

# Complementary Economic Evaluation study on the Commission proposal for a Directive on market access to port services

Final Report

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# Management summary

## *Port Directive is second attempt to improve market functioning in ports services sector*

On 13 February 2001 the Commission adopted a Communication to the European Parliament and to the Council “Reinforcing Quality Service in Sea Ports: A Key for European Transport” (the so called Ports’ Package). The cornerstone of this Communication was a proposal for a Directive of the European Parliament and of the Council on “Market Access to Port Services”.

The port services cover services of a commercial value which are provided against payment to port users in a seaport and whose payment is not normally included in the charges collected for being allowed to call at or operate in a port. This relates to the following services:

- Technical-nautical services of pilotage
- Towage and mooring
- Cargo handling operations (loading, unloading, stevedoring, transshipment and other intra-terminal transport)
- Passenger services

The Ports’ Package proposal led to an extensive debate, both within the inter-institutional legislative process, but also with and between stakeholders. On 20 November 2003, the European Parliament in a Plenary Session rejected a compromise text. After rejection of the first Directive by the Parliament, and after various debates the Commission put forward a new and revised proposal for a Directive on market access to port services (“Port Directive”)

This evaluation study analyses the problem situation and provides a complementary economic analysis of the Port Directive and the “do-nothing” option. The study assesses the possible economic, social, safety and environmental effects of the proposed Directive.

## *Methodology is based on three main sources: desk research, interviews and application of effects on example cases*

The methodology for this assessment has been the following:

1. Desk research on available information
2. a. Consultation of stakeholder organizations (see annex for list)  
b. Analysis of questionnaire filled in by most stakeholders
3. Application of effect findings on three example cases

On request by the Client we have not carried out a full impact assessment as established by the Commission, but a so called complementary economic evaluation.

The methodological approach has been the following:

- First assess the problem situation and establish an overview of the market functioning in the port services sector
- Then assess to what extent the content of the proposed directive will influence the situation
- Finally assess what the effects of the implementation of the directive might be on stakeholders and the Community as a whole.

*In Europe situations of market failure probably exist within market functioning of port services*

We have identified within the relevant markets that, scattered over Europe, in all types of services, indicators of market failure are apparent. The evidence has been difficult to gather, and is definitely not comprehensive. The combination of a lack of transparency in publicly available information on the sector, with an –understandable- general reluctance to cooperate in these types of studies by stakeholders, creates this situation.

Information that has been gathered by us shows that:

- In the sector of **pilotage services** in many European ports there is only one supplier of these services, and in many cases these services have not been tendered out, but concessions have been awarded to –former- (semi)governmental bodies, active in an intricate mix of public and private interests.
- Also in the sector of **towage and mooring** this situation exists: suppliers of services are often combined in one supplying entity offering its services to the port, in many cases without public procurement procedures.
- Regarding **cargo handling operations** (loading, unloading, stevedoring, stowage, transshipment and other intra-terminal transport) the situation differs per type of cargo: though it is shown by others that in container handling the tariffs of North West Europe are comparatively low when compared to other parts of the world, it also can be demonstrated that price differences within Europe are still considerable, and cannot be explained by cost differences only. The same applies, maybe even to a larger extent for non-containerised cargo handling (liquid bulk, dry bulk), though factual information in this sector is even less available.
- Moreover it has been shown that in several instances **labour** in ports is relatively well paid when compared to relevant job alternatives in the same region outside the port area.

In a quantitative way it is demonstrated that the reach of the Port Directive is only a small part of the total costs of (international) maritime transport from origin to destiny (approx. 4 to 6%). Therefore the overall effect of the Port Directive on the levels of transport charges will be limited.

*Port Directive aims at removal of entrance barriers in port services by providing a legal framework based on authorisations*

In its essence the Port Directive is aimed at improving the market functioning in defined port service sectors by providing a legal framework based on authorisations that are provided to service providers by an independent authorisation body. More specifically the Port Directive is aimed at establishing market access to port services and thereby avoidance/reduction of inefficiencies and monopoly profits. After some time period this

will lead to lower charges and/or better quality of service. The main comments on this line of reasoning from the sector are threefold:

1. Increased bureaucracy due to independent authorisation body might offset intended benefits
2. System is very dependent on just concession periods and proper compensation schemes
3. If existing regulation on safety etc is not properly enforced the new system might lead to less safety in ports

### *Possible effects of the Port Directive*

The main findings of our stakeholder analysis, in combination with our desk research are presented below. The column “remarks” contains the justification of the effect; this is in most cases the stakeholder responses complemented with our own assessment and in some cases only our assessment (desk research, interviews, modelling).

**Table 1 Main effects of Port Directive**

Type of effect	Effect	Remarks
<b>Level of service charges</b>	-15% to +5%	<ul style="list-style-type: none"> <li>- Partly based on strategic answers, aggregate + expert opinion: downward trend achievable.</li> <li>- A distinction should be made between technical-nautical services on the one hand, and cargo handling charges on the other</li> <li>- With respect to technical-nautical charges, effects might be considerable (up to -15%), per port strongly depending on levels of competition already attained. - This applies both for smaller and larger ports</li> <li>- Regarding cargo handling charges, the effect will also vary between individual ports. Smaller ports might see relatively more important effects than larger ports. The foregoing of course all individually dependent on the levels of current market functioning that have already been already attained.</li> <li>- In the Mediterranean ports the effects might be more considerable than those in North Western Europe.</li> </ul> <p>The effect(s) on SSS will be larger than those on intercontinental transport</p>
<b>Trade generation</b>	Neglectable	
<b>Trade distribution</b>	Neglectable	
<b>Transport operations</b>	<ul style="list-style-type: none"> <li>- Possibly small shifts between Atlantic ports, mainly containers, less bulk cargoes</li> <li>- Small shifts between Mediterranean ports</li> <li>- Slightly increased competitiveness of Mediterranean ports in Central Europe</li> <li>- Shift from road transport towards SSS</li> </ul>	
<b>Income effects</b>	Mostly income <b>distribution</b> effects from port service providers to port	No net income effects are expected since the trade generation and the trade distribution patterns are not

<p><b>Substitution</b> between smaller ports with own captive hinterlands</p>	<p>users/consumers (limited effect, maximum distributional effect up to 1 billion € for EU as a whole) Relatively small</p>	<p>expected to change  Due to lack of fierce competition</p>
<p><b>Substitution</b> between North West European ports and Mediterranean ports</p>	<p>If Mediterranean ports increase their efficiency and lower their charge levels, they will become more competitive in areas like Austria, Southern Germany, and similar regions</p>	<p>Mainly containers, less bulk cargoes</p>
<p><b>Substitution</b> between road/rail transport and SSS</p>	<p>Small shift from road transport towards SSS</p>	<p>Relatively low price elasticity, at this moment still a relatively small market</p>
<p><b>Turnover</b> existing service providers</p>	<p>Might decrease up to 10% due to increased competition in combination with –possibly- too many authorisations.</p>	<p>This might offset the tendency towards increasing scales and increasing turnover per provider</p>
<p><b>Turnover</b> new entrants</p>	<p>Additional when compared to current situation</p>	
<p><b>Turnover:</b> cross subsidizing</p>	<p>Preventing cross-subsidizing practices might lead to nonviable routes and ports unserved</p>	
<p><b>Security</b> <b>Environment:</b> damages related to accidents</p>	<p>Small Possibly negative: depends on safety perspective, between small effect, and increased chance on accidents due to less safety</p>	<p>If competent authorities will perform their regulatory role the effect on accidents should be limited</p>
<p><b>Environment:</b> emissions</p>	<p>Small, positive: related to shift from road to SSS.</p>	<p>Current substitution possibilities are modest, future benefits will increase with growth SSS</p>
<p><b>Social</b> conditions in general</p>	<p>- Long term effects will create change in current labour conditions: less favourable conditions for current labourers, improved conditions for new entrants on the labour market. - The short term effects may be negative due to possible social unrest</p>	<p>In general labourers working currently in service providers expect negative effects, port users expect positive effects</p>
<p><b>Salary levels</b></p>	<p>More competition should lead to market conform salary levels</p>	<p>Stakeholders have different opinions on this issue. Could not be determined by consultant.</p>
<p><b>Size labour force</b></p>	<p>-1 to +4% according to stakeholders, overall slight increase possible</p>	<p>Yet undetermined: increased market functioning might lead to slight decrease in staff size at current service providers, however this is expected to be compensated by new employment created at new entrants in combination with expected future growth of port throughputs</p>
<p><b>Number working hours</b></p>	<p>Expected to decrease</p>	<p>Stakeholders differ in opinion (-16 to +4%), however some decrease is expected.</p>

<b>Quality of labour</b> (proficiency, training, health, safety)	Negative or positive	Depending on stakeholders' point of view. Could not be determined by Consultant.
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*Three example cases show relatively modest effects*

Case 1 shows that the market share of short sea shipping for the most successful container service option concerns a route connecting the ports of Lisbon, Southampton and Rotterdam. The estimated market share of the container route would be 23% of the cargo carried by road between West Europe and Portugal at present. A decrease of all port related charges with 10% resulting would lead to an increase in the market share of 24%. The volume of this route is however small compared to other routes.

Case 2 shows that port related charges for the ports in the Le Havre - Hamburg port amount to about €100 per TEU. Of these the cargo handling charges arrive at 82%, leaving 18% for all ship related charges. Of the latter about half concern harbor dues, which concern all charges for the access of a port. Charges for marine services such as towage, pilotage and (un)mooring range from €1.3 to €4.1 per TEU and therefore constitute only a small part of all charges on the ship in port and much less of the total door-to-door costs.

Case 3 shows that the overall conclusion of the deepsea container example in the Hamburg Le Havre range is that the effect of a relatively high decrease in port related charges have a limited effect on the market shares of the ports in the Hamburg – Le Havre range. The assumed cost reduction has the largest effect on Hamburg, mainly for transshipment containers.

*Expected effects per type of port might differ*

It has been difficult to assess the expected effects per port type in a detailed way. In general four types of port management can be distinguished; the privately owned and operated port, the landlord port (publicly owned land, privately operated port services), the tool port (publicly owned land and port tools, privately operated labour) and the service port (all services provided by public bodies). The complicating factor was that per type of management model, still different types of procurement schemes and efficiency levels can be discerned. Table 2 therefore describes the averaged general directions of effects to be expected, specific outcomes per port can differ considerable around these averages.

**Table 2** Effects Port Directive per port type

	Charge levels	Investments	Safety	Environment	Social
Private port	Limited when proper procurement is assured	Limited when proper procurement is assured	Limited when proper procurement is assured	Limited when proper procurement is assured	Limited when proper procurement is assured
Landlord port	Slightly Downward when improved public procurement is assured	Slightly upward when appropriate concession periods are established	Small effect when regulation is properly adhered to	Shift road/rail towards SSS possible	Lower wages existing service providers, shift of labour towards new service providers, shift of income to port users
Tool port/service port	Downward when improved public procurement is assured	Upward when appropriate concession periods are established	Small effect when regulation is properly adhered to	Shift road/rail towards SSS possible	

### *Monitoring scheme*

At present there is no specific monitoring and evaluation system for the functioning of the port services sector. The monitoring of the outcome indicators is best done through statistical data sources kept by national and international statistical agencies and ports authorities. The main challenge is defining the methodology with which the indicators actually can be measured. In the complex field of port operations, and given its varied interests, it is easy imaginable that a theoretically sound and attractive monitoring system aimed at providing transparency and opportunities for benchmarking and comparison will fail to be established in practice

### *Concluding remarks*

The overall aim of the Port Directive, creating market access to port services, is a valid one. Currently the service provision in many ports is charged at levels above relevant benchmark figures. There are signs of market failure in the EU port sector, due to (i) high barriers to entry caused by monopolistic/oligopolistic structures of the market of port services and (ii) market distortions caused by public financial support to ports and/or port service providers. The envisaged effects of the Port Directive generally tend towards the right direction, i.e. reducing both the barriers for entry and market distortions leading to more efficient provision of port services with consequential reduction of the port services charges.

To what extent the current set of proposals in the Directive in reality will successfully deliver this situation remains to be seen, and is not answered by our effect study. Some obstacles still need to be solved: prevent unnecessary side-effects of the Directive, prevent transaction cost related to increased bureaucracy, ability to create transparent information and reliable data. Clearly some elements of the current Directive (issues related to for example self handling, concession authorisations, concession length, compensation schemes etc.) need be thought over before one-on-one implementation.

However, the discussion arena has shown to contain also some non-rational arguments, put – sometimes strongly- forward by several stakeholders. In this respect it is our overall assessment that there seems to be a combined opposition to the acceptance of the Port Directive of both port service providers and port labourers (or their representatives). Due to their opposition, aimed at defending their current -often privileged- interests, the port owners/authorities and to some respect also the port users seem reluctant to support the necessary changes aimed at by the Port Directive, since the latter will endure the most of the negative short term effects related to the transition path that has to be followed. It is taking a stance (and keeping it) in this trade-off between the possible short term negative effects, and the expected long term possible societal benefits that lies ahead for the European decision makers.

# 1 Introduction

## 1.1 Background

On 13 February 2001 the Commission adopted a Communication to the European Parliament and to the Council “Reinforcing Quality Service in Sea Ports: A Key for European Transport” (the so called Ports’ Package). The cornerstone of this Communication was a proposal for a Directive of the European Parliament and of the Council on “Market Access to Port Services”.

The port services cover services of a commercial value which are provided against payment to port users in a seaport and whose payment is not normally included in the charges collected for being allowed to call at or operate in a port. This relates to the following services:

- Technical-nautical services of pilotage
- Towage and mooring
- Cargo handling operations (loading, unloading, stevedoring, stowage, transhipment and other intra-terminal transport)
- Passenger services

At present no Community regulatory framework exists for these services. Despite the freedoms and competitions rules as set by the Treaty, port services delivery restrictions are still in place regarding access and fair and equal treatment of potential services providers with consequences for quality and costs of services. Therefore the Commission proposes to introduce specific and clear rules on access to the port services market.

The Ports’ Package proposal led to an extensive debate, both within the inter-institutional legislative process, but also with and between stakeholders. On 20 November 2003, the European Parliament in a Plenary Session rejected a compromise text.

However, the Commission believes that the need to establish a Community legal framework for access to the provision of port services remains necessary, in the interest of operators, authorities and consumers and has been made even more acute during the last three years. Therefore the Commission brings forward a new proposal for a Directive on market access to port services (“Port Directive”). The new proposal is based on the original (2001) and amended proposal (2002), but contains notable changes, in particular regarding the protection of social rights and mandatory authorisations.

## 1.2 Purpose of the study

Given this background, the present evaluation study aims at analysing the problem situation and providing a comparative analysis of the proposal for a Directive on market access to port services and the “do-nothing” option. The study is aimed at assessing the economic, social and environmental effects of the Directive.

The purpose of the evaluation study is defined as follows.

### Purpose of the study

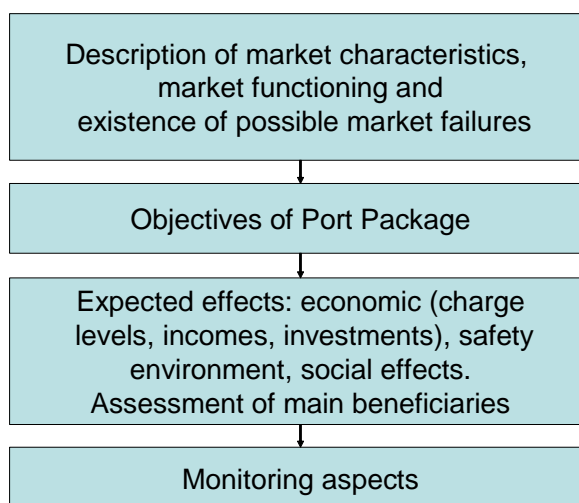
The evaluation study will analyze the effect of the Commission proposal for a Directive on market access to port services. In particular, the study will examine the economic effect and related social and environmental aspects compared to the “do nothing” option.

