handling and vessel design have been developed such that productivity has increased due to mechanization and work reduction that has translated into shorter stays of the ships at the port. This new technology can be described as “Unitization”, whose general idea is that of repackaging various cargo items of relatively small size into larger units of a standard size that can be moved using specifically designed machines and accommodated into specifically designed ships, speeding up the service. There are different techniques for unitization. There are *pallets*, which can be handled by forklift; wheeled platforms maneuvered by truck; cargoes that can be “rolled on” the vessel in the loading port, and “rolled off” the vessel in the destination port (e.g. roll-on/roll-off trucks and trailers); containers; and even barges which are loaded into the LASH vessel⁷. In each of these cases, the cargo handling process is associated with specific machines (cranes and vehicles) making the type of standardized or compact unit used more important than the type of cargo itself. This might cause that the same type of goods can receive different handling treatment depending on the repackaging: bags, pallets, containers, and so on.

One of the key aspects of cargo unitization is the correlation between handling capacity and the weight of the standard unit. This is due to the large amount of time that takes the manipulation of small size packages, particularly the process of cargo handling within the vessel’s hold. Thus, for a given cargo volume, the larger the standard unit the lower the number of units. The use of containers and rolling units has made it unnecessary the operations of cargo handling on vessel’s hold.

5.2. Factors of production and their regulation

In the production of cargo handling services the following three groups of factors are required: basic infrastructure, superstructure, machines and mobile equipment, and labor. The provision of these factors is affected by the type of organization prevailing in each port to manage cargo handling.

⁷LASH means “Lighter aboard ship”. This means that lash ships carry barges.

Basic Infrastructure

An interesting characterization of ports is given by the European Parliament (*EU, 1993*). The port area is defined as a complex of water basins and land areas where services to ships and cargo are provided. To get to this port area maritime access, defence infrastructure⁸ and land access⁹ are needed.

Civil works within the port area defined above are needed for the supply of services to ships and cargoes. These are the port infrastructures, including wharf, shipyard, road and railway network inside the port, and so on. The boundary of this port infrastructure can be set at the extremes of reinforced-concrete structures. Thus, canalizations would be part of them, whereas pavements and maintenance would be excluded.

Two kind of customers use port infrastructures. On one hand are the ships that moor a buoy or anchor in the port's waters. On the other hand are those firms that work inside the port area and perform services to ships (pilotage, towage, stevedore, terminals, ship repair, and so on). Among the latter are the terminals that operate through concession contracts where concessionaire's obligations and payments are set. The usual norm is that the concessionaire is obliged to pay a *canon* to the port authority or the institution responsible for the concession. Usually, the canon is set as fixed annual fee by square meter or as a variable amount by tonne or TEU handled, or as a combination of both.

Recent initiatives of the European Union are aimed at the recovery of public funds invested in ports by means of charges to infrastructure users. This would require knowledge of the level of investments and, most importantly, of the long run cost structure such that marginal costs, economies of scale and scope can be calculated and used to establish adequate fare policies for infrastructure use. In this respect, the studies by *Jara-Díaz et al. (1997)* and *Jara-Díaz et al.(2002)* analyzing infrastructure costs in Spanish ports by means of a long-run multioutput cost function, are particularly interesting.

Superstructure machinery and mobile equipment

Above the port infrastructure there is the port superstructure, which are the buildings (warehouses, workshops and offices). Infrastructure and superstructure are complemented by the fixed and mobile equipment, and the information and automatization systems.

There is no uniform scheme for the provision of cargo handling services within ports. On one extreme, the PA provides and controls exclusively the supply of cargo handling services (*comprehensive port*). On the other extreme, the PA play no direct operational role (*landlord port*). In this latter case, control for the provision of such services is assigned to private companies allowed to operate within the port zone. The conditions under which this firms are authorized to operate vary from port to port. In some ports, private stevedores are allowed to operate even without a financial arrangement or contract. In other ports, however, the private operator can be requested to contribute to investments on port superstructure, machinery and mobile equipment, and to be part of an agreement that involves renting the basic infrastructure (owned by the PA) for a specific time period. This

⁸ e.g. dam, breakwater, and navigations aids as buoys.

⁹ National road and rail network plus connections with the local network of the port area.

gives the private operators a more stable position diminishing their risk, promoting a policy of finance participation. This practice has been widely applied by the principal ports in Europe.

