Port Economics & Policy

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Introductory Lecture

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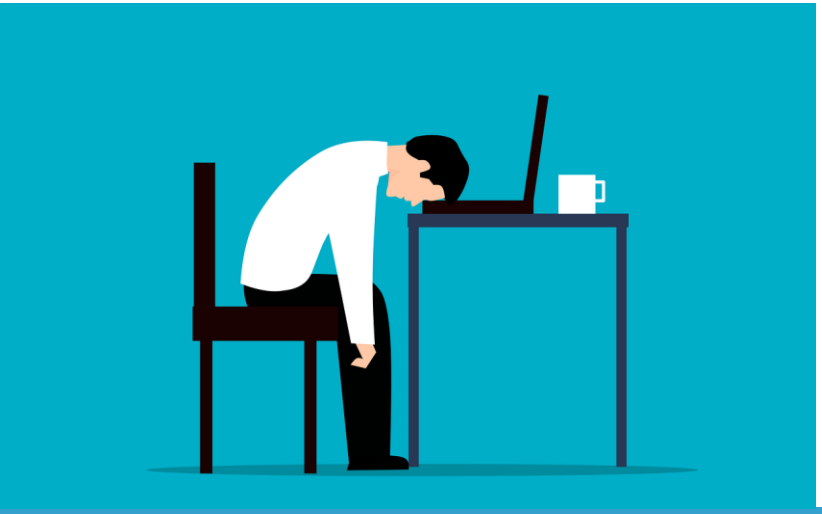
Course Evaluation

- Individual project for the 50% of the grade.
- Final Exam 50% of the grade



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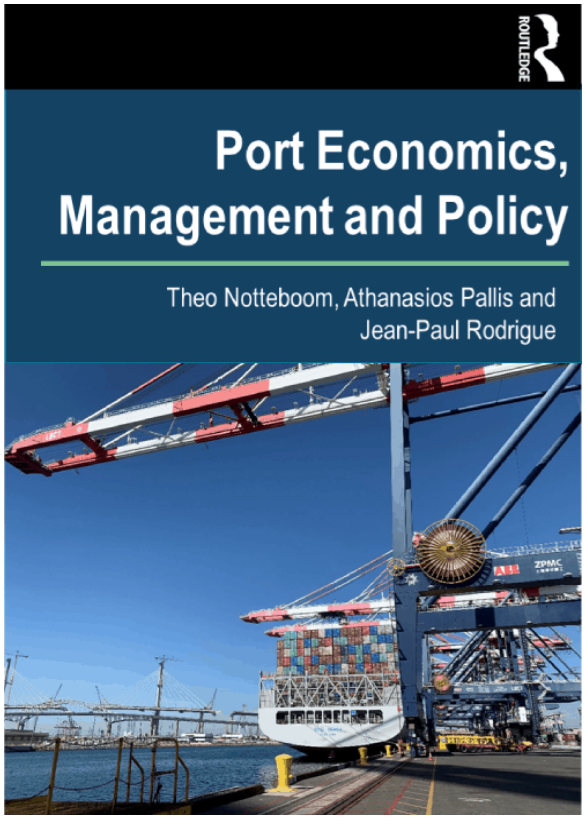
Understanding port economics & management

Port Economics, Management and Policies (2021)
an online reference project and forthcoming book
by T. Notteboom, A.A. Pallis and J-P Rodrigue.



Reading List

https://porteconomicsmanagement.org/

Lectures slides

https://openeclass.uom.gr/courses/SST113/

www.porteconomics.eu

PortEconomics is a web-based initiative aiming to advance knowledge exchange on seaport studies.

PortEconomics.eu

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Today: An Introduction

① Definition, functions, and typologies of seaports
② Port systems and network structures
③ Governance and economic role of ports

<u>Reading list:</u>

Chapter 0.1 – Defining Seaports

https://porteconomicsmanagement.org/pemp/contents/introduction/defining-seaports/#2_Typologies_of_Seaports

Chapter 0.2 – Seaports and the Blue Economy

https://porteconomicsmanagement.org/pemp/contents/introduction/seaports-economic-value/

A multifaceted approach

UNDERSTANDING SEAPORTS: FUNCTIONS, SYSTEMS, AND ECONOMIC FOUNDATIONS

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S1. Sea transport in the ancient world

- In the ancient world sea transport took place within local economies with “a low degree of geographical integration” (see world map)
- They were separated by long distances and the difficulties of travel by land and sea
- Ships made it easier to move goods within these worlds, but they were not linked by sea until global navigation developed in the 1490s.