## 1.3 Methodology

The main focus of the study is on identifying and evaluating effects of the proposed Directive in market access to port services (COM(2004) 654 final) at a European level. We will focus on evaluating the *main* effects of the proposed Directive. Our project approach is adjusted to this evaluation need. This evaluation therefore cannot be considered as an “impact assessment” as defined by the EC.

To quantify all the effects more detailed studies are necessary, within this evaluation study the effects will be limited to qualitative descriptions including a judgment on the importance of the respective effect in terms of e.g. “high”, “significant”, “small” and “negligible” at a European level only (EU-25), when a quantitative assessment is not possible.

The following approach has been used:



The necessary information has been gathered by desk research of the broad spectrum of literature on this subject, the application of our LOGIT model on container handling in North-West Europe and interviews with European stakeholders.

The approach of the latter has been based on a combination of a structured questionnaire and subsequent interview. The questionnaire was sent prior to the interview, in order for the interviewee to already familiarize with the questions to be asked. In all cases, an interview has been carried out, also to make sure the questions were correctly interpreted. It should be noted that our questionnaire developed is rather short on explanations, and provides some unclarities. Therefore the explanations provided during the interviews proved to be essential.

In almost all cases (7 out of 9), the questionnaires were completed by the interviewee after the interviews. The completed questionnaires were analyzed and in case of doubt regarding the interpretation of the effect explanations were sought with the interviewee. Many of the completed questionnaires already provided some additional explanations or clarifications on the answers provided.

**The effects of the implementation of the Port Directive as presented in this report is based on our own assessment of all information gathered in the questionnaires, interviews and desk research.**

## 1.4 Structure of the report

In the next chapter the problem analysis is described.

In chapter 3 the objectives and indicators are addressed.

In chapter 4 the economic, environmental and social effects of the Port Directive are described and assessed.

In chapter 5 we describe a possible system for the monitoring and evaluation of the proposed Directive.

In chapter 6 the conclusions following from this evaluation study are presented.

## 2 Problem analysis

### 2.1 Introduction

It is believed that liberalisation of port services, through the introduction of a Directive, will benefit consumers and businesses. In the short-term the interests of employees and certain other stakeholders might be negatively influenced. In order to judge on the effects, a clear identification of the problem is needed.

An important aspect of the problem analysis is whether market failures or market imperfections exist in the functioning of the port services market in the EU-25.

This chapter describes and analyses the functioning of the port services market. To this end the supply and demand side are both reviewed. This means that in the next paragraphs successively the market for port services and the competitive environment are described.

### 2.2 Description of port services

In general port services could be described as services of a commercial value which are provided against payment to port users in a port. These services are clustered in services “on the ship”, “on the cargo” and “other services”.

#### *Port services and charges on the ship*

Both port authorities and (semi)-private companies provide the port services provided on the ship. The provision of maritime access, general facilities in the port basin, and the provision of berthing space are all examples of services provided by the port authorities and concern a natural monopoly. Other services, like pilotage, towage and mooring are all conducted by specialised companies and are under scrutiny of this Directive since these are “... of a commercial value and are provided against a payment to port users in a port and this payment is not included in the charges collected for being allowed call and or operate in a port”.

The following table provides an overview of all port services on the ship, the related port tariff and the generally involved authority.

Table 2.1 List of port services and charges on the ship

Nr.	Description of service	Related port tariff	Authority involved
1/1	Maritime access: general facilities related to port access as far as outside the port area: Provision of aids to navigation Provision of port access	Conservancy dues Lighthouse dues, aids to navigation dues	Harbour Master
1/2	General facilities and navigational services in the port comprising: Navigational passages/VTS/Necessary services of fight against fire/Wave barriers/Pollution control/Maritime police	Port dues	Harbour Master
<b>1/3</b>	<b>Pilotage services. Pilotage from the station outside the port to the berth or in opposite direction and also movements of ships move from one berth to another within the port</b>	<b>Pilotage tariff</b>	<b>Pilotage company/ Harbour master</b>
1/4	<b>Towage services</b>	<b>Towage tariff</b>	<b>Towage company Harbour Master</b>
1/5	<b>Connecting the ship cords and mooring on the quay or buoy and un-mooring</b>	<b>Mooring / un-mooring tariff</b>	<b>Pilotage company</b>
1/6	Occupation by the ship of the assigned berth, whether quay, buoy or if mooring on the lock	Berth tariff	Port Administration
1/7	<b>Shipping different merchandises (general merchandises/solid/dry/liquid etc.) from the quay to the ship and unloading merchandises from the ship to the quay with use of cranes and ship equipments</b>	<b>Stevedoring Loading unloading tariff Cargo handling on board</b>	<b>Private stevedoring company</b>
1/8	<b>Providing additional services to load and unload the merchandises, which require special care, whether due to their special nature or the way they are shipped, e.g. (for frozen merchandises refrigerating containers)</b>	<b>Special cargo handling tariff Extra movement tariff</b>	<b>Private stevedoring company</b>
1/9	<b>General use by the passengers (incoming or travelling) of the facilities and services intended for them like (Passenger rooms and stations/Mean of transport...etc.)</b>	<b>Passenger dues</b>	<b>Private companies Port Administration</b>
1/10	Providing the ship with its needs. E.g. electrical current, water, fuel, telephone as well as providing assistance services (garbage collection/building cleaning)	Ancillary services tariff	Private companies

The services presented in “bold” are under scrutiny of the Directive. The pilotage and towage services are generally provided by pilotage companies, by towage companies or by specialised companies depending on the port.

The ancillary services are less important in qualitative terms and therefore not considered as these are not required for each ship calling.

### *Port services and charges on the cargo*

The cargo handling services are often provided by one type of company, the terminal-handling operator. These services include:

Table 2.2 List of port services and charges on the cargo

Nr.	Description of service	Related port tariff	Authority involved
2/1	General services to the goods provided by the general facilities and areas during the good's presence in the port and its circulation therein	Port due on cargo Wharfage	Port Administration
<b>2/2</b>	<b>Cargo handling on quay related to receiving and delivery of cargo</b> <b>Other handling of goods</b>	<b>Cargo handling tariff</b>	<b>Terminal handling operators</b>
<b>2/3</b>	<b>Transshipment of merchandises in the port stores and spaces of the port after the authorized period</b>	<b>Transshipment tariff</b>	<b>Port Administration</b>
2/4	Storage of merchandises in the port stores and spaces of the port after the authorized period	Cargo storage tariff	Port Administration
2/5	Providing the other services for the merchandises	Other cargo services tariff	Port Administration Free Zone Companies

It should be noted that terminal-handling operators often offers both the cargo handling (2/2) and transshipment services (2/3) and storage services (2/4), however this situation differs per type of port and per type of commodity. Another important remark relates to the existence of vertically integrated companies that offer different handling services. This relates to the following commodities:

- Crude oil and petroleum products
- Dry bulk commodities such as grain, coal, iron ore, alumina and bauxite

The analysis on terminal handling services will be limited to terminals where competition plays a role, i.e. the common user terminals and these concern containers and break-bulk.

### *Other types of services and charges*

To complete the overview of port services, some other types of services are distinguished and presented below.

Table 2.3 Other types of port services and charges

Nr.	Description of service	Related port tariff	Authority involved
3/1	Rent of forklifts, cranes etc.	Equipment hire	Port Administration
3/2	Rent of trailers, launches,	Rent of vessels	Port Administration
3/3	Fire fighting, rescue	Services hire	Port Administration
3/4	Use of land, buildings, silos, constructions etc.	Real estate tariff	

These other services are all less important in terms of quantity; furthermore these services are also not covered in the proposed Directive.

#### *Port services analysed*

The above description of all port services has resulted in the following selection of services to be analysed:

- Pilotage
- Towage
- Mooring
- Container handling and transshipment
- Terminal handling break-bulk and transshipment

## 2.3 Description of competitive environment

#### *Intra-port competition*

The competitive environment in the EU-25 ports has initially been analysed through an inventory of the number of suppliers in each of the port services as described. This inventory has been made using public available sources, mainly through the collection of information as provided by the different port authorities (through internet) and port handbooks.

The inventory is restricted to the most important seaports in each country, i.e. the 47 seaports listed in the ESPO factual report<sup>1</sup> have been subject of this inventory.

It should be mentioned that the proposed Directive will be applicable to all seaports which belong to the “Category A List” i.e. seaports of international importance with a total annual traffic volume of not less than 1.5 million tonnes of freight or 200 000 passengers<sup>2</sup>. The total number of seaports that is affected is estimated at 368.

The competitive environment within a port, i.e. intra-port competition, varies greatly with the size of the port, the shipping sector and the type of service. In general, one can say the bigger the port, the bigger the potential role of competition. Common user shipping sectors such as container, break-bulk and ro-ro offer a bigger potential than specialised shipping sectors such as liquid and dry bulk shipping sectors. The questionnaire for the stakeholders is designed in such a way that these distinctions can be identified and measured. Of the technical-nautical services towage services offer the greatest potential as appears from development in the large North Sea ports.

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<sup>1</sup> ‘Factual report on the European Port Sector 2004-2005, ESPO’

<sup>2</sup> Decision No **1692/96/EC** of the European Parliament and the Council of 23 July 1996 on Community guidelines for the development of the trans-European transport network. Amended by Decision No. 1346/2001/EC and Decision No. 884/2004/EC.

Table 2.4 The number of port service providers in selected EU ports belonging to the category A list

		Technical-nautical services			Terminal handling & transshipment		Through-put (mln tonne 2003)
		Pilotage	Towage	Mooring	Container	Break-bulk	
Belgium	Antwerp	1	1	*	12	12	126,1
	Zeebrugge	1	1	1	4	5	25,1
	Ghent	2	1	1	1	9	22,6
Cyprus	Limassol	1	1	1	1	1	3,0
	Larnaca oil terminal	1	1	1	1	1	1,9
	Vassiliko	1	1	1	1	1	1,4
Denmark	Aarhus	1	1	1	2	1	10,0
	Fredericia	1	*	*	1	1	16,5
	Statoil-Havnen	*	*	*	NA	NA	8,3
Estonia	Miiduraana	1	*	*	NA	2	2,3
	Tallinn	1	3	*	3	7	37,0
	Vene-Balti	1	*	*	1	2	2,6
France	Marseille	1	1	1	3	13	92,4
	Le Havre	1	1	1	1	7	67,4
	Dunkerque	1	1	1	1	19	45,8
Germany	Bremerhaven	3	2	*	15	8	42,5
	Hamburg	2	8	*	25	22	93,6
	Wilhelmshaven	2	3	*	*	*	39,4
Greece	Piraeus	1	Private Pool**	1	1	1	21,4
	Eleusis	1	Private Pool**	1	1	1	8,4
	Thessaloniki	1	Private Pool**	1	1	1	14,9
Italy	Genova	1	1	1	4	12	46,9
	Trieste	1	1	1	*	*	41,5
	Taranto	1	1	1	1	6	35,3
Latvia	Liepaya	*	2	*	*	3	4,9
	Riga	*	*	*	2	18	21,6
	Vetspils	*	*	*	1	3	27,3
Lithuania	Klaipeda	*	2	2	3	5	30,2
Malta	Marsaxlokk	1	4	1	1	1	
Netherlands	Amsterdam	1	1	1	4	8	40,8
	Rotterdam	1	3	1	19	9	307,4
	Velsen-IJmuiden	1	1	1	NA	2	18,3
Poland	Gdansk	1	1	2	1	2	21,3
	Gdynia	1	1	1	3	1	9,7
	Szczecin-	*	*	*	1	1	17,3

	Swinoujscie						
Portugal	Leixoes	1	1	1	1	8	12,8
	Lisboa	1	6	1	3	12	11,3
Slovenia	Koper	1	1	1	1	1	11,0
Spain	Algeciras	1	3	*	2	2	48,3
	Barcelona	1	2	*	4	24	29,9
	Valencia	1	1	*	3	17	30,5
Sweden	Brofjorden Scanraff	*	*	*	NA	NA	19,4
	Goteborg	*	2	*	*	2	32,4
	Trelleborg	*	*	*	NA	1	10,7
UK	Grimsby & Immingham	*	*	*	2	2	55,9
	London	1	6	*	7	8	51,0
	Tees & Hartlepool	1	3	2	1	*	53,8

\*: Probably only one supplier, to be confirmed

\*\*: Pool from licensed private companies

NA: Not applicable, the respective port only has liquid and/or dry bulk

The following conclusions are drawn from above table:

- In most ports only one supplier of pilotage services exists. Competition for pilotage by existence of several service providers seems only to be in place in the German ports.
- The mooring and un-mooring services in most ports are also supplied by only one company.
- The number of providers of towage services per port is somewhat higher compared to pilotage and mooring.
- Several suppliers already offer the terminal handling services. The number of suppliers increases with the size of the port (in throughput).

From this table can not directly be concluded that monopolistic behaviour exists in ports with only one provider of certain types of services. This aspect is dealt with in section 2.4.

The above conclusions are derived without taking account of other characteristics of inter-port competition (market shares, possible effect on charges, etc.)

#### *Inter-port competition*

Inter-port competition is fierce in many parts of the European Union and the container ports in West Europe provide a good example with the annual throughput figures acting as some kind of a hit list. The competitive situation keeps the players “sharp” and makes them pointing at all types of unfair competition and subsidies.

There is little published on the effect of charge changes on demand for port services. In the framework of the ATENCO project elasticities for the container sector were estimated

on the basis of simulations performed by ISL<sup>3</sup>. The price elasticities, based on a 10% change of the port dues, for selected Northwest European container ports were:

**Table 2.5 Price elasticities of 10% change in port dues**

Port	Price elasticity
Bremen ports	4.4
Hamburg	3.1
Rotterdam	1.5
Antwerp	4.1
Le Havre	1.1

Source: ATENCO

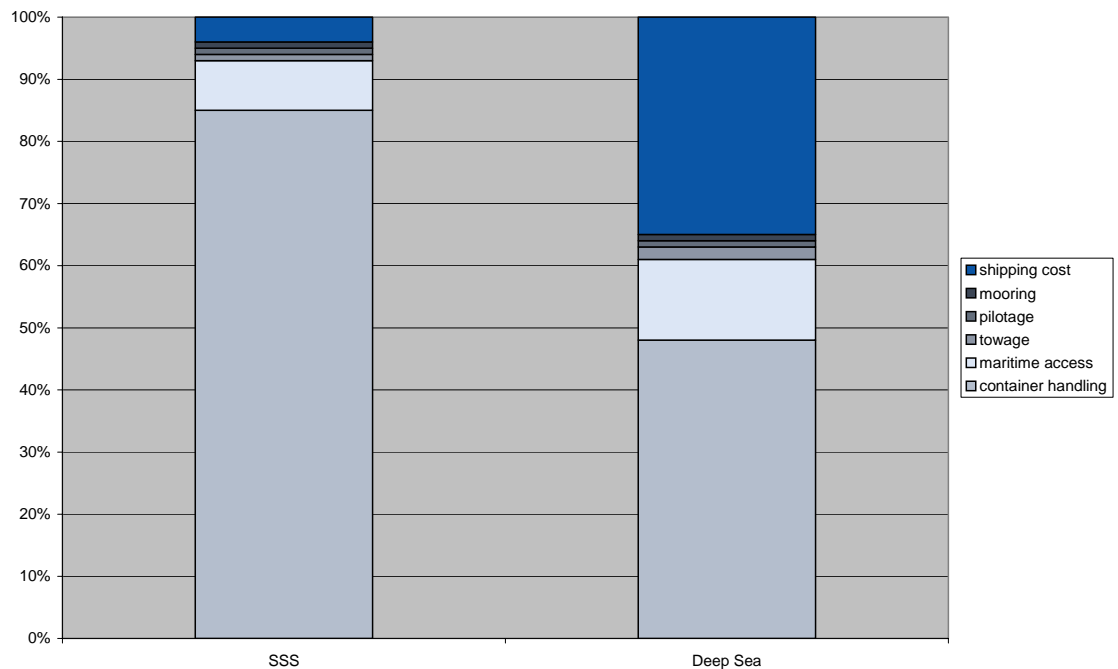
In an economic analysis of the “Maasvlakte II project” for the expansion of the container port of Rotterdam the parameters of a container routing choice model were estimated with regression analysis in order to estimate port competition<sup>4</sup>. The analysis showed that by increasing the charge with 10%, demand will decrease with 12%, which corresponds with an elasticity of 1.2, which is below the 1.5 according to the simulations by ISL.