Although the *landlord* model dominates, there is a wide range of administrative arrangements and contracts throughout the world that lay between the two extremes described (*Goss, 1990*).

Labor

Labor in a port can be classified grossly in two groups: those workers directly involved in cargo handling operations (stevedores or port workers) and those who are not (mostly administrative and maintenance personnel). Traditionally the former group has been strongly regulated, although changes have occurred within the last decades worldwide.

The origins of port workers protection are in the characteristics of such a job, particularly the discontinuous demand and the low degree of specialization. Cargo handling was almost exclusively reserved for registered workers. Labor protection seems to have gone beyond reasonable limits, allowing the workers to exercise monopoly power over port operations. This is the reason why many countries have been introducing legal reforms to increase efficiency by diminishing costs through team adjustments. This is an ongoing process in Europe in general.

The most striking example of labor deregulation took place in Great Britain during 1989, where excess labor was subject to mandatory elimination. Once deregulation was complete, the entrepreneurs were able to legally reduce the average workers' age and to change labor practice dramatically. The new labor rules in British ports have translated into contracts that introduce numerical¹⁰, temporal¹¹, functional¹² and financial¹³ flexibility. This way, the wage rate, labor assignments and labor practices are established locally such that they are adjusted to meet the variable requirements of the customers at the ports. Of course, this has allowed labor cost reductions and a better (more intensive) utilization of labor at the ports (*Turnbull and Weston, 1993a, b*).

Abolishing labor regulation in Great Britain has generated increasing competition within and between ports and has pushed wages down. As a result, and as an answer to the increasing pressure by the customers in the areas of cost and quality, port operators believe that their performance has improved in most areas, including reliability and ship time at the port, beyond direct cost and quality of the service (*Turnbull y Weston, 1993a y 1993b*).

6. Port Regulation in the European Union

¹⁰ Numerical flexibility is obtained by means of part time contracts that can respond to demand fluctuations. Another important element is the effect of the elimination of the predetermined size of a team.

¹¹ Temporal flexibility is attained by means of weekend work and extra hours.

¹² Functional flexibility implies that there is no pre-determined type of work assigned to a particular individual. Each worker has to perform according to needs.

¹³ Financial flexibility is obtained through variable wage levels and a closer relation between work and salary. This has translated in many ports in reductions of salary, where the monopoly powers of workers let high wages.

As stated earlier, due to its strategic role ports have been traditionally under some form of government control, although the legal regime and autonomy varies from country to country. This variety is also present within the European Union, where the attempts at the homogenization of the different regulations within each of the member states have been, so far, unsuccessful.

In Europe, the strategic role of ports have been explicitly recognized by all members of the Union. Their economic relevance is not only reflected by the volume of goods moved (90% of the total imports and exports to and from the EU but also by the fact that maritime transport is presently in charge of 35% of the total commerce among the members, plus some 200 million passengers per year (*EU Commission, 1997*). Furthermore, it is likely that congestion in roads will push part of the land transport towards the sea.

In spite of the evident economic relevance of ports for the EU, they are not mentioned explicitly in the Rome Treaty. This omission generated a debate: are European ports subject to the general provisions of the Treaty? In 1974 the European Supreme Court ended the discussion providing an answer (Case 167/73) that, in essence, states that maritime transport is not under the rules of Title IV but under the general principles of the Treaty.

Nevertheless, for a long time European ports have been operating as if the Rome Treaty was not existent. There has been various initiatives aimed at including ports within the Transport Common Policy, but they have failed mainly due to the different views and beliefs of the members regarding the economic role of ports. The European Parliament had commended a series of studies with the objective of clarifying the issues: the *Kapteyn*, *Seifriz* and *Seefeld* reports (*EU Parliament, 1961, 1967, 1972*). These reports stimulated indeed the activities related with the potential development of a common port policy. Among these, a work group was formed, including a representative of the Economic Commission and representatives of the main European ports. The group released a Report on European Ports (*EU Commission, 1977, 1985*) that identified the main organizational and economic differences, pointing out that here were no substantial differences among the ports regarding services and technical equipment.