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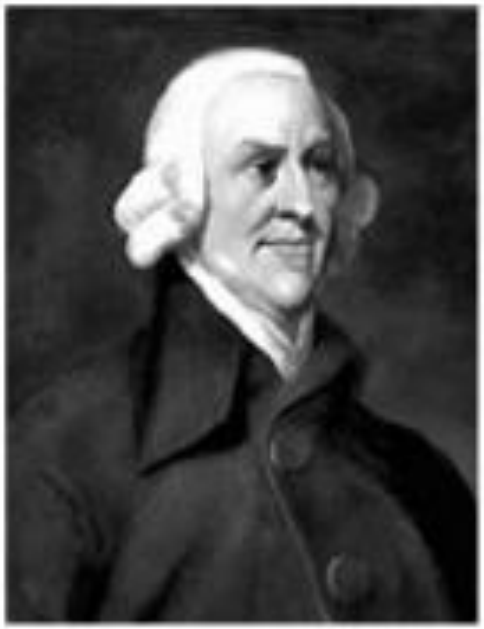
S2. How global markets became viable

- Over the last two centuries, cheap sea transport has made global trade economic for many commodities
- In The Wealth of Nations (1776) Adam Smith argued that the key to capitalist society is the division of labour.
  - Businesses producing more than they can sell locally need access to wider markets.
- For 5000 years sea traders have worked with shipping investors to find those markets –most recently China.



Adam Smith (1723-1790), the Scottish philosopher, explained how sea transport fitted into the capitalist economy of the 17th century. His insights are still true (and relevant) today.

S3. The Historical Role of Seaports

- Seaports have existed since the early stages of organized trade
- Emerged alongside the expansion of maritime trade networks
- Core function has remained stable despite technological change
- Ports act as interfaces between transport modes and regions
- Serve as critical gateways linking economies and markets

S4. Port : From Traditional to Functional Definition

- A port is a coastal area facilitating the movement of vessels, goods, and passengers
- Ships are brought alongside land to load/unload cargo and embark/disembark passengers
- A port is a transit node, not a final destination
- Acts as a gateway between maritime and hinterland systems
- Represents an interface between transport modes and economic spaces
- Core function: enable efficient transfer and circulation of flows

S5. Seaports as Nodes and Interfaces in Transport Systems

- Ports are critical nodes in global supply chains
- Connect maritime and inland transport networks
- Different transport modes vary in cost, speed, and capacity
- Require coordination and synchronization of flows
- Ports provide physical and operational integration
- Key role: reduce frictions and inefficiencies between transport modes

S6.The Load Break Function of Ports

- Maritime transport uses large, high-capacity vessels (long-distance efficiency)
- Inland transport relies on smaller, flexible units (distribution efficiency)
- This creates a scale mismatch across transport modes
- Ports act as load-break points, where cargo is reorganized
- Key activities: consolidation, deconsolidation, temporary storage

S7. Ports as Value-Creating Nodes in Supply Chains

- Ports are active logistics platforms, not passive transit points
- Perform value-added activities beyond transport:
  - cargo handling and transfer
  - transformation (e.g. packaging, processing)
  - distribution and logistics services
- Act as coordination hubs for supply chain operations
- Improve efficiency, reliability, and speed of flows
- Reduce transport and transaction costs
- Contribute to trade expansion and competitiveness

S8. A Comprehensive Definition of a Seaport

- Ports are multifunctional nodes in global supply chains
- Combine transport, logistics, and industrial activities
- Maintain a strong maritime foundation, but extend inland
- Act as interfaces connecting transport systems and regions
- Characterized by integration, coordination, and clustering

S9. Diversity of Ports

- Although the term port appears generic, ports exhibit substantial diversity.
- Ports differ in:
  - size (large global gateways versus small regional ports),
  - function (general-purpose versus specialized),
  - and economic role.
- This diversity reflects differences in trade patterns, geography, and regional development.
- Therefore, ports cannot be analyzed using a single, uniform model.