Port costs have a great effect on the short sea shipping services given the high value of these costs compared to port-to-port shipping costs (figure 2.1). Their price elasticity is therefore high. Short sea shipping is an important element of the intra-European transport policy given its environmentally friendly character. Therefore in chapter 4 some cost comparisons will be made between short sea shipping and land transport costs and an assessment will be made of the effect of port costs on the modal split.

**Figure 2.1 Difference in cost structure between SSS and Deep sea container transport**

<sup>3</sup> A simulation and forecasting model of world container shipping including port hinterland traffic, ISL Bremen 1997

<sup>4</sup> A model on container port competition, An application for the major West European container hub-ports, Simme Veldman & Ewout Bückmann, Maritime Economics and Logistics, 2003, 5 (3-22)



## 2.4 Market functioning and the existence of market failures

The aim of this section is to show that the probability of the existence of market failures in the port services markets is a realistic one. In contrast with many other sectors, the type of information that is needed for an in depth and port specific analysis is simply non-existent. However, we conclude that, based on the literature, data and information shown in this section, market failures probably do exist within the European Union, to a certain degree in all relevant types of services that are subject to the Port Directive. As indicators for the existence of market failures we have used the following:

- Number of service providers
- Level of tariffs compared to other competitors
- Level of wages compared to other sectors
- Procurement procedures

Each of these indicators alone would probably be insufficient to demonstrate the plausibility of existence of market failures, however, we have found that for most service sectors two or three of the four indicators applied simultaneously, which altogether lead to our assessment that market failures are likely to be existing in these specific sectors.

### *Single providership of services does not imply monopolistic behaviour per se*

For most ports it appears difficult to have more than one operator, just because of the scale of operations which generally is simply too small to have more companies working effectively.

The former does not mean that competition is not possible. With regularly and publicly procured concession agreements also in these situations market functioning could be introduced. It is of great importance however that the conditions of new tendering procedures for port services are set in such a way that they contribute to a level playing

field. If for instance new concession periods are set too short then there is a clear advantage for existing providers, who probably have already invested in the past and are therefore ahead of new entrants in the market (perhaps the existence of sunk costs which may lead to lower charges in the future (especially when technical lifetimes of equipment are longer than economic lifetimes), no transition costs incurred, information advantage). In case the concession period is set too long this might create not enough flexibility to take advantage of new market conditions (new technologies, higher labour productivities, etc).

Currently the Directive does not contain a transition period. This would to our opinion lead to a market shock with possible disruption to the operations of the market. An alternative, of a gradual introduction of competition (through transition periods) will permit both market operators and administrations sufficient time to ensure a smooth application of the directive. Separate attention is therefore needed towards the transition period that might be needed (the current directive does not foresee one), and the compensation schemes that are to be applied when current service providers have to be “bought out”.

- Regarding the transition period it is clear that per port an analysis of the current concessions is needed, combined with an assessment of the transaction costs related to the implementation of the Directive. Based on a financial cost-benefit analysis an optimal path of transition should be elaborated, taking into account the specifics of the port.
- The present Directive also provides provisions of “compensations” for existing operators in case a new entrant wins a tender and consequently the present provider is pulled out. If these compensation awards to existing operators are not calculated prior to the call for tender and made publicly available, then there will be an asymmetry of information which might lead to market barriers for entrants. Also a “wrong” level of the compensation would clearly distort market functioning. The assessment what is “right” in this respect, should be carefully considered before implementing the scheme, and is probably port and situation specific, perhaps to be settled by a transparent scheme of arbitration.

In the next part of this section it is shown that currently in Europe as a whole the procurement procedures of these services generally do not yet reflect this ambition for more competition, thereby allowing for market failures.

#### *Pilotage services*

The number of port service providers varies per port and type of service. With **pilotage services** most of the European ports as listed in table 2.4 generally have one provider being active with the exception of the German ports. This means that pilotage has traditionally been considered as a public service. It is no competition in these ports, so that a service to the subsequent pressure to keep costs low is absent. As a result port users provided by the tariff may be high because of high labor related costs State and carried out by the pilots, even making pilots civil servants in several countries or ports (amongst others in particular several Belgium, Italian, Portuguese and Spanish ports). In the majority of the countries the pilots of the different ports are self-employed and organised in co-operative groups (and only a small number of companies), which are bound to a specific port or region.

A form of competition not registered in this respect concerns the arrangement of the ‘pilot exemption’, where the master of a ship calling frequently at a port is allowed to do the pilotage task provided certain requirements are met. This applies for instance to the Dutch ports. With the introduction of this arrangement the pilot organizations involved reacted by giving tariff discounts for ships calling at a regular basis and by putting additional requirements for the masters concerned. An example of this for Dutch ports is the requirement to master the Dutch language.

The pilots are working under the provisions of national Pilotage Acts that are being supervised by the Ministry of Transport or by regional public authorities. In general these Pilotage Acts regulate the borders, management and arrangements of pilotage districts and set out the issues to be considered by the Port Authority, which in most cases is appointed as contracting authority. The Port authorities – in most of which the public authority is a main shareholder - have the power to set its own criteria for the number of Pilots needed for each Port, the qualifications and selection of new Pilots, the training standards, and evaluation for the Pilot body.

Even if there is more than one pilotage company active, this does not automatically mean that there is competition. It may happen that pilotage services are divided by area such as services within the harbor basin only and services outside the harbor area. In this case there are in fact two separate markets with one supplier each.

With a few parties only it also may happen that there is collusion and that competitors meet each other to making charge agreements.

Tariffs for pilotage are set by the port authority, which has to look out for the users’ interests. In many countries the tariffs agreements are supervised by a public authority (local, regional or national). This means that in some countries there is a possibility for some kind of cross-subsidization between ports. The relation between costs and revenues is blurred and the charge of port services is not cost-based. The UK ports are a main exemption. In its mainly commercial ports, tariffs are decided on a commercial basis in each port authorities by the port authorities. These tariffs vary considerably.

In some countries pilotage tariffs are set at the national or a regional level meaning that there is some kind of cross-subsidization between ports. The relation between costs and revenues is blurred and the charge of port services is not cost-based.

In the majority of port there is virtually no competition for the provision of pilotage services. The pilotage services are mainly provided through “semi-public” cooperatives without public tendering.

It should be noted that the providers of pilotage services make the strongest claim on maritime safety, which puts them in a somewhat special situation.

Even if there is more than one company active, this does not automatically mean that there is competition. It may happen that pilotage services are divided by area such as services within the harbor basin only and services outside the harbor area. In this case there are in fact two separate markets with one supplier each.

With a few parties only it also may happen that there is collusion and that competitors meet each other to making charge agreements. For example the height of pilotage dues in the ports of Rotterdam and Antwerp have long time been decide upon in mutual consultation.

In cases where a concession has been granted to a private company, such as in Antwerp or Zeebrugge, the company holds a concession for 8 years and the port authority may decide to grant a concession for this service to a third party who complies with those conditions as may be determined by the Antwerp Port Authority regarding the assurance of the safety of the navigation, the general quality and organisation of this service, the minimum requirements for physical equipment and the numbers and professional skills of its personnel. This has never happened and the company has held the concession uncontested for almost 40 years now.

As a subsequent of the lacking competition pressure to keep costs low is not very strong. As a result the tariff may be high because of high labour related costs in particular.

A form of competition not registered in this respect concerns the arrangement of the ‘pilot exemption’, where the master of a ship calling frequently at a port is allowed to do the pilotage task provided certain requirements are met. This applies for instance to the Dutch and Spanish ports. With the introduction of this arrangement the pilot organizations involved reacted by giving tariff discounts for ships calling at a regular basis and by putting additional requirements for the masters concerned. One of these requirements for the Dutch and Spanish ports is that the pilots have to master the national language.

Our additional survey has shown that in most countries the process of the introduction of market functioning in the pilotage sector has not really started. In many countries a structure, in which a pilotage body, based on an exclusive concession with the consignor, executes the pilotage services is still common. These concession contracts generally have not been publicly procured.

### *Towage services*

For **towage services** some similar remarks can be made as for pilotage services. In most ports there is only one towage company and in a number of ports a small number of service providers. In the case of some ports the number of players may be over-estimated as some may in reality be active in towage markets other than towage for berthing and unberthing of ships calling at the port, but instead for offshore and push barge business. Of the three type of marine services discussed here the towage market seems to be most suitable for involvement of more than one player, thereby possibly enabling the market functioning as envisaged by the Port Directive.

Although a large number of the European ports allow free access to competing towage operators, only few ports have more than one operator in residence. The provision of harbour towage services exhibits natural monopoly characteristics at the level of individual ports. Particularly in smaller ports there is insufficient business to support more than one operator and over the years operators have had to amalgamate to remain viable. Representatives of the towage sector have indicated during stakeholder interviews it should be considered that even where it is possible for a new entrant to challenge an

incumbent towage operator (as is likely to be the case in the larger ports), only one provider will survive in the long run.

Competition in such a market can still take place. A contestable natural monopoly may replicate the outcomes of a workably competitive market. Whether a market is contestable depends on whether there are barriers to entry and exit. Entry and exit barriers are simply factors that allow an incumbent firm to earn monopoly profits – their essence is that they involve an asymmetry between the incumbent and potential entrants. There is a range of entry restrictions into the towage industry in European ports, from no restrictions on entry and no limits to the number of firms that may operate (ports of Rotterdam and Tilbury), to complete restriction. In French ports competitive tendering for harbour towage services is commonplace.

Nevertheless there are not many examples of cases where the position of the incumbent towage provider has been contested. Where this has been so (e.g. port of Rotterdam) price levels have dropped at least in a short period after the event. In some places, where 2 different towage companies operate, the rates would be the same in both companies although there is no price regulation of harbour towage at either the EU or member-state level. This reflects a lack of competition and commercial fairplay.

*Example: it has been communicated to us that the arrival of Kotug in the Port of Rotterdam might lead in the long term to a decrease of towing tariffs of up to 25%.*

### *Mooring and unmooring services*

The market for **mooring and unmooring services** is the smallest and thereby the one least adequate for more parties. It should be noted that in some cases in most European countries, the mooring and boatmen work as are organised in cooperative groups or small companies. The mooring men and boatmen in the various groups are enrolled in special registers after having passed a group of individuals being members of public exam, based on qualifications and a practical test.

Most groups serve only one entity, which sets the same ratesport, but there are some exemptions, for all members. It may be clear that such a group can be considered as one company. This also appears from the data in table 2. In Italy there are 57 Groups (53 mooring men groups and 4 boatmen groups) operating in 86 Italian ports, and in Belgium the ports of Antwerp, Zeebrugge and Ghent are serviced by the same company.

There are only very few ports where more than one group or company operates. This does not automatically mean that there is no competition in the mooring sector. In (almost) every European port, the mooring and boatmen companies have to obtain an authorisation to operate. In most cases the authorisations are granted by the port authority or the public of a city or region. Sometimes, as for example in France, the regional public authority sets out guidelines on working conditions for each port and the port authority determines the total number of boatmen, the service requirements, the equipment required to cover the needs of the port, etc. In many ports, price levels are set each year in co-operation with representatives of ship-owners, port authorities and boatmen. The prices are not fixed, but depend heavily on the size of the ship. Also, there are various ways in which discounts can be obtained. In some ports mooring services are provided by companies,

which also provide either towage, pilotage or cargo handling services. In such cases there is or might be cross-subsidization between services.

The authorisation will only cover that port or port region and is granted in the form of a concession. In most ports there is a monopolistic concessions regime. Only one mooring company will have the concession to operate these services in the port, in effect annulling competition during the concession period. Based on our additional survey it appears that the co-operative groups or companies entirely bound to one port or area. There have been found no examples yet of cases where these co-operatives have been challenged in a public tendering procedure for their concession.

Our additional survey has demonstrated that also these concession contracts are still not subject to public tendering procedures. There is an improvement however, given the development that in several ports a committee, including port users, consults with the service provider on the tariff structure.

*Port dues as a whole differ considerably between ports*

Though comparison of port dues between different sources is difficult due to definition issues, etc. it still can be observed that port dues as a whole differ considerably between ports. Of course, part of these differences can be explained from differences in geography, in physical conditions and type of ships handled. However, taking these differences into account, still large unexplained differences will remain, implying that not all charges are set according to ‘cost-based’-methods, but probably also in many cases according to any of the four alternative price-setting categories (up to ‘anything the market can bear’) generally put forward in port pricing literature<sup>5</sup>.

As Haralambides c.s. (Haralambides 2001) observe: “as a result of the very nature of the services (*i.e. pilotage, towing, (un)mooring, added by ECORYS*) involved, the often limited size of the market (and sometimes the (im)possibility to increase competition) and port safety considerations, nautical services are often either carried out by public agencies or by private parties with exclusive rights. The potential of abuse of dominant position is thus real and this problem can be addressed either through encouraging competition or through more effective price control.”

**Table 2.6 Price ranges in port dues/TEU**

Port	Price range port dues/TEU
Hamburg, Bremen, Rotterdam, Antwerpen, Zeebrugge, Le Havre, Felixstowe, Southampton	€ 18-31
Genova, Trieste, Marseille, Barcelona, Gioia Tauro	€ 1-22

N.B. Since the sources of the two price ranges are different, the ranges themselves should not be compared with each other.

These differences can only be explained by differences in the definition of cost categories within the port dues, and differences in pricing strategies.

Moreover also significant differences between custom costs/TEU can be observed.

<sup>5</sup> Petteren-Stranden and Marlow (2000, p. 4) divides the pricing principles applied in the port literature into five categories: (1) cost-based pricing; (2) methods for cost recovery; (3) congestion pricing; (4) strategic port pricing; (5) and commercial port pricing, which is applied in privatised ports.

### *Terminal handling*

The market for **terminal handling services** is the biggest (in terms of turnover) and varies per type of operations such as for container, non-container general cargo and liquid and dry bulk operations. The data in table 2.4 show that there is a large variation in the number of companies active per port. For container terminals it appears to vary from 1 to 30 and for general cargo/ break-bulk terminals from 1 to 24. This suggests a strong amount of intra-port competition, which however most likely is somewhat exaggerated.

For container handling most ports in fact have one dominant operator and one or two smaller ones and sometimes a multitude of small companies doing some container handling combined with break-bulk operations or are involved in containers storage operations. So the absolute numbers presented are somewhat misleading in this respect. On the basis of the lists of companies it is difficult to make such a distinction, as it requires insight into the actual situations in each individual port.

As OSC shows (OCS 2005) the current levels of **container handling costs** in NW-Europe are much lower than those in North America and Asia (\$120 vs \$238 and \$256 respectively, as per end 2003), and the European levels are (even more so in real price developments) still decreasing.

**Table 2.7 Price ranges in port dues/TEU**

Port	Price range container handling charges/TEU
NW Europe	\$ 95-133
America	\$ 179-281
Asia	\$ 94-306

Source OSC, 2005

However, the fact that Europe is at a lower charging level than Asia and America, does of course not imply that further improvements within Europe should not be attained for. Moreover it is not clear whether the cost base of the handling charges is the same.