Based upon a series of previous reports (*EU Parliament, 1981, 1982, 1983; EU Commission, 1985*), the *EU Commission* released a document (*EU Commission, 1992*) containing the main challenges to a common transport policy identifying without ambiguity the need to consider a transport system at a European scale and to establish the basic elements for the development of so-called transeuropean networks. The report concluded that maritime cargo transport in Europe (cabotage) should be encouraged as a way to alleviate land transport congestion and to contribute to a sustainable mobility strategy that combines fulfilling the socio-economic goals with proper environmental care.

Another report regarding the importance of a common port policy within a unified European market was released by the parliament during 1993 (*EU Parliament, 1993*). The purpose of this study was to provide information about the criteria that should guide that common policy. The main recommendations were in fact very similar to those contained in previous reports and the only new topics were those related with the identification, selection and evaluation of projects that presented common interest, and safety procedures. The report also contained explicit suggestions aimed at changes in the law at a national

level in order to eliminate those legal or factual conditions that led to non-competitive practices against articles 85 and 86 of the Rome Treaty, as the existence of exclusive rights and other forms of dominant situations. On this topic, it is interesting to mention the two main decisions by the European Court of Justice on port issues. In 1991 the Court declared illegal the assignment of exclusive rights to organize port labor to a national company by a State Member, as well as to make it mandatory to employ national port workers only. In 1994 the Court eliminated fares for piloting that discriminated between ships doing short sea shipping and those that carried international cargo. The Court stated that such a practice meant an abuse of a dominant position.

The interest and efforts of the European Union to establish a transeuropean network can be clearly seen in articles 129 of the Maastrich Treaty (1992), although infrastructure planning is still the responsibility of each Member State. In the communication of the Commission (*EU Commission, 1992*) the need of integrating ports in a Trans-European Network was mentioned.¹⁴

During April 1994 the Commission approved a proposal to establish guidelines for the development of a transeuropean transport network. As a result, a port experts group was created within the General Office for Maritime Transport of the EU Commission, whose objective was both to provide guidelines or directions and to identify those ports that should be part of the network. During the discussions the idea that a port network was not needed gained momentum, due to the intense competition among ports. Finally, the EU Commission stated explicitly that “no port of community interest would be identified because this could distort the principle of free and fair competition among ports”. In spite of this, during the discussions many Member States and the EU Parliament emphasized the need to include geographical locations of ports in order to establish an actual maritime transport network. This was resolved by means of a commitment of the EU Commission to prepare a report during 1997 identifying a set of eligible ports following the approach previously taken with the air transport component of the transeuropean network. The European projects could include only those from the selected set, which would be checked and updated periodically. Guidelines were finally approved on July, 1996 (*Aragón, 1996*).

In 1997 the EU Commission released the *Green Book on Ports and Maritime Infrastructure* aimed at feeding the debate on efficiency, on the application of competitive rules, and on the integration of ports to the multimodal European network. The Green Book concludes that regulation at a European level should be developed in order to achieve a systematic liberalization of services in the main ports with international traffic. The debate that followed the release of the Green Book was centered around three aspects: including ports within the transeuropean transport network, deregulation of port services, and public finance of ports and port infrastructure (*EU Commission, 2001*). This translated into a proposal of a Directive on access to the market of port services. After a series of amendments a legislative resolution was approved on March 11, 2003, by the European Parliament (*EU Parliament, 2003*).

¹⁴If ports are integrated into the Trans-european Network, it means that they will be considered as an integrating part of the European transportation infrastructure, which implicitly means that they will be treated as a public service, as any other transportation infrastructure.

This resolution on market access to port services is applicable to ports with an average annual traffic of at least 1.5 million tons or 200.000 passengers¹⁵. It authorizes the liberalization of port services excluding the pilotage, and reinforcing social rules for the self-assistance¹⁶. Besides, self-assistance is limited to ships' crew. Various amendments deal with this point. Other amendments emphasize the need for transparency in financial relations, particularly when state funds are involved, which is aimed at guaranteeing loyal competition among ports. Nevertheless, as pointed out by *Farrel (2001)*, the approved proposal Directive does not impose requirements besides asking the PA to keep separate accounting when acting as service providers.

The position of each State Member regarding the role of ports within the EU has always depended on the economic significance of the ports in their transport systems. Traditionally, both the State Members and the most important ports individually have been opposed to the attempts at building a common port policy by the European institutions, as they perceive a loss or at least reduction of autonomy. However, the reactions to the proposal Directive regarding the access to the market of port services have been varied. Some countries are strongly opposed, as Sweden and Great Britain, and most are supportive, particularly Spain (*Editorial, 2002*).