S10. Geographical Diversity of Port Sites

- Ports are located in diverse environments:
  - coastal, riverine, estuarine, or offshore
- Natural conditions create location-specific advantages(e.g. deep water, shelter, accessibility)
- Some ports require extensive engineering intervention(e.g. dredging, breakwaters, channel construction)
- Others are fully artificial infrastructures(land reclamation, purpose-built facilities)
- Geography shapes costs, capacity, and development potential

S11. Port Location and Economic Importance

- Every port has a **specific geographical location**, which influences its accessibility and competitiveness.
- The importance of this location is **not fixed**, but can change due to:
  - economic developments,
  - technological change,
  - and political decisions.
- Ports seek to capitalize on **site-specific advantages** to maintain or improve their position in networks.
- Location is therefore a **strategic economic asset**.

S12. Physical Characteristics and Nautical Profile

- Ports are shaped by key physical features :
  - tides,
  - water depth,
  - access channels,
  - and available land.
- Together, these features form the port's **nautical profile**.
- Nautical profile determines vessel accessibility
- Constrains port design and infrastructure investment
- Directly affects capacity and scale of operations

S13.Port Infrastructure and Layout

- Nautical conditions shape core port infrastructure design
- Key components include:
  - navigation channels
  - turning basins
  - berthing areas (berths, piers, jetties)
- Infrastructure determines vessel access and maneuverability
- Defines operational capacity and efficiency
- Design choices have long-term economic implications

FUNCTIONS OF A MODERN PORT

S14. Objectives and Functions of Modern Ports

- Ports are systems embedded in global supply chains, not standalone infrastructures
- Perform core transport functions and non-core value-added activities
- Increasing focus on value creation and value capture
- Objective: ensure efficient, reliable, and secure trade flows
- Serve the economic needs of the hinterland
- Contribute to regional development and overall welfare

S15. Modern service-oriented ports…

Terminalisation

- **Cargo ports**
  1. General
  2. containers
  3. Ro-Ro
  4. Liquid
- **Passenger terminals**
  1. Cruise
  2. Coastal Shipping
- **Specialized terminals**
- **Multipurpose terminals**

Multiple ‘worlds of production’

1. Ports exhibit organisational structures that incorporate elements of **different models of port production**
2. Ports provide a great **variety of services**. Many of these services cannot be efficiently produced by a single port enterprise
3. The provision of various port services can be more efficient when **regional or strategic networks** (even **network markets** between ports) develop

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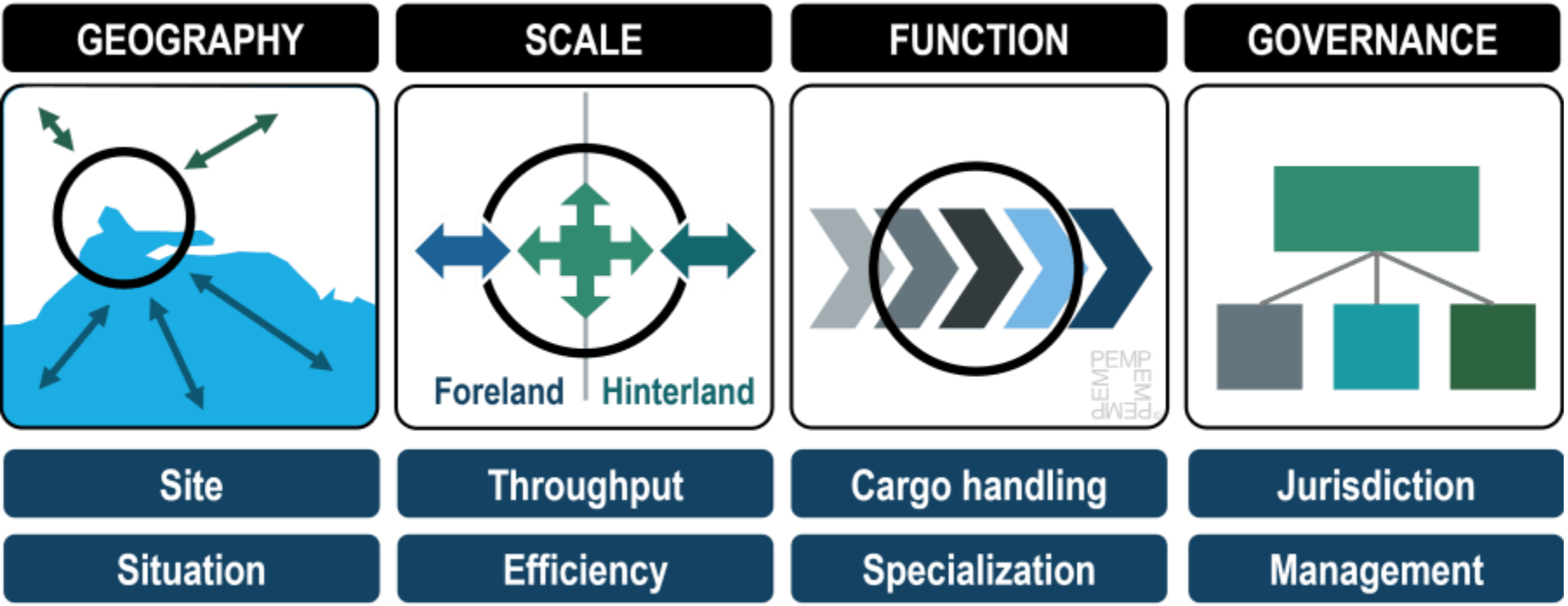
S16. Port Dimensions