Based on information we have gathered for the Maasvlakte 2 extension in Rotterdam for eight NW European ports (handling cost ranges between €60 and €86 per TEU), combined with additional figures from some Mediterranean ports (Genova, Trieste, Marseille, Barcelona, Gioia Tauro; handling costs ranges between €102 and €150), we find that handling charges can vary between €60 and €150 in Europe in larger volume ports, which clearly shows still substantial differences in terminal handling costs within Europe. Moreover it shows that average handling charges in NW-Europe are lower than those in the Mediterranean.

**Table 2.8 Price ranges in port dues/TEU**

Port	Price range container handling costs/TEU
Hamburg, Bremen, Rotterdam, Antwerpen, Zeebrugge, Le Havre, Felixstowe, Southampton	€ 60-86
Genova, Trieste, Marseille, Barcelona, Gioia Tauro	€ 102-150

Source ECORYS, Trademco

This is even more relevant in the perspective of the next 20 to 30 years, in which the number of containers handled within Europe will further increase very considerably. For the Ports in the Hamburg-Le Havre range it has been calculated that the number of containers handled will increase from currently somewhat more than 20 million TEU to between 39 and 70 million TEU in 2030<sup>6</sup>. The way the market of container handling services is organized in this period will of course strongly influence where the income/economic benefits derived from these activities will eventually boil down; will they be kept within the port communities, or shared within in the European community as a whole, where most end users/consumers of the goods can be found?

Related to the tendering procedures for new terminal capacity it is observed that the procurement procedures in Europe until now often have been not as transparent as those found in many other cases in other parts of the world.

The fact that it can be shown that the demand for **other cargo types**, like liquid and dry bulk cargoes, is much more price inelastic than the demand in the container segment, supports to our opinion the hypothesis that differences in charging levels in these segments, and the existence of market failures are probably even larger than those found

<sup>6</sup> CPB, *Verruiming van de vaarweg van de Schelde*, 2005, p65

in the container market. However, clear quantitative evidence supporting this hypothesis could not be made available within the context of this study.

### *Labour market functioning*

The evidence whether the labour market also shows signs of market failure is also not widely available. Though labour conditions are generally considered to be relatively good when compared to other job opportunities in the economy, not much evidence is available in written reporting.

Example: we have one example case (Port of Amsterdam) in which it has been researched that the labour in ports was paid approximately up to 30% higher wages than the job alternatives that would have been available to those labourers on the same levels of experience and skills elsewhere in the same economic region.

Moreover it is known that in several cases not only wages might be relatively high, but also the number of staff employed is relatively high, leading to low productivity levels.

### *Some remarks on the figures used*

It will remain difficult to quantify the extent to whether charges are too high without a thorough and in-depth review of the charging mechanisms in Europe. Benchmarking between ports could provide first indications whether overcharging is to be expected or not. However, an elaborate system of benchmarking should be considered, taking into account differences in geography, in physical conditions and type of ships handled.

### **Conclusions**

Information that has been gathered by us shows that:

- In the sector of **pilotage services** in many European ports there is only one supplier of these services, and in many cases these services have not been tendered out, but concessions have been awarded to –former- (semi)governmental bodies, active in an intricate mix of public and private interests. Market failures probably exist throughout Europe
- Also in the sector of **towage and mooring** this situation exists: suppliers of services are often combined in one supplying entity offering its services to the port, in many cases without public procurement procedures. Market failures probably exist throughout Europe
- Regarding **cargo handling operations** (loading, unloading, stevedoring, stowage, transshipment and other intra-terminal transport) the situation differs per type of cargo: though it is shown by others that in container handling the tariffs of North West Europe are comparatively low when compared to other parts of the world, it also can be demonstrated that price differences within Europe are still considerable, and cannot be explained by cost differences only. The same applies, maybe even to a larger extent for non-containerised cargo handling (liquid bulk, dry bulk), though factual information in this sector is even less available.
- Moreover **labour** in ports is relatively well paid and/or relatively abundant when compared to relevant job alternatives in comparable non-port industries in the same region outside the port area.

The measures under the proposed Directive are therefore by their nature and objectives envisaged to lead to (i) a better functioning of market forces, and thereby to (ii) an increase in efficiency and (iii) a reduction of the charges of port services.

## 3 Objectives and indicators

### 3.1 Identification of objectives

#### *Objective of the Port Directive*

The objective of the Port Directive is to liberalize access to the port services market in the EEA by way of introducing a clear legal framework. The envisaged effect of this is to encourage investment by means of the subsequent legal certainty and to further develop Short Sea Shipping (SSS) and Motorways of the Sea to shift the growth in road transport onto ships.

#### *Logical Framework Analysis*

The objective needs to be consistent with other EU policies and objectives, for instance those on competition. It is therefore important to clearly describe the objectives. In theory different levels of objectives can be distinguished. The appropriate tool to derive these different levels is a Logical Framework Analysis. The following objectives can be derived from such an analysis:

- **General objective:** There are two general objectives relevant in this respect. The first objective is to create free access to markets, one of the Treaty's main challenges. The Directive clearly aims at creating free access to the port services markets. The second general objective of the European Commission is related to transport and comprehends to transfer more goods and passengers to maritime transport. The proposed directive fits well into this general objective, as it is aimed at improving the functioning of the port services market. Thus, congestion on the road network could be reduced.
- **Specific objective:** the specific objective of the directive is to **promote Short Sea Shipping (SSS)**, to stimulate the further development of combined transport through the **development of Motorways of the Sea** and to **facilitate/stimulate investments in the ports by service providers**.
- **Operational objectives:** are the specific outputs or results that the proposed directive is aiming for. These can be described as follows:
  - to create equal access for the use and provision of port services
  - to increase investments in port services
  - to improve the quality of port services
  - to enhance the level of efficiency and flexibility in the provision of port services
  - to reduce the costs of port services
  - to increase overall transparency

- **Activities:** are the key actions that have to be performed to produce the expected results. In this case they can be divided into various groups. First, there is the removal of restrictions in the provision and use of port services, through a process of (open) tendering of authorisations.

To support investments it is important that the length of authorisations corresponds with the level of investments required to guarantee the possibility of a decent rate of return on these investments without having to raise charges.

Thirdly, there is a need to maintain and supervise on the observance of regulations on health and safety, security and the protection of the environment, through a system of checks and inspections.

Finally, there should be checks to ensure that on issues where subsidiarity prevails, the national laws are in compliance with the Treaty.

## 3.2 Identification of indicators

### *Setting indicators*

In order to assess and monitor the effects of the proposed directive indicators are needed. In general there are three different levels of indicators.

1. **Outcome** indicators; expressed in terms of the ultimate desired effect. They are usually measured in global indicators and can be influenced by other objectives as well. The increased functioning of markets in port service sectors should become visible by lower charge levels, and increased income developments by port users/ end consumers. To indicate the targeted shift in transport modes, the share of (short sea) shipping in the transport of freight and passengers could be used. Indicators for the competitive position of the EU port sector are the amount of goods and passengers processed in European ports and moreover its market share in freight and passenger transport.
2. **Result** indicators; the immediate objective of a policy. The target that needs to be reached in order to achieve the general goal. They are expressed in direct and short term effects of the policies and can also be influenced by other objectives. For the increase in competitiveness in port service sectors the number of service providers could be an indicator. However, given the scale of operations, also the indicator of public procurement procedures in port service sectors in ports is probably of relevance. Examples of indicators for the specific objective related to improvement of sustainable transport could be the percentage of Short Sea Shipping in the EU and the percentage of inland waterway and rail transported freight and passengers from the ports.
3. **Output** indicators; the deliverables that the policy is expected to produce. The achievement is under direct control of the policy and can directly be verified. The list below gives some indications of the indicators that might be used:

- a. Output indicators for equal access for the use and provision of port services are the number of service providers, their average market share and the variation.
- b. Indicators for the quality of port services include the number of accidents or claims or the waiting time for port entry / berthing.
- c. The level of efficiency and flexibility in the provision of port services could be indicated by containers moved per hour or year by gantry cranes; TEUs per ha terminal; TEUs per meter quay wall; waiting time for port entry / berthing or turnaround times of ships (depending on type of ship).
- d. Cost levels can be indicated by labour costs and the level of charges (port dues and cargo handling charges)
- e. Investment levels will be difficult to be measured, but could be monitored by detailed monitoring investment plans in ports.

#### *Existing indicators*

The different types of indicators can be identified, taking into account the robustness and availability of data. Sources of information include existing statistical data sources kept by national and international statistical agencies, ports authorities and research institutes. Where statistical data are not readily available these can be obtained through setting up new databases. Also, it is possible to assemble more qualitative indications for example from recurring stakeholder interviews.

The information can be assessed through constant monitoring and interim and ex-post evaluations.

#### *Summary*

Using a Logical Framework Approach, the specific and operational objectives can be described. As the proposed directive contributes to the broad objective of sustainability of transport, it is less easy to specify the directive's effect on this objective.

Indicators have been derived from the objectives. It will be difficult to collect and measure the indicators used for the different objectives.

Table 3.1 Overview of objectives and indicators

Objectives	Indicators
<b>General</b> <ul style="list-style-type: none"> <li>- Improved sustainability of transport system</li> <li>- Free access to markets</li> </ul>	<b>Outcome</b> <ul style="list-style-type: none"> <li>- The share of (short sea) shipping in the transport of freight and passengers</li> <li>- Total amount of goods and passengers processed in European ports</li> <li>- Lower charges for port services, increased income for port users/consumers</li> </ul>
<b>Specific</b> <ul style="list-style-type: none"> <li>- Promotion of Short Sea Shipping (SSS) and stimulation of combined transport</li> <li>- Stimulate investments in ports</li> </ul>	<b>Result</b> <ul style="list-style-type: none"> <li>- Percentage of Short Sea Shipping in the EU</li> <li>- Investments by port service providers</li> </ul>
<b>Operational</b> <ul style="list-style-type: none"> <li>- Creation of equal access for the use and provision of port services</li> <li>- Improvement of quality &amp; level of efficiency and flexibility of port services</li> <li>- Reduction of the costs of port services</li> <li>- Increase of investments in port services</li> </ul>	<b>Output</b> <ul style="list-style-type: none"> <li>- Number of service providers, their average market share and the variation</li> <li>-Number of publicly procured service procedures</li> <li>- Containers moved per hour or year by gantry cranes; TEUs per ha terminal; TEUs per meter quay wall; waiting time for port entry / berthing or turnaround times of ships</li> <li>- Labour costs and the level of charges (port dues and cargo handling charges)</li> <li>- Investment plans and amounts in ports areas in the port service sector.</li> </ul>

### Conclusion

The Port Directive in its essence aims to contribute to two important policy objectives: improved market functioning in the Community, and a more sustainable way of transport. However, the line of dependencies from the direct actions and their effects (centered around the creation of a new system of Authorisations for port services), towards these final objectives is a long one, and if the core of the Directive fails to be fully functional, there are no compensating instruments of similar magnitude available within the Directive to achieve the formulated goals via alternative ways.

## 4 Assessment of effects

### 4.1 Introduction

Provided the problem analysis and the objectives, the next step is to compare the effects of the Directive with the “do-nothing” option. In order to identify possible effects, the areas in which measures are proposed need to be identified.

As mentioned, the Directive seeks to establish common rules for the implementation of the principle of freedom to provide port services (i.c. technical-nautical services of pilotage, towage, mooring, cargo handling operations and passenger services) through measures. The main domains in which measures are proposed are:

- Authorisation for port service provision
- Selection procedures for providers of port services
- Maximum duration of authorisation
- Compensation regime
- Self handling
- Environmental, safety and employment rules

### 4.2 Overview of expected effects

In general the types of effects are split into economic, social, safety, security and environment effects.

#### *Long-term and short-term type effects*

A distinction is made between *long-term* and *short-term* type effects, as they will differ for the various effects. The effects are determined on a macro-level for EU-25 and described in qualitative terms taking into account distributive effects. We concentrate mainly on the long term effects.

#### *Qualitative assessment*

The assessment of the importance and direction of the effects has been based on desk research and results from the stakeholder consultation. The focus is placed on the views of supra-national stakeholders organisations since these were supposed to be the resultant of present “multi-country” views, free from national or political arguments. In practice this proved not always to be the case. The information obtained has mainly been judged through a team analysis occasionally enriched by further analyses. Whenever the effect could be quantified, the importance of the respective effect has been expressed in terms of “high”, “significant”, “small” and “negligible” on aggregate European level only (EU-25).

#### 4.2.1 Economic effects

The measures under the proposed Directive are envisaged to lead to (i) a better functioning of market forces, (ii) an increase in efficiency and (iii) a reduction of the charges of port services (see section 2.4). Lower charges will effect the competitive position of ports and of trades. For the intra European trades this will lead to a shift in the modal split from land transport towards transport by sea, which complies with the EU transport policies of Short Sea Shipping (SSS) and Motorways of the Sea (MoS). This will lead to a volume increase in port services and maritime transport. For the deep-sea trades this will lead to a shift in the role of European ports towards ports achieving higher efficiency as a consequence. Longer-term effects of the decrease in maritime transport costs are an increase in seaborne trade in general and in intra-European trade in particular and further to an increase of economic activity.

The costs of port services are part of the maritime transport costs within the total logistic costs. For short distance intra-European trades the share of costs incurred in seaports is greater than for deep-sea trades leading to a higher price elasticity. The measures involve technical-nautical (pilotage, towage and mooring services) and cargo handling services and will have a varying effect on the port sectors. As stated, the effect of the proposed Directive on the intra-European trade will be greater than on the deep-sea trades. Some measures of the proposed Directive such as self-handling with respect to pilotage and cargo handling are applicable for intra-European trades such as roll-on-roll-off (ro-ro) and passenger ferry services. Most likely port sectors such as liquid and dry bulk are only to be affected as far as navigational services are concerned.

The effects will depend on the starting position of the European ports. The Hanseatic ports with their landlord model, the UK with the important role of private ports, the ports in the Mediterranean countries and the ports in Eastern European countries are different in terms of port organization / competition level and therefore have different starting positions.

#### 4.2.2 Envisaged changes in charges

##### *Effect on port service charges*

In this analysis, key personnel of stakeholders organisations at the EU level were surveyed, through both a questionnaire and interviews. The main questions were aimed at getting insight in the likely effect of the introduction of the Port Directive. To some extent the answers given are strategic answers, intended as may be expected to reflect the perceived interests of the stakeholders. This has been taken into consideration whilst drafting the results from this survey.

In general, it is expected by most stakeholders that the Directive will have a reduction effect on the charges for port services. It is expected that for cargo handling the Directive will lead to more significant charge reductions than for technical-nautical services. Most representative stakeholders have indicated that they expect the competition induced by the Directive will lead to a decrease of between 3,5 and 10 % of charges.

#### Transaction and bureaucratic costs might weaken effects of Port Directive

It is stressed by most stakeholders that authorities should prevent the emergence of increased bureaucracy as a result of the Port Directive, which, if allowed, might **substantially** counterbalance some of the positive effects of increased competition. In a recent assessment performed by Deloitte on behalf of the Dutch Government it was argued by the majority of the Dutch port stakeholders that the negative aspects of the increased regulation on service concessions might even fully outbalance the benefits that are aimed at. Furthermore it was also argued that the proposed concession periods were considered to be too short to attract sufficient investments.

The decrease in charges for short sea shipping cargo is expected to be larger than the one in deep-sea services, due to the lower base charges (shorter distances involved). Furthermore, it is to be expected that the Directive will bring the largest reductions in cargo handling charges for containers and smaller decreases for ro-ro. The handling charges for break and liquid bulk and passengers will be least affected.

For technical-nautical services the expected effect of the Directive on charges is less than for cargo handling. From the stakeholder consultation it becomes clear that stakeholders think different on the effect that the Directive will have on charges. Most technical nautical service providers estimate that the Directive will only have a limited effect on charges, ranging from 0 to -3.5%. Port users on the other hand, estimate that the Directive may cause a drop in charges of up to 10%. Based on the result of the stakeholders consultation it is not really possible to say which of the technical-nautical services will be affected most, since opinions on this vary greatly and charge settings are affected by various forces. For instance, in various countries some or all these type of services are considered as public services and charges are determined by public authorities on a non-commercial bases. Also, some stakeholders have pointed out that technical technical-nautical services in various ports are subject to cross-subsidizing, causing charges not to reflect the actual cost involved in providing these services. Finally, it has been pointed out that (introducing) more competitors, does not automatically means that charges will drop, as a result of tacit agreements on the level of charges between providers within ports.

