



Public regulation and technical efficiency in the Spanish Port Authorities: 1986–2012

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ABSTRACT

This research analyses the impact of public regulation on the efficiency of the Spanish Ports Authorities during the last three decades. To this end, using Stochastic Frontier Analysis (SFA), an input-oriented distance model has been estimated for a sample of 26 *Port Authorities* during the period 1986–2012. This paper contributes to the literature by establishing a direct correlation between the reform and the change in efficiency.

Four regulatory changes have been carried out in the Spanish port system during the last three decades: Act 27/1992, Act 62/1997, Act 48/2003 and Act 33/2010. In line with other reforming countries around the world, the regulatory reforms rested on three key instruments: decentralisation (port autonomy), participation of private sector and introduction of competition.

This paper supports that Act 62/1997 and Act 48/2003 focused on the promotion of port autonomy, privatisation and inter-port competition and had a positive impact on the efficiency of the Spanish port system.

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1. Introduction

Spain is the European Union country with the longest coastline (8000 km). Therefore, the Spanish maritime sector is an important part of the national economy, comprising a wide range of industries, including: maritime transport, ship building, shipping, fisheries, energy production, maritime leisure activities and marine environmental organisations. Ports are major actors within maritime transport. They handle nearly 60% of exports and 85% of imports, which account for 53% of Spanish foreign trade with the European Union, and 96% with other countries. Moreover, the State's port system's activity contributes to nearly 20% of the transport sector's GDP, which accounts for 1.1% of the Spanish GDP. Moreover, it generates direct employment of more than 35,000 direct jobs and around 110,000 indirectly (*Puertos del Estado*).

In the context of increasing international competition, the figures above highlight the importance of measures to improve the management and efficiency in ports in order to increase their competitiveness. In this sense, it is important to understand significant determinants of port efficiency gains over the medium to long term. In particular, as mentioned by Cheon et al. (2010), this understanding begins from an evaluation of dynamism in which

institutional reforms influence port efficiency.

1.1. The port management model: Historical context

The Royal Decree dated 17 December 1851 included, for the first time in Spain's history, state ownership of certain Spanish ports, which were brought under the then Ministry of Public Works. This Royal Decree classified Spanish ports into categories that have remained largely unchanged. The classification established two categories of ports: "Ports of General Interest" and "Ports of Local Interest". The same regulatory criteria is used in the 1978 Constitution (Art. 149) and developed under subsequent laws and regulations which governed the port sector until Spain joined the European Economic Community in 1986.

Prior to the 27/1992 Law, Act 1/1966 and Act 27/1968 allowed the existence of two port management models in Spain. On one hand, the autonomous ports of Barcelona, Bilbao, Valencia and Huelva were governed by the corresponding regional statutes with a greater autonomy level. On the other hand, the remaining ports were managed by "Juntas del Puerto" (port assemblies) on a centralised, non-competitive and bureaucratic manner. Moreover, as noted by Coto-Millán (1996), in 1986, the Spanish Ministry of Public Works set minimum rate of return based on the net investment of fixed assets for the entire port system, in order to control the current expenditure and improve the internal management of the Port Assemblies.

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1.2. The reforms of the Spanish port management model

The reform of the Spanish port system started in 1992 and followed a pattern similar to that of many other reforming countries. From 1992 until now, the Spanish port system experienced four regulatory changes: Act 27/1992, Act 62/1997, Act 48/2007 and Act 33/2010. The 1992–2010 reforms rested on three key instruments: decentralisation (port autonomy and self-administration), privatisation (participation of private sector) and introduction of competition (between ports and between operators within ports) in the port system. Table 1 summarises the main changes made by each regulatory reform in the period.

The 1992 reform (Law 27/1992 of 24 November on State and Merchant Marine Ports) transformed the port management system, by abandoning the service ports in favour of a landlord model. Under this law, the name of the port governing body became the *Port Authority*, a term which is widely used in the international arena for the authorities responsible for managing ports, irrespective of who owns them and of their legal nature.

The port management model, implemented through Law 27/1992, is geared towards greater autonomy, in terms of

management, and towards improving the port services provided. The terms “management efficiency” and “profitability” are repeated very frequently throughout the text of this law. Additionally, according to Nuñez-Sánchez and Coto-Millán (2012), this reform transformed the port model from a public system, based on strictly administrative criteria, to a commercial understanding of port services.