Perception of ports	Framework
1. Ports as place (location)	Morphological
2. Ports as operating system (operations)	Operational efficiency
3. Ports as economic/administrative unit (Governance)	Economic efficiency | Governance efficiency
4. Ports as contributors to value creation (Function)	Value-driven chain | Strategic value

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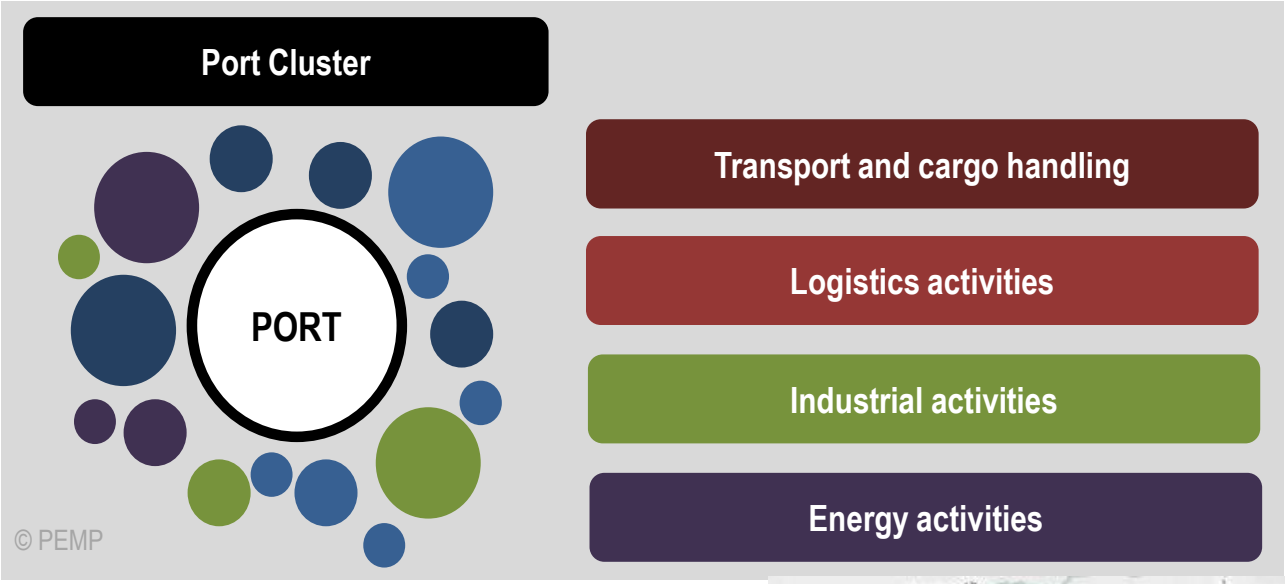
S17. Evolution of Port Functions: From Handling to Logistics Systems

- Port roles evolve with technology, trade, and organization
- Third-Generation Ports (3GP):
  - move beyond cargo handling
  - provide value-added services (warehousing, packaging, distribution)
- Fourth-Generation Ports (4GP):
  - stronger ship–shore integration
  - rise of containerization and logistics systems
  - increased use of capital-intensive technologies
- Shift from simple transfer points → logistics-oriented systems