To estimate where the Directive will have the largest effects it is necessary to distinguish between an absolute effect on charges, the absolute total effect on income as a result of dropping charges and the relative effect— where it is “felt most”. Although many stakeholders are a bit reluctant to estimate the effects on charges in individual countries, a clear pattern arises in which the charges might drop the most—in absolute terms- in countries with smaller ports in particular in the Mediterranean. The newly restructured ports in Eastern Europe will be affected to lesser extend, followed by the UK ports and Hanseatic landlord type of ports. The percentage reduction on charges in the ports like Hamburg – Le Havre, is expected to be considerably less, due to the fact that these ports are subject to stronger interport competition leading to competitive cargo handling rates. On the other hand, it is expected that the relative effects will be felt mostly in the smaller ports, where charges will have a sharper percentage drop.

However, due to the higher cargo volume, it is thought that the absolute / aggregate effect will be the biggest in the largest ports, in particular those in the Hamburg- Le Havre range.

Based on economic theory, it is safe to assess that the expected charge decrease as a result of the Port’s Directive will be the result of either:

- a decrease in the cost of production inputs such as capital and/or labour
- a reduction of the – monopoly- profit margins.

Currently in many ports for specific service types some monopolistic market structures can be found (see section 2.4). These structures could be established based on specific catchment areas in which the ports have a monopolistic position. This position has led to relatively high charges for several types of services. This overall turnover is shared between the three composing production factors, i.e. capital, labour and entrepreneurial profits.

In many ports we observe that there is a relatively well-paid, relatively large labour force, employed by service providers who are despite a high cost structure, also capable of realising considerable profits. It is without doubt that a detailed more in-depth analysis would demonstrate this assertion in a quantitative way. It can be observed that the willingness to cooperate in surveys like these is generally very low in the port sector, when compared to other sectors, where more transparency can be found. High labour costs are generally the most striking element and apply to all services concerned. Insight into the exact cost structure is not known, as most organisations do not publish financial accounts.

Benchmarking of charges is difficult, as it requires a great amount of correct and detailed data. Comparison of tariffs is blurred by insufficient level of detail with respect to:

- the operational port characteristics : small ports versus big ports; long complex tidal entrance channels versus short simple ones;
- cross-subsidisation between ports: charge setting and organisation at national or regional level; between marine services within one company;
- charges of infrastructure costs: for some ports terminal handling charges include a payment for use of quay space ‘berth hire’.

The effects on charges have an income and a substitution component. The income effect measures the degree at which a change in charge leads to a change in demand of services and is discussed in Section 4.2.3. The substitution effect measures the degree at which the services are substituted by other services and are discussed in Section 4.2.4.

**Table 4.1 Concluding table on effects on charges**

Type of effect	Effect	Remarks
Level of service charges	-15% to +5%	<ul style="list-style-type: none"> <li>• Partly based on strategic answers, aggregate + expert opinion: downward trend achievable.</li> <li>• A distinction should be made between technical-nautical services on the one hand, and cargo handling charges on the other</li> <li>• With respect to technical-nautical charges, effects might be considerable (up to 15%), per port strongly depending on levels of competition already attained. This applies both for smaller and larger ports</li> <li>• Regarding cargo handling charges, the effect will also vary between individual ports. Smaller ports might see relatively more</li> </ul>

	<p>important effects than larger ports. The foregoing of course all individually dependent on the levels of current market functioning that have already been already attained.</p> <ul style="list-style-type: none"> <li>• In the Mediterranean ports the effects might be more considerable than those in North Western Europe.</li> <li>• The effect on SSS will be larger than those on intercontinental transport</li> </ul>
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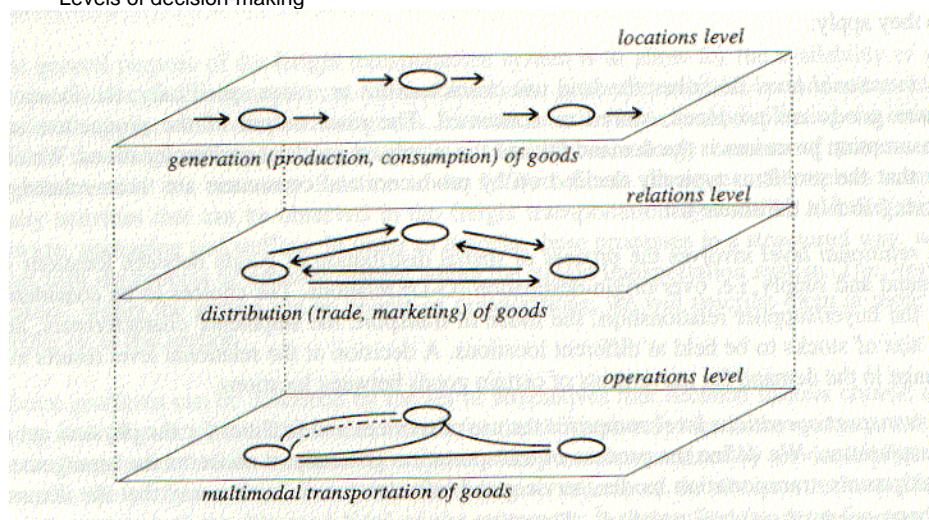
### 4.2.3 Port related costs and transport decision-making

To understand income and substitution effects of changes in charges one should understand the role of ports in the network of transport services and in the series of choices that are being made in transport decisions as well as the character of these choices. The following levels of decision-making need to be distinguished:

1. The **level of locations (trade generation)** concerns:
  - Location of industries and level of inputs and outputs, number of goods produced.
  - Level of imported and exported goods per firm or region.
2. The **level of relations (trade distribution)** concerns:
  - The choice of trade partners for imports and exports.
  - The assessment of trade relations between regions.
3. The **level of operations** concerns:
  - choice of transport mode, choice of seaport, choice of transport route and choice of consignment size.

Trade generation, i.e. the assessment of incoming and outgoing cargo flows per region, concerns long-term decision-making. Trade distribution, the choice of trading partners for inputs and outputs generally concerns medium to long-term decision-making. Modal split, choice of transport route and choice of size of vehicles all are operational issues and often of a shorter-term nature. See figure 1.1.

Figure 4.1 Levels of decision-making



Source: Tavasszy, *Modelling European Freight Transport Flows*, PhD Thesis, 1996

A decision, such as the introduction of the Port's Directive, will lead to a change in charges and has an effect on all three levels of decision-making.

Most likely the charge effect *at the level of traffic generation* will be negligible, given the small share of such a cost change within total door-to-door transport costs. As is shown below the share of port-related costs is about 4 to 8% of total door-to-door transport costs for a shipment of containers from Asia to West Europe (depending on actual shipping costs). It may be clear that the effect of a change of one of the components of port related costs on demand for container transport is negligible.

The effect of such a change *at the level of trade distribution* is greater, but is most likely still negligible. In this respect it should be noted that such a change has only a meaning as far as it leads to a shift in trading partner, requiring transport by land. Also this seems very unlikely.

It can be concluded that the effect of a tariff change at the level of generation and distribution of goods are negligible. Therefore one may conclude that with a change in the price of marine services demand may be assumed to be fixed. See Section 4.2.4 on Income Effects.

*At the level of operations* the routing of goods from origin to destination may be effected by charge changes. If the changes of the sum of all port related costs are the same for all ports, the effect is nil or negligible. If the changes are not equal for all ports, the routings for the ports becoming cheaper will be more attractive and will subsequently attract more trade. This applies in particular to container ports, which are part of an increasingly more fine-meshed network of numerous transport nodes and links. Small changes therefore may lead to shifts.

The effect of charge changes is demonstrated with two examples. One example concerns the competition between road transport and short sea shipping and is presented in section 4.3. Also another example concerning the routing of ocean-going containers through West European hub-ports and is also worked out in section 4.3.

**Table 4.2 Summary table trade aspects and transport decision making**

Type of effect	Size of effect	Remarks
Trade generation	Neglectable	
Trade distribution	Neglectable	
Transport operations	<ul style="list-style-type: none"> <li>- Possibly small shifts between Atlantic ports, mainly containers, less bulk cargoes</li> <li>- Small shifts between Mediterranean ports</li> <li>- Slightly increased competitiveness of Mediterranean ports in Central Europe</li> <li>- Shift from road transport towards SSS</li> </ul>	

#### 4.2.4 Income and substitution effects

From the stakeholder consultation it becomes clear that almost all stakeholders see various processes going on at the moment that will affect the income of port service providers and which could be influenced by the Directive. First of all, it is clear that in all sectors there is a trend towards working on increasing scales to increase efficiency. On a company level this will lead to increasing turnover per company. However, many stakeholders point out that in order to achieve this increase in scale and scope it is necessary to limit the number of service providers per port.

It is put forward that even in larger ports like Rotterdam and Antwerp there is only room for a very limited number of service providers and that technical-nautical services in smaller port are in fact cross-subsidized. In an open market it is expected that this “limitation” is reached through a process of mergers and takeovers, leaving one or two providers per port. In a system of (renewable) authorizations as proposed by the Directive, service providers fear that too many authorizations will be granted per port. This will cause turnovers of service providers to drop as more providers will start competing in the same port. It is said that the Directive might cause a decrease in turnover of up to 10 %. It will also have a negative effect on the efficiency of service, by suboptimal resource allocation, as each pilot service will need its own facilities.

Finally, several stakeholders point out that the system of (renewable) authorizations without proper contractual guarantees will lead to cherry-picking by service providers in order to maximize turnovers and profits. Especially when cross-subsidizing is not longer allowed, this will leave commercially nonviable routes and ports unserved. As stakeholders point out, this is in contradictory to their role as provider of what could be seen as public services.

##### *Income effects*

A decrease of 10% of all port related charges will lead to practically the same decrease in revenues for all services concerned. In the previous sections it is argued that demand with respect to the generation and distribution of cargoes will practically not be affected given the small share of such changes in total door-to-door and logistic costs. Therefore the expected income effect will be mainly **distributional**. The production factors deriving income from the provision of port services (labour, capital, entrepreneurial income) will see less income, and eventually this should result in lower prices and therefore increased income possibilities for the consumers.

The areas where changes may take place concern the routing of cargoes where the competitive situation between seaports will change and where there is competition between combined sea transport – road transport versus road transport only. Quantitative examples of some representative cases are discussed in section 4.3. At a European level these changes will appear to be very small.

The decrease of revenues from port related services can be assessed by taking 10% from all these revenues. With a total container throughput of about 70 million TEU for the whole of Europe at present, including empty containers and transhipped containers the total revenues from port related services are about €6-7 billion. A decrease in revenues

by 10% would result in a cost saving of €600-700 million. This figure can serve as a very broad estimate for the container sector. The effect on other sectors is expected to be – substantially- smaller, so that the total income distribution effect might be limited to less than 1 billion euro, which is of course a limited effect when compared to the overall income in the EU.

**Table 4.3 Summary table income effects**

Type of effect	Size of effect	Remarks
Income effects	Mostly income <b>distribution</b> effects from port service providers to port users/consumers (limited effect, maximum distributional effect up to 1 billion € for EU as a whole)	No net income effects are expected since the trade generation and the trade distribution patterns are not expected to change

### *Substitution effects*

As mentioned above the effect of a decrease in port related charges on traffic demand concerns competition between ports and competition between land and maritime transport. If the decrease in port charges does not differ much, the effect on the market shares of the various ports will neither be affected much. A quantitative example as to how such changes could be is shown in Section 4.3 in the context of the North Sea container hub-ports.

Again, stakeholders find it very difficult to single out countries where the effect of the Directive will be most strongly felt. There is general agreement that charges will be least affected in the ports in the Hamburg – Le Havre range and to a lesser extend the Hanseatic and UK private ports.

From the stakeholders survey it appears that the bigger ports, which are already subject to strong mainly inter port competition, are thought likely to be the least affected, whilst the smaller (mainly Mediterranean) ports will be affected most.

To determine the effect on turnovers for individual ports it is necessary to know which effect these lower charges will have on the attractiveness of the ports. Competition between ports to serve particular hinterlands will play a key role here and many of the effects on turnover are thought to be (re)distribution effects of turnover between ports. It has been pointed out that for ports serving more particular/smaller hinterlands for which competition is relatively less fierce, the potential gaining in turnover through redistribution effects seems relatively small.

Another effect will concern the competitive position between Mediterranean and Atlantic ports, where the Mediterranean ports will increase their market share. Due to lack of data it is not possible to provide a quantitative estimate of such changes. The substitution effect between Mediterranean and Atlantic ports in the short run can be mainly perceived as to how effectively the major three ports of Marseilles, Genova and Trieste can on one hand reduce port services charges and on the other hand convert this advantage to hinterland expansion in Central Europe. Since we find that in these three ports there is already a fair amount of port services competition, the expected substitution effect is thought to be as marginal.

Finally, decreasing charges for port services might affect the competitive position of the maritime transport in relation to land transport, shifting cargo flows from trucks and trains to ships. A quantitative example is worked out for the trade route Portugal - Northwest Europe. Based on broad estimates, it is shown that the absolute value of the price elasticity for all port related charges is less than 0.5. See Section 4.3. The market where short sea container shipping competes with land transport is, however, small.

**Table 4.4 Summary table substitution effects**

Type of effect	Size of effect	Remarks
Substitution between smaller ports with own captive hinterlands	Relatively small	Due to lack of fierce competition
Substitution between North West European ports and Mediterranean ports	If Mediterranean ports increase their efficiency and lower their charge levels, they will become more competitive in areas like Austria, Southern Germany, and similar regions	mainly containers, less bulk cargoes
Substitution between road/rail transport and SSS	Small shift from road transport towards SSS	Relatively low price elasticity, at this moment still a relatively small market

#### *Effect on turnover*

From the stakeholder consultation it becomes clear that almost all stakeholders see various processes going on at the moment that will affect the turnover of port service providers and which could be influenced by the Directive. First of all, it is clear that in all sectors there is a trend towards working on increasing scales to increase efficiency. On a company level this will lead to increasing turnover per company. However, many stakeholders point out that in order to achieve this increase in scale and scope it is necessary to limit the number of service providers per port (also OSC (OSC 2005) supports this viewpoint).

It is mentioned that even in larger ports like Rotterdam and Antwerp there is only room for a very limited number of service providers and that technical services in smaller ports are in fact cross-subsidized with revenues from bigger ports. In an open market it is expected that this “limitation” is reached through a process of mergers and takeovers, leaving one or two providers per port. In a system of (renewable) authorizations as proposed by the Directive service providers fear that too many authorizations are granted per port. This will cause turnovers of service providers to drop as more providers will start competing in the same port. It is said that the Directive might cause a decrease in turnover of up to 10 %. It will also have a negative effect on the efficiency of service as each pilot service will need its own facilities.

Finally, several stakeholders point out that the system of (renewable) authorizations without proper contractual guarantees will lead to cherry-picking by service providers in order to maximize turnovers and profits. Especially when cross-subsidizing is not longer allowed, this will leave commercially nonviable routes and ports unserved. As stakeholders point out, this is in contradiction to their role as provider of what could be seen as public services.

**Table 4.5 Summary table of turnover effects**

Type of effect	Size of effect	Remarks
Turnover existing service providers	Might decrease up to 10% due to increased competition in combination with –possibly- too many authorisations.	This might offset the tendency towards increasing scales and increasing turnover per provider
Turnover new entrants	Additional when compared to current situation	
Turnover: possibility of cherrypicking	Prohibition of cross-subsidizing might lead to nonviable routes and ports unserved	

#### 4.2.5 Effects on safety, security and environment

Safety and security require special attention with respect to self-handling in pilotage and cargo handling. The proposed Directive needs to provide sufficient safeguards to avoid negative effects and it should be noted that provisions in the proposed Directive are made, notably articles 4, 7 and 13. From the stakeholder interviews and position papers for the public hearing it appears that security is not considered an aspect that will be affected much by the proposed Directive. Therefore the following sections concentrate on effects on safety and the environment.