For synthesis, in spite of the formation of different task forces and the existence of a multiplicity of reports, integration is a process that has just begun for the European ports. It is likely that the lack of progress reflects the wide variety of policy objectives, financial structures and property schemes prevailing in the ports of the EU. Some countries follow a policy that translates into users bearing all costs (the Anglo-Saxon approach) while others intend to encompass all benefits and costs associated to the region in which the port is located (Continental approach). In this latter case, the macroeconomic objectives as employment generation are considered very important. This has evident implications regarding the financial aspects within a port (including pricing and subsidies policies), which generates enough friction to arise to a common attitude and to reach agreements.

6.1. Port regulation in Spain

Spanish ports are subject to a tight regulation of the basic conditions in which economic agents deliver their services within the port area. This regulation takes form through law 27/1992 on State Ports and Merchant Navy (*Jefatura del Estado, 1992*), modified by law 62/1997 (*Jefatura del Estado, 1997*). These meant an important change with respect to the rules before 1992. On one hand ports are given greater autonomy (de-centralization) and, on the other, commercial management of ports are pushed forward.

Within the Spanish port system, two large groups of ports can be distinguished: those considered as of general interest, owned by the State (article 149.1.20 of the Spanish Constitution) and those that are not, namely fishing, sport oriented and non-commercial ports, owned by the corresponding Comunidades Autónomas (article 148.1.6 of the Spanish Constitution). According to article 5 of law 27/1992, ports of general interest are those involved in international maritime commerce, those whose commercial zone of influence affect in a relevant way more than one Comunidad Autónoma, those that serve industries or

¹⁵The Member States can exclude those ports with large seasonal variation in traffic.

¹⁶Self-assistance exists when a firm that could normally hire port services, does it by itself.

entities of strategic importance from a national economy viewpoint, those whose traffic or maritime commercial activities reach a relevant level or respond to an essential need of the general activity of the state, and those considered essential for the security of the national maritime traffic because of technical or geographical reasons, particularly in insular territories.

The basic scheme set by laws 27/1992 and 62/1997 involves a single model for the organization and management of general interest ports. These duties are assigned to a public PA, with management and legal autonomy that has its own budget, that operates under the coordination and control of the Ente Público Puertos del Estado (EPPE). This Ente Público is in charge of the governmental port policy and has general responsibility for the whole of the port system.

From a financial-economic viewpoint the EPPE gets resources from the whole port system and forms a compensation fund for investments within that system such that it is self financed as a whole, thus reducing the need for subsidies and transfers coming from the rest of the state general budget. This implies that the income perceived by the PA must respond to the general objective of reaching the global survival of the system, i.e. cover total costs, as well as the financial equilibrium of each particular port.

PA management should be based on a multi-dimensional criterion that involves “efficiency, economy, productivity and safety”. They should guarantee at each port that certain services are indeed offered (article 66, law 27/1992). Such services could be offered directly or through indirect management by means of concessions or contracts.

The cargo handling services are regulated beyond law 27/1992. These services have specific laws as well (*Jefatura del Estado, 1986* and *Ministerio de Relaciones con las Cortes y de la Secretaría de Estado, 1987*). Since the *Royal Law-Decree 2/86* cargo handling in Spanish ports of general interest is regarded as a public service under State responsibility¹⁷. The aforementioned Royal decree establishes that a state owned firm (called *Sociedad Estatal de Estiba y Desestiba, SEED*) will be formed at each port included in the decree¹⁸. The Royal Decree permits the access to port activities to loading/unloading firms that would like to do it through the system of administrative contracts. Each SEED started operating financially with the contribution of the private firms. Thus, all firms willing to participate in the management of the public service have to participate mandatory in the capital of the SEEDs according to some pre-established objective criteria¹⁹, although the participation of the State in a SEED will be larger than 50% in order to guarantee decision power. On the other hand, the corresponding PA has to set the maximum prices that the loading/unloading firms can charge for their services.

For synthesis, the regulation of the Spanish port system is based upon a scheme that allows the combination of public property of the port infrastructure (docks, land, and so on) with

¹⁷Also in those autonomous ports where the Port Workers Organization existed before 1986.

¹⁸These are public limited companies whose objectives are to ensure that port workers are professionals and that such services are regularly provided.