S18. Modern Ports: Platform-Based Systems and Evolution Drivers

- Fifth-Generation Ports (5GP):
  - customer-centric and community-oriented
  - act as “platforms of platforms”
  - integrate trade, logistics, services, and digital systems
- Shift: infrastructure provider → ecosystem orchestrator
- Ports evolve:
  - functionally (services, activities)
  - spatially (networks, expansion)
- Key drivers of evolution:
  - external environment (globalization, digitalization, sustainability)
  - spatial organization (port networks, system integration)
  - organization & strategy (complex governance and coordination)

S.19 Ports as Clusters of Economic Activity



S.20 Ports as Clusters of Economic Activity

- Ports are clusters of interrelated economic activities, not single facilities
- Core activity: transport and cargo handling
- Surrounding activities include:
  - logistics (warehousing, distribution, freight forwarding)
  - industrial/manufacturing (processing, assembly)
  - energy (fuel supply, storage, energy infrastructure)
- Activities are functionally linked and spatially concentrated
- Clustering extends beyond the port → regional economic system
- Ports generate spillovers and regional development effects

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An introduction

GREEK PORTS

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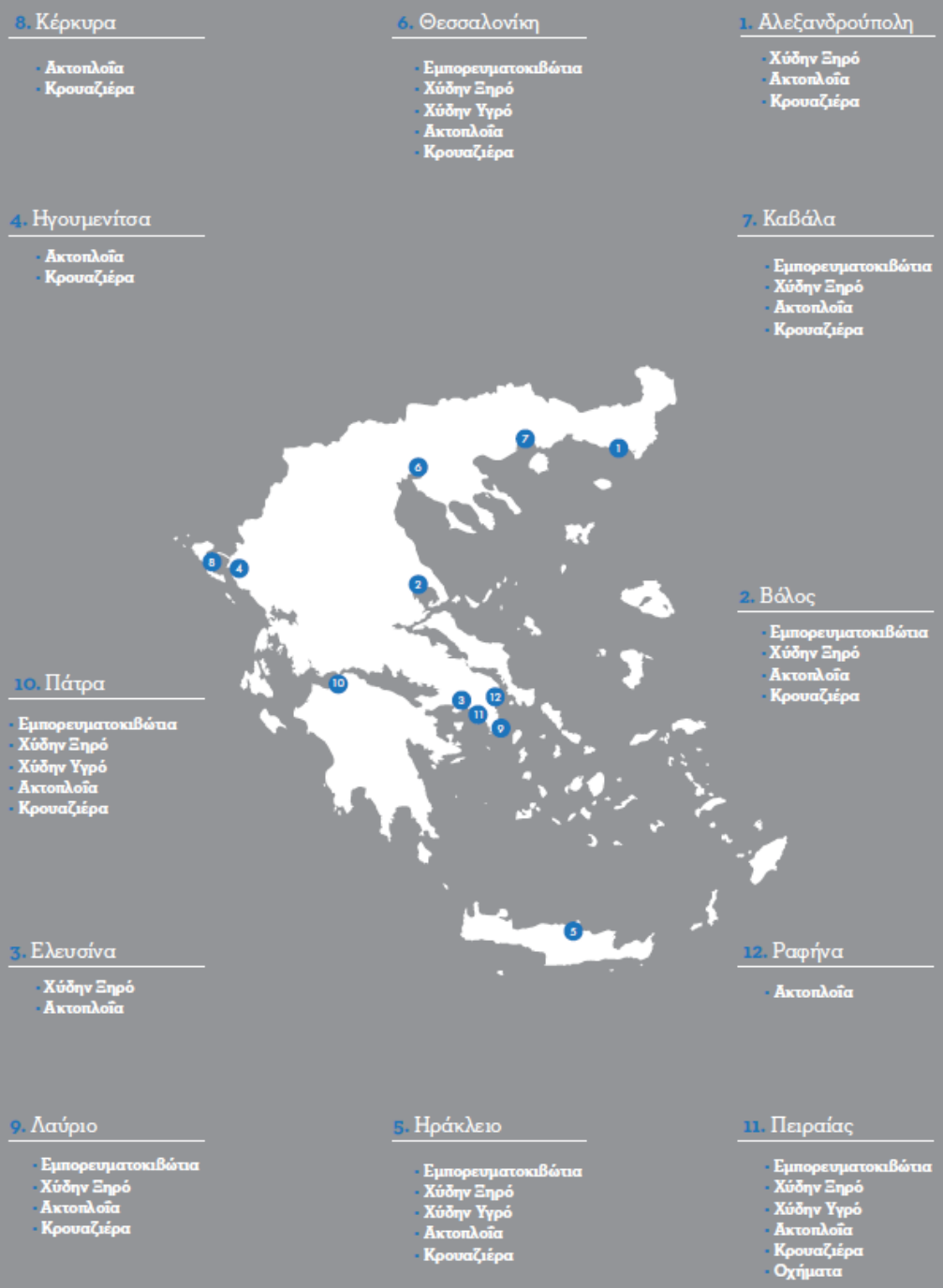