**Table 4.6 Summary table security effects**

Type of effect	Size of effect	Remarks
Security	Small	

##### *Effect on port safety levels*

The effect that the Directive will have on port safety is much debated among stakeholders, both in their official statements, as well as during the interviews. All providers of technical technical-nautical services see their service as Maritime Safety Public Service with responsibility for protection of the environment and therefore not as a commercial service. They claim that the need to reduce costs in order to be more competitive will lead to a decrease in safety, since operators will invest less in equipment, personnel, training etc. Private companies or companies that are competing are thought less likely to invest in order to lower cost and charges to be more profitable. Apart from introducing more competitors, it is claimed that especially the limited duration of an authorisation will cause greater insecurity. This will deter more service providers from making investments that need long return periods or starting with multi-year training. From the consultation of stakeholders it becomes apparent the reduction of investments of 3.5 to 10 % is expected in the technical technical-nautical services. Technical technical-nautical service providers claim that port safety will deteriorate significantly. They foresee a reduction of some 10 % in port safety.

On the other hand there are also several stakeholders that claim that the effect of the Directive may not be as bad as some stakeholders, predominantly those who provide technical technical-nautical service, claim. They point to the fact that all service providers have to obtain an authorisation first. In the long run safety will depend on how successfully / strictly competent authorities (plus supervising and other bodies) will

perform their regulatory role in setting and ensuring maintenance of the increasingly strict commonly accepted standards. Further, a good reputation is increasingly appreciated as a valuable business asset, acting as sort of guarantee that acceptable safety standards are maintained. Stakeholders in favour of this line of reasoning think that the Directive will only have a very marginal negative effect on port safety. In their point of view port safety will only drop with a maximum of 1%.

**Table 4.7 Summary table safety effects**

Type of effect	Size of effect	Remarks
Safety	Might vary between small (max -1%) and to a certain extent more seriously negatively effected (up to -10% less investments in safety), leading to a lower safety in ports	Assessment depends on viewpoint stakeholder. If competent authorities will perform their regulatory role the effect on safety should be limited

#### *Effect on environment*

Assessing the effects that the Directive might have on the environment, it is the minimising of risks by preventing safety related incidents that can cause damage to the environment, that comes into the mind of most of the stakeholders. Throughout the last decades safety related incidents resulting in the loss vast quantities of oil and other very polluting cargo have caused great damages to the environment. Therefore stakeholders' thoughts on the effect that the Directive might have on the environment and the issues surrounding it (authorisation and public control acting as safeguards and safety being a valuable business asset) are the same.

Another way in which the Directive might affect the environment is through its effect on the use of various modes for the transport of cargo. The shift in the modal split towards maritime transport to be expected for the intra-European trades will lead to environmental benefits. Recent legislation to reduce the atmospheric pollution from road diesel fuels might reduce these environmental benefits. However similar initiatives (decreasing the emission of ship engines) are also being developed for maritime transport. Eventually, if SSS would substantially benefit from the Port Directive, the environmental gains could similarly significant.

**Table 4.8 Summary table environmental effects**

Type of effect	Size of effect	Remarks
Environment: damages related to accidents	Possibly negative: depends on safety perspective, between small effect, and increased chance on accidents due to less safety	If competent authorities will perform their regulatory role the effect on accidents should be limited
Environment: emissions	Small, positive: related to shift from road to SSS.	Current substitution possibilities are modest, future benefits will increase with growth SSS

## 4.2.6 Social effects

### *Introduction*

The introduction of a Directive on market access to port services can have an effect on various social aspects. During the previous legislative debate regarding the former proposed Directive, it has often been argued that market opening in the port services' sector would have negative consequences on employment and social issues of its workers, or would endanger the safety and security in ports<sup>7</sup>. In this section we will address various issues relating to social aspects.

Social aspects are defined as all those work related elements which are affected by the Port Directive. In the absence of comprehensive research in the area of port sector employment, there is some uncertainty as to the degree of effect that the Directive may have. In this section we present the results of a survey among port stakeholders at European level. As with the economic effects the main questions in the survey are aimed at getting insight in the likely effect of the introduction of the Port Directive. Given the position of the various stakeholders it is to be expected that the answers given are sometimes strategic answers, which may reflect the perceived interests of the stakeholders. Also we note that most stakeholders have experienced it as highly difficult to make an estimation of the social effects of the Port Directive.

The anticipated effects of the introduction of the Port Directive on social aspects vary between the stakeholders. Below we will discuss the main anticipated effects. Hereby we make a difference between quantitative and qualitative social effects. *Quantitative effects* relate to: size of the labour force, and number of working hours. *Qualitative effects* relate to salary levels, workload, professional skills, training & continued proficiency, workers' health & safety, and labour relations.

### *Salary levels*

As described in the section on economic effects the Port Directive is expected to result in charge reductions of more than 15% by some representative port users and charge increases of up to 5 percent according to some representative service providers. Besides investment goods, the charges of port services are composed of the labour costs of port labour. Labour costs relate to salary levels and the size of the labour force. The direction of the effect of the introduction of the Port Directive could not be established by the consultants. Opinions of stakeholders differed too much in this respect. Moreover there might be a difference between the income earned per employee, and the total income earned by the work force in the sector. The first might in some cases decrease, while the latter might increase, also due to growing employment related to continuous growth of throughput handled in the European ports.

In the assessment study by the UK government it is assumed that self-handling by crews might lead to a reduction of salaries staff which would have an adverse effect on

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<sup>7</sup> COM (2004) 654 final.

communities that heavily rely on port related employment. In some cases, this might especially affect the more deprived parts of a country<sup>8</sup>.

#### *Size of the labour force*

The effects of the Port Directive on the work volume in the ports sector are difficult to foresee. As already stated, comprehensive research in this field is largely lacking. The most direct effect relates to the self-handling of cargo. Self handling of cargo is already a tried and tested method of port operation, although generally confined to smaller ports. Most of the arguments as regards the size of the labour force relate to an IF....THEN situation. IF the Directive leads to enhanced competition resulting in a more efficient provision of services against lower charges, THEN this will improve the competitiveness of the ports and lead to a growth of employment. However, the effects of this trend are uncertain, since it is claimed by various stakeholders that the European ports already have a strong competitive position.

Due to the introduction of the Port Directive the size of the labour force is expected to decrease with -1%, as anticipated by some representatives of service providers. This decrease in employment is mainly caused by self-handling activities of ship crews. However representatives of the port users, as also a representative of the service providers, expect the labour force to grow with +3.5%. It should be noted that the effect of the Port Directive on the size of the labour force is also depending on port specific labour market situations. For instance, a study into the employment situation in Dutch ports showed an overcapacity of port labour, especially in the port of Rotterdam, mainly due to international competition<sup>9</sup>. This overcapacity, at least partly, is allocated in so-called labour pools, which have been installed in the past already to anticipate on the social effects of overcapacity.

In the long run there is of course an upward pressure on the size of the work force related to the expected substantial increase of port throughputs in Europe.

A special trend which is mentioned by several stakeholders relates to *bureaucratization*. Within a certain time frame following the entry into force of the Directive all providers of port services in a port have to operate on the basis of an authorization. The criteria for granting authorizations should be objective, transparent, non-discriminatory, relevant and proportional, and should be made public (Article 7 of the Directive). It is asserted by various stakeholders that this requirement for authorization will inevitably lead to some form of bureaucratization, a necessary condition to reach the objectives of the Port Directive. The tasks relating to bureaucratization might have a positive effect on the size of the work force, although it is difficult to assess the exact effect.

#### *Working hours*

In line with the development of the labour force it is expected that the number of working hours due to the Port Directive might decrease with up to -16%. There is only one organization which expects an increase of the number of working hours by 3.5%.

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<sup>8</sup> EC Directive on Market Access to Port Services COM(2004)645 final. Initial assessment of the effect of this proposed directive on the UK ports sector. UK Government, 2005.

<sup>9</sup> B. van Bruggen et al., Arbeidsradar Bedrijfshaven, Ministerie van Economische Zaken, 2003.

### *Workload for employees*

Besides a change in size of the labour force reduced charges for port services could lead to an increase of workload for employees, doing more work in the same time or the same work in less time. However, workload is a labour aspect which is very difficult to measure, being a mix of objective (number of working hours) and subjective (work pressure) elements. Due to the character of the survey our indicator of work load is solely indicative. In this perspective, the workload is expected to **increase with 3.5%** according to some representatives of port users, whereas some representatives of port services expect a **decrease of -10%**. Further analysis of the answers shows that an increase of the work load is correlated with a growth of the labour force, whereas a decrease of the work load is seen as interrelated with a decline of the labour force.

### *Professional skills*

The level of professional skills and training is a central indicator for the quality of labour provided. For the Dutch port sector it was recently assessed that in general dock workers have a moderate employability. Especially older dockers have not developed their skills to keep in pace with new developments, resulting in sickness absence, problems with work load, inflexibility, and reduced motivation for training<sup>10</sup>.

The assessment of the expected effects of the Port Directive also vary for this aspect. Representatives of labour/service providers expect a decrease of professional skills. According to the survey this decrease is interrelated with a decrease of training and proficiency. These effects are related with the trend of casualisation of the work force (see below). On the other hand, representatives of the port users expect an improvement of professional skills, for instance as a result of improved efficiency.

### *Workers' Health & Safety*

In a situation of increased competitiveness and increased work loads workers' health and safety require special attention. Also on this aspect, the stakeholders are divided in their opinions. Some representatives of the service providers expect there might be negative effects on the workers' health and safety. The representatives of the port users do not expect any effect on the workers' health and safety due to the Port Directive. The consultant was not able, based on these answers and no additional sources available, to estimate the direction of the effect of the Directive on workers' safety and health.

### *Labour relations*

Due to a pressure on the labour force and the salary levels some representatives of the service providers expect a decline of port labour relations, whereas some representatives of the port users expect an improvement of the labour relations. These positions of the stakeholders largely depend on their overall view of effects of the introduction of the Port Directive.

### *Casualisation of work force.*

An important element of the proposed Directive relates to the possibility of self-handling for cargo and passengers operations. More extensive self-handling and the potential for a

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<sup>10</sup> B. van Bruggen et al. (2003).

greater number of service providers could lead to an increased use of non-permanent staff. This possible trend is especially highlighted in the effect assessment of the UK Government<sup>11</sup>. The position of salaried personnel might be threatened, particular where economies of scope in some ports dictate that staff is required to work across a range of functions. From this it can be concluded that the effect of casualisation will differ among ports depending on the supply of work and the number of service providers. It seems that in many ports some form of self-handling is allowed. Limitations, when existing, relate to the service, the size of the vessel, the type of cargo, the personnel, the equipment, the port area and the system of the local labour agreements. So, in this perspective it is very difficult to draw general conclusions on the introduction of more self-handling.

A trend towards greater casualisation could lead to lower skill levels, wages and working conditions, poorer job security and possibly to unsafe working conditions. This might have a negative effect on the attractiveness of port jobs and with this on the influx of new personnel and trainees. Although the training requirements are to be unchanged under the proposed Directive, it could be argued that these mechanisms will have an effect on the trainees that will apply for a port job. The quality of work is an important indicator for attracting highly skilled and well motivated workers.

Casualisation of the work force might lead to a reduced quality of work due to the use of less qualified and less experienced workers. Although these mechanisms might have a negative effect on the quality of work, it is very difficult to assess which degree of casualisation might be acceptable to still guarantee an optimal quality of work. It cannot, however, be asserted beforehand that these effects will not occur. Moreover, casualisation of the work force in combination with a limited duration of authorizations, possibly leading to underinvestment in port equipment, might in the long run both have a negative effect on the quality of services provided.

### Conclusion

The social effects of the Port Directive are diverse. On this, there is no consensus amongst the stakeholders. As regards the quantitative elements:

- Size of the labour force is expected to decrease with -1% or increase with 3,5%
- Number of working hours is expected to decrease with -16% or increase with 3,5%

Also opinions on the effects of the Directive on the quality of labour (proficiency, training, health and safety) are highly diverse and to a large degree depend on the strategic position of the stakeholder. In general, representatives of port service providers expect negative effects of the Port Directive, whereas the representatives of the port users expect positive effects. Only representatives of service providers expects various positive effects of the Directive.

**Table 4.9 Summary table social effects**

Type of effect	Size of effect	Remarks
Social conditions in general	Long term effects will create change in current labour conditions: less favourable conditions for	Much debated, often emotional (see various websites). In general

<sup>11</sup> EC Directive on Market Access to Port Services COM(2004)645 final. Initial assessment of the effect of this proposed directive on the UK ports sector. UK Government, 2005.

Salary levels	<p>current labourers, improved conditions for new entrants on the labour market.</p> <p>The short term effects may be negative due to possible social unrest</p> <p>Undetermined by consultant. Some stakeholders expect an increase, the majority however a decrease of individual salary levels.</p>	<p>labourers working currently in service providers expect negative effects, port users expect positive effects</p> <p>More likely to decrease per employee. Total income for the work force might increase due to the expected increase in the work force related to the future growth of ports.</p>
Size labour force	-1 to +4% according to stakeholders	<p>Yet undetermined: increased market functioning will lead to decrease in staff size at current service providers, possibly compensated by new employment created at new entrants</p>
Number working hours	-16 to +4%	
Quality of labour (proficiency, training, health, safety)	Negative or positive	<p>Depending on stakeholders point of view. Our own analysis could not substantiate the direction of expected effects.</p>

#### 4.2.7 Effects per port type

##### *Expected effects per type of port might differ*

It has been difficult to assess the expected effects per port type in a detailed way. In general four types of port management can be distinguished; the privately owned and operated port, the landlord port (publicly owned land, privately operated port services), the tool port (publicly owned land and port tools, privately operated labour) and the service port (all services provided by public bodies). The complicating factor was that per type of management model, still different types of procurement schemes and efficiency levels can be discerned. Table 4.10 therefore describes the averaged general directions of effects to be expected, specific outcomes per port can differ considerable around these averages.

**Table 4.10 Effects Port Directive per port type**

	Charge levels	Investments	Safety	Environment	Social
Private port	Limited when proper procurement is assured	Limited when proper procurement is assured	Limited when proper procurement is assured	Limited when proper procurement is assured	Limited when proper procurement is assured
Landlord port	Slightly Downward when improved public procurement is assured	Slightly upward when appropriate concession periods are established	Small effect when regulation is properly adhered to	Shift road/rail towards SSS possible	Lower wages existing service providers, shift of labour towards new service providers, shift of income to port users
Tool port/service port	Downward when improved public procurement is assured	Upward when appropriate concession periods are established	Small effect when regulation is properly adhered to	Shift road/rail towards SSS possible	

### 4.3 Assessment of effects: three cases

#### 4.3.1 Case 1: short sea shipping Portugal – Northwest Europe

At present short sea liner shipping between the Iberian Peninsula and Northwest Europe, either ro-ro or container, does practically not yet exist. This is despite the fact that cost calculations generally show that for certain combinations of origins and destinations short sea liner shipping is competitive with transport by road. The strong resistance of vested interests such as road haulier lobbies are one of the reasons hindering the introduction of short sea liner shipping services.

##### *The share of port related charges*

In table 4.11 a cost breakdown of short sea shipping is given for container shipments between West Europe and Portugal<sup>12</sup>. It shows that the costs of combined maritime – road transport are with €1288 per TEU less than transport by road of about €1500 per TEU. This cost advantage is reduced by less favourable quality of services aspects such as with respect to time-related costs of cargo in transit and cargo waiting for departure or arrival associated with service frequency. The cost advantage of combined transport becomes smaller and may even make it more costly for shipments requiring long distances of pre- and on carriage by road.