¹⁹ Fixed labor available, equipment investment, annual rental payment for using port land and facilities, annual volume of cargo handling, participation in port traffic of the different State ports, volume of annual port payroll.

private property of the superstructure (warehouses, cranes, and so on). The public authority determines the conditions under which the private initiative can operate by fixing maximum prices, length and characteristics of concessions, and other conditions.

Presently, a first draft of a Pre-project of law dealing with the production of economic services at ports of general interest is being studied legally. The proposed law assigns a new role to PA, which can become entities in charge of regulation and infrastructure provision only, providing cargo handling and other services subsidiary. This way, the *landlord* PA model begins to gain power with the declared objective of promoting the private sector participation in the financing and exploitation of port facilities and in the provision of services through concessions. The proposed regulation aims at two key objectives: to extend the general rules on cargo handling service (treated as a singular case so far), and to adapt the law to the European framework designed by the EU.

7. Conclusions

Ports are thought and designed to transfer goods between two transport modes efficiently. To achieve this, a number of activities have to be developed within the port premises. As reviewed here they can be organized and managed in many different forms in terms of property and regulation. The relevant goal is to make the whole set work efficiently (*Friedrichsen, 1999*). As the private sector is usually more effective in this type of activities (*Drucker, 1986*), the trend towards the fruitful private-public partnership seems advisable.

Although regulation of activities within the port premises has a long tradition, there has been changes in maritime transport within the last decade that have intensified competition among ports, inducing deregulation processes and increasing private participation within the sector, leading in some extreme cases to total privatization of a port, a trend also induced by international lending agencies. There are strong and good reasons for the presence of a central public agency that should carefully analyze which activities or aspects do need to be regulated and in which way unnecessary constraints or pressure can be avoided. In any case, planning and coordination is needed at a central level along with the necessary initiatives and controls to ensure safety and avoid negative externalities.

Economic activities within a port are multiple and heterogeneous. Among them, cargo handling has been one of the most affected by technological changes on one hand and by competition among ports on the other. The importance of this activity is evident when one realizes that it means from 70% to 90% of a vessel's bill of load (*De Rus et al., 1994*). Besides, the role of the port terminals within the logistic systems make them key actors of the port industry, playing a central role in the increasing competition within the sector.

A relatively large proportion of ports manage cargo handling in terminals through concessionary schemes. As a consequence, the contracts signed between the public and private entities acquire special relevance. The need to establish price and quality regulations on the services provided by these firms will be a function of the competitive pressures at every particular case²⁰. The quantitative estimation of key concepts that synthesize information regarding the cost structure of those firms is indeed necessary to

²⁰ An example of price regulation in the port of La Luz and Las Palmas can be found in *Trujillo et al. (1996)*.

inform the job of the regulators and to facilitate the design of contracts. These key concepts include marginal costs by product handled, and economies of scale and scope, which are essential to determine optimal sizes, product combinations, optimal prices and so on. Perhaps the main challenge for the correct regulation within the sector is to facilitate obtaining the relevant information directly from the sources to flow and feed the technical analysis (*Tovar et al, 2003*). This should be the most relevant duty of a central agency if an efficient set of regulations is to be set. For one of the few examples of the type of information needed and the rich analysis that can be done with it, see *Jara-Diaz et al (2003)*.

Since the creation of the European Union, European ports serve a single *hinterland* that encompasses the common market, and are under the general rules of the treaty that are of interest to port issues. These rules are mainly those that deal with free competition, monopolies and state help. In fact, from the viewpoint of the EU many aspects that are derived both from the institutional characteristics and from the port organization have important consequences that have to be appraised within the free competition paradigm. One possible example is the potential existence of cross-subsidies. British ports claim that continental ports that receive subsidies to finance their infrastructure are larger than if they did not. Others, in turn, claim that British ports were sold to the private sector at a price that is below the market value, which is yet another form of disguised subsidy (*Fleming et al.,1999*).

For synthesis, it seems advisable to reach a large degree of agreement and homogenization of port policies and regulations among the members of the EU, including those legal provisions that are not directly related with ports but affect them. The variety of activities and property forms can and should be used in an adequate combination to achieve both an economically efficient use of port resources and sustainable forms of goods traffic development. In this way, fair competition will be promoted when necessary and regulation will play its role. Releasing information on port activities (costs, production) is a key requisite for a good analysis and right decisions.

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