In order to give greater autonomy to each Port Authority, Law 62/1997 of 26 December, amending Law 27/1992, was adopted. This new reform was heading towards a port tariffs liberalisation and provided for greater participation by Spain's Autonomous Communities with Boards of Directors and in the appointment of the Presidents of Port Authorities.

Law 48/2003 of November 26, on the Economic System and Service Provision at Ports of General Interest, was approved as a continuation of the previous law. This Act amended its predecessor, but without completely repealing it, and represented another step towards providing Port Authorities with the tools to improve port efficiency. Furthermore, as mentioned by Laxe (2012), it is an attempt to meet the challenges of globalisation. This law adapted the port pricing system to the mandatory nature of taxes, made

Table 1
Summary of regulatory periods.
Source: Own elaboration.

	Decentralisation	Privatisation	Liberalisation/Competition
Law 27/1992	<ul style="list-style-type: none"> Transformed the port assemblies into less-centralised <i>Autoridad Portuaria</i> (Port Authority) <i>Autoridad Portuaria</i> (hereinafter PA): legally established public body with its own budget, but controlled and coordinated by the State Owned <i>Puertos del Estado</i> (Enterprise of National Ports, hereinafter ENP) Decentralised and simplified administrative processes and control 	<ul style="list-style-type: none"> Change of model for port management, from a tool port model to a landlord model Permitted access to port activities and to loading/unloading firms through the system of administrative contracts 	<ul style="list-style-type: none"> Created the State-Owned Enterprise of National Ports to Co-ordinate and promote inter-port competition, for the entire system The ENP gets financial resources from the whole port system
Law 62/1997	<ul style="list-style-type: none"> Increased PA autonomy from ENP, by involving the autonomous regions and local authorities in port management ENP gained autonomy from the Spanish Ministry of Public Works 		<ul style="list-style-type: none"> Limited liberalisation of port tariffs The ENP gets resources from the whole port system and forms a compensation fund for investments within that system
Law 48/2003	<ul style="list-style-type: none"> Increased PA capacity to outsourcing 	<ul style="list-style-type: none"> Limited PA activities: PA became a regulatory body and provider of infrastructure: PA would only provide cargo handling and other subsidiary services if no private firm were available First attempt towards privatisation of the state owned cargo handling firm <i>Sociedad Estatal de Estiba y Desestiba</i> Increased Harbour Pilot service privatisation 	<ul style="list-style-type: none"> Limited the areas of public domain Adapted tariff system to the service nature Promoted private sector participation in port infrastructure Increased inter-port competition, but kept the uniform tariffs system
Law 33/2010	<ul style="list-style-type: none"> Increased PA financial autonomy (based on the principles of economic self-sufficiency and cost coverage) Flexible pricing model. Each Port Authority is able to adapt to the economic reality at any moment 	<ul style="list-style-type: none"> Advanced landlord model: landlord port authorities that do not carry out any kind of port services 	<ul style="list-style-type: none"> Competitive flexible pricing model Reduced the concession contracts periods Created the <i>Observatorio Permanente del Mercado de los Servicios Portuarios</i> to promote prize and quality competition

Table 2
Descriptive analysis of the data.
Source: Own elaboration.

Variable name	Variable	Description	Unit	Mean	Std. Dev.	Max.	Min.
Intermediate consumption	x_N	Other productive factors cost of PA	Thousand Euro (constant 2001)	4838	4709	240	36,396
Capital	x_1	Stock of net fixed assets of PA	Thousand Euro (constant 2001)	7358	6159	11,026	1,399,000
Labour	x_2	Number of employees of PA	Employees	219	121	41	823
Berths	x_3	Berths necessary for ships' docking	Linear metres	10,395	5381	2006	48,019
Bulk solids	y_1	Bulk solids	Metric tons	3,056,779	3,259,497	6210	1,965,867
Bulk liquids	y_2	Bulk liquids	Metric tons	4,987,151	6,184,134	1	24,229,644
Containerised general cargo	y_3	Containerised general cargo	Metric tons	2,817,412	7,387,953	1	53,179,759
Non-containerised general cargo	y_4	Non-containerised general cargo	Metric tons	1,507,910	1,729,587	61,067	9,777,619
Passengers	y_5	Passengers	Number	704,956	1,287,287	0	5,793,708
Economic openness	C_1	Import-Export (% Region GDP)	Percentage	27.34	27.71	0.80	140.90
Trade	C_2	Merchandise trade (% of National GDP)	Percentage	40.38	4.88	25.57	47.22

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