The example also shows that the share of maritime transport exclusive of port related costs is about 14% of total door-to-door costs. The costs of maritime transport and all port

<sup>12</sup> Based on the study “Liner shipping potential for Portuguese short sea trades, Instituto Portuario Maritimo, Portugal, 2002

related charges are 38%, so that the costs of pre- and oncarriage by road come at 62%. All port related charges are nearly one quarter (24%) of the total costs.

**Table 4.11 Composition of door-to-door container shipment costs West Europe - Portugal (in € per TEU)**

Link in transport chain	€ per TEU	Share in total
Road transport West Europe	500	38,8%
Port related costs West Europe	178	13,8%
Maritime transport	185	14,3%
Port related costs Portugal	126	9,8%
Road transport Portugal	300	23,3%
Total combined transport	1288	100%
Cost of total transport by road	1500	116,4%

The possible effect of a decrease of 10% of port related charges is assessed for the hypothetical modal split of combined transport by sea and road versus transport by road only. In the earlier mentioned study the modal split is applied to the transport flows between five regions in Portugal and ten regions in Northwest Europe. For each of the related 5x10=15 trade routes the market share of short sea shipping is assessed on the basis of generalised costs<sup>13</sup>. The market shares are expressed as a function of shipping costs and quality of service differences between the competing modes of these trades. In the studies a number of alternative shipping routes were analysed combining several ports.

For the trade North Portugal – Northwest Germany an assessment is made of road transport costs and combined road transport - sea transport costs and further the corresponding transit times and inter-arrival times of shipping services. Road transport is assumed to be door-to-door. Sea transport is assumed to require road transport between the nearest port of call, which is adopted for the shipping service concerned, and the regional gravity point.

If a two port ro-ro service is applied with Zeebrugge in Belgium as port of call, road transport will apply between Zeebrugge and the regional gravity point put at the city of Hanover. If also the port of Bremen would be called at, the shorter road trip between Hanover and Bremen will apply.

Transport times are assessed in the same way as transport costs by adding transport times related to all links in the transport chain from gravity point-to-gravity point of the regions concerned.

The inter-arrival time depends on the number of services per unit of time.

If we assume that the introduction of the Port's Directive will lead to a reduction of 10% of sum of charges for ship handling and terminal handling, this will lead to a reduction of all port related charges of  $0.91 \times 10\% = 9.1\%$ . The remaining 0.9% concerns harbour dues, which are assumed to be not effected by the measure in this example case.

<sup>13</sup> The market shares are assessed by using a Logit Model. The coefficients applied in the utility function of the Logit Model are based on statistical analyses of stated and revealed preferences for other comparable situations

The market share of short sea shipping for the most successful container service option concerns a route connecting the ports of Lisbon, Southampton and Rotterdam. The estimated market share of the container route would be 22.8% of the cargo carried by road between West Europe and Portugal at present. A decrease of all port related charges with 10% resulting would lead to an increase in the market share of 23.9%. This relates to an elasticity of short sea shipping trade volumes with respect to a change in all port related charges of 0.47<sup>14</sup>. The value of the elasticity is less than one, which implies that on the basis of the SSNIP test it can be stated that port service providers have some monopolistic market power<sup>15</sup>.

If the test is applied to the various port services separately the coefficients are assessed by multiplying 0.47 with the shares of the various port services as presented in table 4.13 below. It may be clear, as could be expected, that the monopoly market power is considerable.

#### 4.3.2 Case 2: Charge composition Northwest European container hub-ports

Two examples are given of the composition of port related charges and their share within total door-to-door costs. One concerning the container trade to and from the West European continental hinterland and one for short sea container shipping between Portugal and Northwest Europe.

##### *Example for container trade Asia – West Europe*

A shipment of imports by container from Asia for West Europe includes the following elements:

1. Land transport in Asia
2. Port transfer in Asia
3. Maritime transport
4. Port transfer in West Europe
5. Land transport in West Europe

The cost composition of an exemplary door-to-door container shipment from East Asia to West Europe is given in table 4.12. The port related costs in West Europe are about 4 percent of the total costs of €2,620 per TEU.

**Table 4.12 Composition of costs of a door-to-door container shipment from East Asia to West Europe (in € per TEU)**

Link in transport chain	€ per TEU	Share in total
1 Land transport East Asia	400	15%
2 Port related East Asia	120	5%
3 Maritime transport	1,500	57%
4 Port related costs West Europe	100	4%
5 Land transport West Europe	500	19%

<sup>14</sup> The elasticity is based on a 10% change according to the formula: (change in market share/initial market share) divided by (change in port charge/initial port charges).

<sup>15</sup> The SNIPP test ("Small but Significant and Nontransitory Increase in Price") is followed by most competition authorities in the definition of relevant markets in the antitrust context. See Simon Bishop, Mike Walker, "Economic of E.C. Competition law: Concept, Application and Measurement", 1998

total costs	2,620	100%
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The port related charges for the various services are given in table 4.13. Port related charges for the ports in the Le Havre - Hamburg port range vary amount to about €100 per TEU. Of these the cargo handling charges arrive at 82%, leaving 18% for all ship related charges. Of the latter about half concern harbor dues, which concern all charges for the access of a port<sup>16</sup>. Charges for marine services such as towage, pilotage and (un)mooring range from €1.3 to €4.1 per TEU and therefore constitute only a small part of all charges on the ship in port and much less of the total door-to-door costs.

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<sup>16</sup> It should be noted that for the West European ports the charge for using a berth (berth hire) is included in the terminal handling charges. The terminal operator pays a rent for land and quays to the landlord, whilst the shipping company does not have to pay berth hire.

**Table 4.13 Composition of port related charges**

Port related charges per TEU	Charge in	Share in port cost	Share in total cost
	€ per TEU	%	%
Harbour dues	9,0	9,0%	0,34%
Towage charges	3,0	3,0%	0,11%
Mooring/unmooring charges	1,3	1,3%	0,05%
Pilotage charges	4,1	4,1%	0,16%
Other charges	0,6	0,6%	0,02%
Total ship handling charges	18,0	18,0%	0,69%
Terminal handling charges	82,0	82,0%	3,13%
Total charges per TEU	100,0	100,0%	3,82%

### 4.3.3 Case 3: Container port choice Hamburg Le Havre Range

#### *A possible effect of the introduction of the Port's Directive*

A third example of the possible effect of a decrease of port related chargers is assessed for the choice of a container port in the Hamburg – Le Havre range. The expected effects of the Port Directive might differ per type of port. We calculated the impact of relative decreases of port related charges varying across the major container hubs in the range. The results of this analysis give an indication on the effect on the competition between container ports.

To calculate the impact a market share model is used. This model describes the choice of shippers or receivers when selecting the preferred port and hinterland transport mode for the transport of containerised cargo. Since the hinterland of the container ports in the Hamburg – Le Havre range largely overlap, shippers and receivers in that hinterland have several options to select from. They make their selection based on a trade-off between costs and quality of service aspects. The model determines the probability that a shipper/receiver in a certain region in the hinterland (for instance the Ruhr-area in Germany) will use a specific port for his container transport, given the costs, transport time, etc. of that choice. The model has been calibrated on the actual throughput, modal split and regional distribution of containers in the hinterland in 2001 and 1997. The port related charges are one of the elements in the total costs for the shipper/receiver, next to the hinterland transport costs. A change in the costs will lead to a change in the probability that a port is chosen. Relatively lower costs will increase this probability and therefore lead to higher volumes transported via this port and a higher market share.

Based on the available information and taken into account the market position of each port and the current tariff structure of the ports considered, the decrease of port related charges in these ports were determined in a brainstorm session. For the sake of this example we have assumed the decrease of port related charges in these ports to be the following:

**Table 4.14 Relative decrease of port related charges in the major container hubs of the Hamburg – Le Havre range**

Hamburg	Bremen	Rotterdam	Antwerp	Zeebrugge	Le Havre
-15%	-15%	-10%	-10%	-10%	-5%

In earlier studies a market share model<sup>17</sup> has been used to study the competition of the major container port in Northwest Europe. The model has been used to determine the effect of the new Maasvlakte 2 development for container handling in the port of Rotterdam and for the deepening of the river Scheldt, the access channel of the port of Antwerp, to allow larger container vessels easy access to Antwerp.

The hinterland of these container hub-ports is large overlapping, leading to much competition between the ports. The model assesses for each region in the hinterland the choice of land transport mode and sea port on the basis of generalised costs (costs, time, frequency, etc.)<sup>18</sup>. For the transshipment containers the model assesses for the regions in the overseas hinterland (UK, Baltic, Scandinavia, Iberian Peninsula, etc) the transshipment hub-port in the HH-range. Aggregating across all regions, continental and overseas) the total throughput of each port and its market share within the HH-range is determined. The model has been calibrated on the actual throughput, modal split and regional distribution of containers in the hinterland in 2001 and 1997.

Figure 4.1 Alternative routings (ports, hinterland modes) for a specific hinterland area



One of the elements in the generalised cost function is the cost of port related charges (port dues and handling charges). For this example we implemented the cost reductions in each port, as listed above, in the model and calculated the effect on the total throughput and market share of each port. The port related charges in each port decrease, but for some ports more than for others. Therefore all ports are more attractive than without the

<sup>17</sup> 'A model on container port competition, An application for the major West European container hub-ports', Simme Veldman en Ewout Bückmann, Maritime Economics and Logistics, 2003, 5 (3-22).

<sup>18</sup> An aggregated logit-function is used to assess the market shares. The coefficients of the generalised cost function are based on revealed preference.

cost decrease, but some more than others causing a shift in market share. For transshipment containers the difference between ports is larger, since transshipment containers are handled twice<sup>19</sup> and two ships are involved. Based on these cost reductions the following relative changes in port throughput follow from the model:

**Table 4.15 Example of relative change in port throughput in the major container hubs of the HH-range caused by Port's Directive**

	Hamburg	Bremen	Rotterdam	Antwerp	Zeebrugge	Le Havre
Continental	1.4%	1.8%	0.0%	-1.3%	-2.0%	-0.5%
Transshipment	18.9%	-2.0%	-5.2%	-12.2%	- <sup>20</sup>	-9.5%
<b>Total</b>	<b>8.2%</b>	<b>0.1%</b>	<b>-1.2%</b>	<b>-2.9%</b>	<b>-2.0%</b>	<b>-2.5%</b>

For the continental hinterland, the results are as was to be expected, the ports with the largest cost decrease profit the most. However, the port with the smallest decrease, Le Havre, is not the port suffering the most. Since the port of Le Havre is at the one end of the HH-range, the overlap in hinterland with other ports is relatively small, causing the effect of a relative charge increase compared to the other ports to be moderate. Since the absolute level of port related charges in the port of Rotterdam are somewhat higher than in Antwerp, the cost decrease in Rotterdam (in absolute terms) is slightly higher than in Antwerp. This explains the difference in effect of the same relative charge decrease on the throughput volumes of these two ports with large overlapping hinterlands.

For transshipment containers, the overseas hinterland, the effect is much stronger. The port related charges are more imported for these containers and these flows are more footloose and will shift much faster between competing ports. Since the transshipment volume in Hamburg is much higher than in the competing ports (up to 50% of total throughput in that port) this provides some scale advantages to this port (more feeder lines, higher frequencies, etc.). As a result this port profits from the large charge decrease at the expense of all other ports, including Bremen.

The overall conclusion of this example is off course that the effect of these relatively high decreases in port related charges have a limited effect on the market share of the ports in the Hamburg – Le Havre range. The cost reduction has the largest effect on Hamburg, mainly for transshipment containers.

### Conclusions

The overall aim of the Port Directive, increasing competition in service provision in ports, is a valid one. Currently the service provision in many ports is charged at levels above relevant benchmark figures.

**The expected effects of the Directive generally tend towards the right direction, thereby contributing to the final objectives**, i.e. free markets and sustainable transport. To what extent the current set of proposals in the Directive in reality will successfully deliver this situation remains to be seen, and is not answered by our effect study. Some obstacles still need to be solved: prevent unnecessary side-effects of the Directive, prevent transaction cost related to increased bureaucracy, ability to create transparent information and reliable data. Clearly some elements of the current Directive

<sup>19</sup> From deep sea vessel to the terminal and from the terminal to the feeder vessel or vice-versa.

<sup>20</sup> Transshipment in Zeebrugge is too limited to calculate effects.

(issues related to for example self handling, concession authorisations, concession length, compensation schemes etc) need be thought over before one-on-one implementation.

However, the discussion arena has shown to contain also some non-rational arguments, put – sometimes vehemently- forward by several stakeholders. In this respect it is our overall assessment that there seems to be a combined opposition to the acceptance of the Port Directive of both port service providers and port labourers (or their representatives). Due to their -fierce- opposition, aimed at defending their current -often privileged- interests, the port owners/authorities and to some respect also the port users seem reluctant to support the necessary changes aimed at by the Port Directive, since the latter will endure the most of the negative short term effects related to the transition path that has to be followed. It is taking a stance (and keeping it) in this trade-off between short term negative effects, and long term possible societal benefits that lies ahead for the European decision makers.

### **Three example cases show relatively modest effects**

Case 1 shows that the market share of short sea shipping for the most successful container service option concerns a route connecting the ports of Lisbon, Southampton and Rotterdam. The estimated market share of the container route would be 23% of the cargo carried by road between West Europe and Portugal at present. A decrease of all port related charges with 10% resulting would lead to an increase in the market share of 24%. The volume of this route is however small compared to other routes.

Case 2 shows that port related charges for the ports in the Le Havre - Hamburg port amount to about € 100 per TEU. Of these the cargo handling charges arrive at 82%, leaving 18% for all ship related charges. Of the latter about half concern harbor dues, which concern all charges for the access of a port. Charges for marine services such as towage, pilotage and (un)mooring range from € 1.3 to € 4.1 per TEU and therefore constitute only a small part of all charges on the ship in port and much less of the total door-to-door costs.

Case 3 shows that the overall conclusion of the deepsea container example in the Hamburg Le Havre range is that the effect of a relatively high decrease in port related charges have a limited effect on the market shares of the ports in the Hamburg – Le Havre range. The assumed cost reduction has the largest effect on Hamburg, mainly for transshipment containers.

## 5 Monitoring and evaluation

### 5.1 Current status of monitoring

At present there is no monitoring and evaluation system in place for the functioning of the port services market. Information is at best only available for some countries, like the number of port service providers. Some information, like charges for container handling, can only be gathered from market parties. In order for the Commission to monitor and evaluate progress on the objective of proposed directive a simple monitoring and evaluation system should be set up, starting from the objectives and indicators described in chapter 3.

The main challenge will be defining the methodology and the measurement process with which the indicators actually can be measured. In the complex field of port operations, and given its varied interests, it is easy imaginable that a theoretically sound and attractive monitoring system aimed at providing transparency and opportunities for benchmarking and comparison will fail to be established in practice

### 5.2 Review monitoring system

In Chapter 3 the objectives and indicators have been defined. The monitoring system should aim at creating a monitoring framework in which the essential indicators are gathered in a systematic, comparable and transparent way:

#### *Output indicators*

In a way the monitoring system for the considered amendment can be quite simple. Taking the operational objectives, there are only a few straightforward indicators.

#### *Result indicator*

As the proposed directive would promote Short Sea Shipping, it would be interesting to monitor the percentage of SSS in the EU.

For the monitoring of the number of service providers, and the way service provision is procured, the assistance of the Port Authorities will be indispensable.

#### *Outcome indicators*

At the general objective level various indicators are identified that are potentially affected by the proposed directive. As they are formulated at the level of overall objectives of the White Paper, it is not efficient to monitor these objectives for the present policy action only. It is therefore recommended to include the monitoring of these indicators in the general monitoring exercise of progress of implementation of the White Paper.