S.21 Greek Port System

- ***Two (2) Port Authorities are Societes Anonymes listed at the stock exchanges (Piraeus Port Authority SA & Thessaloniki Port Authority SA)***

- ***Eleven (11) Port Authorities are Societes Anonymes – one share owned by the State.***

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Πηγή: GREPORT 2016

S22. The Greek Port System

- Greece has a strategically important port system due to geography and Mediterranean location
- Ports perform multiple roles:
  - international gateways
  - regional hubs
  - island connectivity
- Governance has evolved through corporatization and partial privatization
- Hybrid governance model (2 listed port authorities):
  - Port of Piraeus
  - Port of Thessaloniki
  - 11 state-owned port authorities

Objective: improve efficiency, investment, and competitiveness

S.23 Greek Port System: Key Governance developments

	Year	Reform
First Round	1999	Piraeus Port Authority (PPA) and Thessaloniki Port Authority (ThPA) converted to Sociétés Anonymes (S.A.) (Law 2688/1999)
	2001	10 Port Authorities converted to S.A.s (one share owned by the state)
		Establishment of the General Secretariat of Ports and Port Policy
		ThPA S.A. listed in Athens Stock Exchange (state retains 74,27%, of shares)
	2003	PPA S.A. listed in Athens Stock Exchange (state retains 74,14% of shares)
Second Round	2008	Public tenders for concession of (i) Thessaloniki Container Terminal; (ii) Piraeus Container Terminal Pier II (operation); & Container Terminal Pier III (greenfield)
	2009	Piraeus Container Terminal (PCT) S.A., a COSCO Pacific subsidiary, commences operations of Pier II
	2010	The crisis: – intervention of International Monetary Fund (IMF) and European Institutions (European Commission; European Central Bank)
	2011	PPA commences operation of Container Terminal Pier I
	2012	"Friendly agreement" between PPA S.A. and PCT S.A. to revise concession terms
	2013	Shares of Port SAs transferred to Hellenic Republic Asset Development Fund (HRADF)
		One more port is transformed to S.A. (Evia Port Authority)
		Non S.A. ports capacity to operate under a Port Authority S.A. form
	2014	Establishment of the Ports Regulatory Authority
		Second "Friendly agreement" between PPA S.A. and PCT S.A. to revise concession terms
Third Round	2016	China COSCO Shipping Corporation Limited wins a tender call for buying 67% of the shares of the PPA SA. Greek Parliament endorses the decision.
		Conversion of the Ports Regulatory Authority to independent authority
		Establishment of a Public Port Authority (PPA) having one branch (Piraeus, PPA)
	2018	South-Europe Gateway Thessaloniki wins a tender call for buying 67% of the shares of the Thessaloniki PA SA. Greek Parliament endorses the decision.

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Πηγή: Vaggelas & Pallis (2018) / GREPORT

S24. The Port of Piraeus: Strategic Role

- Largest port in Greece and major Mediterranean hub
- Performs multiple roles:
  - global container gateway
  - national passenger hub
  - regional logistics platform
- Key node in Europe–Asia maritime routes
- High connectivity and integration in global shipping networks

S.25 Piraeus as a Multi-Functional Port System

- Organized into specialized functional zones
- Core activities include:
  - container terminals
  - passenger & ferry services
  - cruise terminalscar terminals
  - logistics and auxiliary services
- Reflects functional and spatial clustering
- Integrates freight, passengers, logistics, and services
- Enables economies of scale and scope

Container terminal	Coastal Shipping	Cruising	Car Terminal	Other Services
				

S.27 The Port of Thessaloniki: Strategic role

- Second most important port in Greece
- Serves as a regional gateway to:
  - Northern Greece
  - Balkans
  - Southeast Europe
- Strong focus on hinterland connectivity
- Key role in serving landlocked neighboring countries
- Strategic importance driven by regional logistics, not global transshipment

S.28 Governance and Development of Thessaloniki Port

- A 67% stake transferred to a private consortium after an international tender.
- Main investors:
  - CMA CGM / Terminal Link,
  - Deutsche Invest Equity Partners,
  - Belterra Investments.
- Investment value: €231.9 million
- Shift toward private-led development and commercialization
- Objective: improve efficiency, infrastructure, and regional competitiveness

Thessaloniki Port Authority SA

S.30 Comparing Piraeus and Thessaloniki

Dimension	Port of Piraeus	Port of Thessaloniki
Role	Global container gateway	Regional gateway
Market focus	International liner shipping	Southeast Europe / Balkans
Orientation	Global networks	Hinterland connectivity
Functions	Highly diversified	More regionally focused
Strategic position	Asia–Europe trade	Regional logistics hub

S.31 Key Takeaways:Greek Ports and Economic Implications

- Greek ports operate under a hybrid governance model(public ownership + market mechanisms)
- Policy objective:
  - attract private capital
  - improve efficiency and transparency
  - enhance competitiveness
- Ports function as strategic economic assets, not just infrastructure
- Performance affects: trade costs, logistics efficiency, global integration
- Piraeus and Thessaloniki illustrate different development paths
- Provide a framework to analyze: shipping connectivity, port investment, national competitiveness

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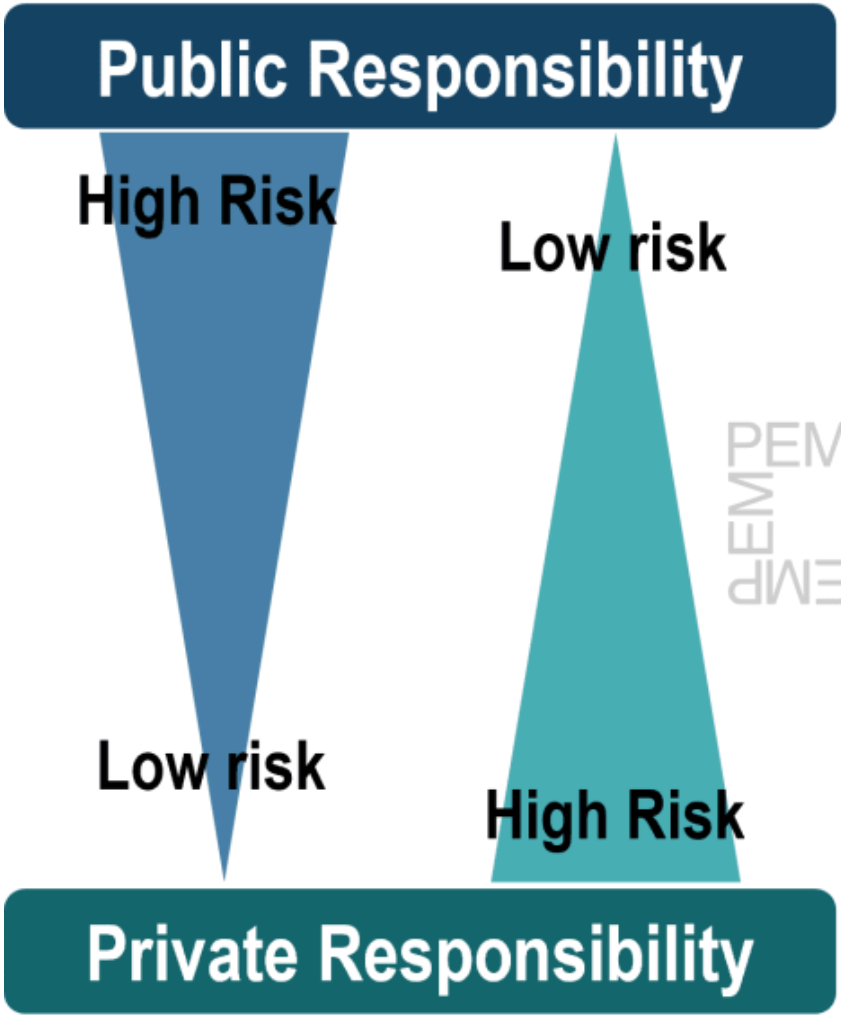
S.32 Main Port Governance Models



PUBLIC SERVICE PORT

TOOL PORT

LANDLORD PORT

CORPORATIZED PORT

PRIVATE PORT

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