## 5.3 Evaluation

The evaluation of the proposed directive should preferably start a few years (2-3) after the directive has been launched. It should be preceded by a proper quantification of the current situation (before the implementation of the Directive). The aim of the evaluation is to review the functioning of the directive. It should deal at least with quantifying the effects of the regulation addressing the development of the various indicators (i.e. number of service providers, their average market share and the variation; containers moved per hour or year by gantry cranes, TEUs per ha terminal, TEUs per meter quay wall, waiting time for port entry / berthing or turnaround times of ships and labour costs and the level of charges (port dues and cargo handling charges) and more important try to assess to what extent the observed development has been caused by the implementation of the directive. This means, the evaluation should give insight and discuss the relevance of implementing the directive in the first place and draw conclusion from that.

### Conclusions

At present there is no specific monitoring and evaluation system for the functioning of the port services sector.

The monitoring of the outcome indicators is best done through statistical data sources kept by national and international statistical agencies and ports authorities.

The main challenge is defining the methodology with which the indicators actually can be measured. In the complex field of port operations, and given its varied interests, it is easy imaginable that a theoretically sound and attractive monitoring system aimed at providing transparency and opportunities for benchmarking and comparison will fail to be established in practice

## Appendix I: Assessment of official stakeholder views

### SYNOPSIS OF MAIN STAKEHOLDERS VIEWS

	ESPO	FEPOR	ESC	ECSA	EBA	ETA	EMPA
BASIC PRINCIPLES ON MARKET ACCESS - AUTHORIZATIONS	<p>There is no need to harmonize the different ways of gaining market access.</p> <p>Separate authorization is only required in cases of specific public service requirement.</p> <p>Existing and potential service providers must comply with all Member States legislation, including</p>	<p>Re-tendering upon existing authorizations is considered unacceptable &amp; unjustifiable</p> <p>There is no need of new directive focusing on intra-port competition</p> <p>Compensations are not fairly defined resulting to unfair competition.</p>	<p>The scope of current proposal should extend to all ports which are open to general commercial traffic (no thresholds to be applied), in order to create a level playing field.</p> <p>Open and full competition should also be allowed to all port services including TNS.</p> <p>Lack of clarity with regard to</p>	<p>Further steps are needed to ensure the necessary liberalisation process and to apply free market principles.</p> <p>Principles of market access should apply to both public (landlord) and private ports in the appropriate way.</p> <p>Open and full competition must be allowed to all port</p>	<p>Application of the Directive proposal is expected to decrease safety in ports.</p> <p>Mooring services are services of "general economic interest" and as such, according to EC Treaty are not to be allowed conditions of open competition.</p> <p>Special treatment is needed as in the</p>	<p>Tug operations need different kind of regulation due to high capital commitments and high safety and environmental responsibilities.</p> <p>Peculiarity regarding compensation needs, in cases of new providers take over.</p>	<p>Pilotage is a Maritime Safety Public Service with responsibility for protection of the environment and therefore is not a commercial service.</p> <p>Pilotage must be excluded from the Directive proposal since open competition is expected only to create conditions for decreasing quality via a reduction of professional</p>

	<b>ESPO</b>	<b>FEPOR</b>	<b>ESC</b>	<b>ECSA</b>	<b>EBA</b>	<b>ETA</b>	<b>EMPA</b>
	social legislation & collective agreements.	The capacity criterion to limit access to newcomers is ambiguous.	<p>compensation schemes.</p> <p>The new directive should include terminal/cargo handling but not passenger services.</p> <p>Basic State Aid guidelines are helpful.</p>	<p>services.</p> <p>The Conciliation Paper provides a very good agreement (particularly for compensations). Need to start from there.</p> <p>Thresholds must be kept as they are.</p> <p>Terminal/cargo handling and passenger services must be a full part of the directive.</p> <p>PECs should be allowed and not linked to "self-handling".</p>	<p>case of pilotage.</p> <p>Open competition will create just replacement of providers.</p>		<p>qualifications.</p>
COMPETENT AUTHORITY	Port managing body must always be in charge of the selection procedure						

	<b>ESPO</b>	<b>FEPOR</b>	<b>ESC</b>	<b>ECSA</b>	<b>EBA</b>	<b>ETA</b>	<b>EMPA</b>
	<p>(mainly due to sufficiency of knowledge)</p> <p>To ensure neutrality there is a need for an efficient and effective appeal system combined with a basic transparency requirement</p>						
<b>SELECTION PROCEDURE</b>	<p>Open selection must be limited only to monopolistic cases, and mainly for TNS and cargo handlers that are asking to benefit from State Aid</p>	<p>Implementation of re-tendering (within 18 months period) will cause chaos, interrupting normal port operations.</p>	<p>Authorizations must be mandatory.</p>	<p>Selection/tendering procedure should be applied if there is a limitation of service providers</p> <p>Practical, straightforward and transparent procedures should be set up to ensure that providers have the necessary qualifications.</p>		<p>Authorizations are expected to be bureaucratic and expensive.</p>	

	<b>ESPO</b>	<b>FEPOR</b>	<b>ESC</b>	<b>ECSA</b>	<b>EBA</b>	<b>ETA</b>	<b>EMPA</b>
<b>MAXIMUM DURATIONS</b>	<p>Increase maximum durations to the levels of 10, 15, 45 years</p> <p>Do not apply max durations in cases of land ownership</p>		Maximum durations should be proportional to the investment made.	<p>Appropriate duration periods are essential in cases investment is needed.</p> <p>Shorter periods would promote more frequent competition even in small ports with a limited number of providers.</p> <p>Short duration periods must be applied especially in the case where only ONE provider is allowed.</p>		Lack of real prolongation option doesn't allow for needed continuous & regular investment.	
<b>SELF-HANDLING (SH)</b>	<p>SH for reasons of subsidiarity and proportionality, it is best to be regulated at local or national level.</p> <p>SH on board of the ship involves the</p>	No need of self-handling with the possible exception for seafaring crew on board of ships.	SH must be allowed in special cases (eg short sea shipping services) provided that safety standards, training requirements, professional qualifications, employment and	The need of authorisations for self-handling is not accepted, on the basis that these services are provided on the ship by the crew, being of key importance to the safety of the ship.	SH should be excluded and allow mooring regulation at national level.		

	<b>ESPO</b>	<b>FEPOR</b>	<b>ESC</b>	<b>ECSA</b>	<b>EBA</b>	<b>ETA</b>	<b>EMPA</b>
	responsibility of the master whereas on land it is a matter to be negotiated with either the terminal operator (on a port facility in private use) or the competent authority (on a port facility in public use).		social matters are not affected  To be applied also to shippers/cargo owners				
<b>TRANSITIONAL RULES</b>	Guidelines of State Aid must be issued first  An adequate transitional regime has to be applied for existing concessions, licenses and commercial agreements  Already established ownership rights must not be affected in any way.	State Aid guidelines must be issued first.	In-depth study is needed to establish the necessary transitional arrangements.	The text agreed in Conciliation should be reintroduced.		Transitional provisions are “rudimentary” and incapable to protect existing service providers (high risk for contract breaching).	

	<b>ESPO</b>	<b>FEPOR</b>	<b>ESC</b>	<b>ECSA</b>	<b>EBA</b>	<b>ETA</b>	<b>EMPA</b>
	The competent authority should check whether existing service providers are meeting the conditions under which they gained access to the market.						
<b>SOCIAL ASPECTS</b>	Existing and potential service providers must comply with all Member States legislation, including social legislation & collective agreements.	New service providers must take over responsibilities / rights of previous employer to existing employees, including pension rights.	The conciliation text takes everything into account. For this reason its provisions should be kept intact.	The Conciliation text includes clear and sufficient social/safety/security and environmental protection elements. It must be kept unchanged.			

## Appendix II: References

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## Appendix III: Stakeholder consultation

### Introduction

In the context of this evaluation study a dedicated stakeholder consultation has been carried out. This consultation was aimed at European interest groups, rather than individual or national ports, labour organizations, shippers etc. The reason for this approach has been to avoid any national or stakeholder bias in the responses. However, also these European organizations have shown to be to a certain extent biased in their view points since they represent only one group of stakeholders with the same interest. Therefore, the answers provided have been assessed carefully.

### Approach

The approach has been based on a combination of a structured questionnaire and subsequent interview. The questionnaire was sent prior to the interview, in order for the interviewee to already familiarize with the questions to be asked. In all cases, an interview has been carried out, also to make sure the questions were correctly interpreted. It should be noted that our questionnaire developed is rather short on explanations and also contains some unclarities. Therefore the explanations provided during the interviews proved to be essential.

In almost all cases (7 out of 9), the questionnaires were completed by the interviewee after the interviews. The completed questionnaires were analyzed and in case of doubt regarding the interpretation of the effect explanations were sought with the interviewee. Many of the completed questionnaires already provided some additional explanations or clarifications on the answers provided. The following explanatory notes were provided to the interviewee:

- The influence on port services charges expressed as “+” and “-“ means “higher” or “lower” charges (Question A1).
- The influence on safety level in the port is expressed as “pos”, “neutral” or “neg”, meaning a “higher”, “neutral” or “lower” level of safety (Question A2).
- In Question A3 four different port models have been mentioned: port models prevailing in Mediterranean countries, landlord port models, private port models and new restructured Eastern European port models. The characteristics of these models have been explained.
- The relative effects per country on port services charges and safety levels compared to the foreseen EU average have also been asked for (Question A4). The terms “above” and “below” average refer to the comparison with the expected EU average effect of the respondent for the technical-nautical and cargo handling services.
- The effect on labour aspects has also been expressed in terms of “+” and “-“. This should again be interpreted as “higher” or “lower” (Question B1).

- The relative effects per country on labour aspects compared to the foreseen EU average have also been asked for (Question B3). The terms “above” and “below” average refer to the comparison with the expected EU average effect of the respondent.

The questionnaire consists of two parts: Part A Economic effects and Part B Social effects. All questions were asked to all stakeholder organizations.

### **Interviewed stakeholders**

The following stakeholders have been interviewed:

- CLECAT, European Association for Forwarding, Transport, Logistics and Custom Services – *Secretary General, Mr. M. Sorgetti.*
- ECSA, European Council of Shipping Associations - *Secretary General, Mr. A. Guinier.*
- EMPA, European Maritime Pilots' Association – *Secretary General, Capt. C. Lefevere*
- ESC, European Shippers Council - *Secretary General, Mrs. N. Van der Jagt*
- ESPO, European Sea Port Organisation - *Secretary General, Mr. P. Verhoeven*
- ETA, European Tugowners' Association - *Chairman, Mr. A. Dalrymple; Vice chair, Mrs. C. Barges; Secretary General, Mr. H. Callens*
- ETF, European Transport Workers Federation - *Secretary General, Mr. Chagas*
- IAPH, International Association of Ports and Harbors – *Managing Director Europe Office, Mr. P. Chr. van der Kluit; Senior Liaison Officer Europe Office, F.M.J. van de Laar;*
- FEPORT, Federation of European Private Port Operators - *Secretary General, Mr. D. Teurelinx*

The interviews took place with either the secretary general or the general director of these organizations, in order to ensure that the hierarchical positions of the respondents were the same

### **Results of interviews**

Minutes have been made of each interview, for internal analysis. For reasons of confidentiality, these interview reports are not made public.

### **Results of questionnaires**

Almost all organizations (7 out of 9) have completed the questionnaire. However, not all parts have been filled in to the same extent. The following questions were only answered by a very limited number of stakeholder organization and consequently these answers were **not** taken into account in our assessment:

- Question A3 on the expected difference in effects on charges for technical-nautical services and safety levels for four mentioned port models.
- Question A4 on the relative effects on charges for technical-nautical services and safety levels in the individual Member States ( completed by 2 respondents).
- Question B3 on the relative effects on labour aspects in the individual Member States (completed by 2 respondents).

### **Our assessment**

As mentioned in the introduction, the responses of the different organizations expressed in the interviews and the questionnaires called for a careful assessment. The questionnaire has also been completed by the consultants' team, based upon our expert judgment and other public information available.

The overall assessment of the effects (sometimes expressed by bandwidths) is reported in the main report.

## Questionnaire for the economic evaluation of the Port Directive

The implementation of the Port Directive aims at establishing more competition and thereby the avoidance/reduction of inefficiencies and monopoly profits<sup>21</sup>. After some time period this should lead **to lower charges and/or better quality of service**. The Port Directive will also have an effect on **labour aspects**.

The questionnaire is structured around these two important effects:

- Part A covers the economic effects (charge and/or quality)
- Part B covers the social effects

The following levels of improvement are distinguished:

1. “Strongly”: more than 15 percent
2. “Significant”: 5-15 percent
3. “Small”: 2-5 percent
4. “Weakly”: less than 2 percent
5. “None”: no change

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<sup>21</sup> In the main report, some evidence is provided on the likely existence of inefficiencies and monopoly profits (market failure) in section 2.4.

## PART A: ECONOMIC EFFECTS

**A1. To which degree will the following aspects of port activities be influenced by the Directive on market access to port services? Please also indicate whether the effect would be positive or negative.**

	Influence						
	Strongly			Weakly		+ or -	None
	←				→	+ / -	
	1	2	3	4	5		6
<b>Navigational services</b>							
The charge of pilotage services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
The charge of towage services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
The charge of (un)mooring services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Port safety level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<b>The charge of cargo handling services</b>							
Short sea ro-ro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Short sea passenger ferry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Short sea container	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Container feeder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Short sea break-bulk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Short sea dry bulk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Short sea liquid bulk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Deepsea container	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Deepsea break-bulk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Deepsea dry bulk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Deepsea liquid bulk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

**A2. Which port sectors will be *most* influenced by the Directive on market access to port services?**

**Name the three most important ones in descending order and provide related effects on turnover, investments level and safety in port.**

Port sector	% Change in turnover					% Change in investments					Safety level in the port		
	Strongly		Weakly			Strongly		Weakly			Pos	- Neutral	-Neg
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**A3. The Hanseatic ports with their landlord model, the UK ports with the important role of private ports, the ports in the Mediterranean and the ports in Eastern European countries are different in terms of port organisation. Therefore they do have different starting positions. For which type of port will the effects be the biggest? Please put the port models in decreasing order of effect.**

Port model	Put number in order (1, 2, 3 or 4)
Port models prevailing in Mediterranean countries	
Landlord models as applicable for the Hanseatic ports	
UK private port model	
New restructured East European port models	

**A4. The effect on technical – nautical services (pilotage, towage and (un)mooring) and the cargo handling services will differ per country. Please indicate per country whether you expect a neutral effect or an effect above or below the average.**

Country	Technical-nautical services			Cargo handling services		
	Above average	Neutral	Below average	Above average	Neutral	Below average
Belgium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cyprus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Denmark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Estonia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
France	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Germany	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greece	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Italy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ireland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Latvia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lithuania	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Malta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Netherlands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Portugal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slovenia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sweden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UK	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**PART B: SOCIAL EFFECTS**

**B1. To which degree will the following aspects of labour be influenced by the Directive on market access to port services?**

	Influence						
	Strongly			Weakly		+ or -	None
	←				→	+ / -	
	1	2	3	4	5		6
Professional skill of workers (services provided)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Workers' health and safety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Workload for employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Salary levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Working hours							
Labour relations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Collective labour agreements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Size of the labour force	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Other, please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

.....  
 .....

**B2. Which aspects of labour will be *most* influenced by the Directive on market access to port services? Name the three most important ones in descending order.**

- |    |
|----|
| 1. |
| 2. |
| 3. |

**B3. Please indicate for the most important labour aspect mentioned in B2. per country whether you expect a neutral effect or an effect above or below the average.**

Country	Above average	Neutral	Below average
Belgium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cyprus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Denmark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Estonia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
France	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Germany	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greece	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Italy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ireland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Latvia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lithuania	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Malta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Netherlands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Portugal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slovenia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sweden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UK	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**B3. Which aspects of labour will be *least* influenced by the Directive on market access to port services? Name the three most important one in descending order (least influenced first)**

1.
2.
3.