



**TEXAS A&M UNIVERSITY
GALVESTON CAMPUS.**

PORT OPERATIONS, ADMINISTRATION AND ECONOMICS



9. Port Labor

MARA 416

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Table of Contents

- A. Employment Effects of Cargo Handling
- B. Dock Labor
- C. Meeting Market Requirements
- D. Improving Port Work Conditions

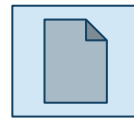


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A. Employment Effects of Cargo Handling



Read this section

Employment Effects

- Cargo handling operations at terminals
 - Core of port functions.
 - Creates jobs for terminal and stevedoring companies, including dockworkers, management, and administrative positions.
 - Dock labor needs are very dependent on the cargo flows handled in the port.
 - Other cargo service-related jobs
 - Cargo survey, land transport and storage, port-related storage, and conveyor/pipeline transfer between berths and storage facilities.
- Intrinsic cargo handling tons
 - Relative added value or labor intensity of handling different cargo types.
 - Breakbulk handling typically has the highest dock labor intensity.
 - Crude oil generally has the lowest dock labor intensity.

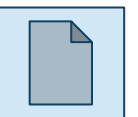
Rules for Determining Intrinsic Cargo Handling Tons (Labor intensity per ton)

RULE	LIQUID BULK	DRY BULK	CONTAINERS	RORO	CONVENTIONAL
Hamburg rule (1976)	15	5	1	1	1
Bremen rule (1982)	12	3	1	1	1
Dupuydauby rule (1986)	Crude Oil 12 Other 9	6	3	3	1
Rotterdam rule (1991)	Crude Oil 15 Other 2.5	Cereals 4 Coal 10 Steel 12.7 Other 7.5	3	8	1
Antwerp rule and Range rule (2000)	Crude Oil 18 Other 2	4	3	1	1
Antwerp rule (2008)	Crude Oil 12.3 Other 5	Steel 3.5 Other 10.6	Imp/Exp 6 Transshipment 10.2	2.6	1
New Antwerp rule (2015)	Crude Oil 7 Chemicals 5 Other 5	Ores 4 Other 4	5	2	Steel 1 Fruit 2

The higher the value, the less labor is involved

1= the highest handling value per ton

Read this content



Employment Effects

- Employment and added value per ton
 - Increase when goods undergo logistics or industrial transformations in the port area.
 - Stuffing and stripping of containers are up to five times more labor-intensive than the loading or unloading of a vessel.
 - Storage, distribution, and other logistics activities in industrial subcontracting or postponed manufacturing in the port area also boost employment levels for a given cargo throughput level.
 - Gateway position:
 - Opportunities for the development of value-added logistics (VAL).
 - From pure transshipment centers to key nodes within a logistics system.
 - Rise of port-based activities in the hinterland.



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B. Dock Labor



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Introduction

- Port labor
 - All forms of cargo handling within a port zone.
 - Stuffing and stripping of containers, the loading and unloading of inland waterway vessels, trucks, and railway wagons, as well as the storage and semi-industrial processing of goods in warehouses and logistics areas.
- Dockworkers
 - Generic term that includes general workers (operatives) working on board ships and those on land, as well as specialized workers.
 - Essential to terminal performance and overall port competitiveness.
 - Challenged by changing market requirements.
 - Dock labor reform and adaptations in working practices.

Introduction

- Gangs
 - Groups of dockworkers.
 - One gang of workers is used per ship's hatch or hold, or shoreside crane.
 - Standard gang size of 18 workers.



Workers unload Mexican steel from the inside of a ship at the Port of Houston. Image: Houston Chronicle, 18 November 2018



Photos by Steve Gonzales / Staff photographer



Photos by Steve Gonzales / Staff photographer

Traditional Aspects of Port Labor

- Management and labor usually come from different backgrounds
 - Misunderstanding of the other side's perception of the problem is common, leading to an adversarial relationship.
- Fluctuation in ship arrivals
 - Rise to a system of casual labor.
 - Workers hired by the day for available work.
- Systems of registered dock workers (A, B, C lists etc.)
 - Schemes evolved into organized unions.
 - Labor was paid by piecework, or by amount of work done - by the hour or shift.

International Organizations Related to Port Labor

Market and Deregulation Oriented

World Bank

International Monetary Fund

World Trade Organization

Labor Oriented

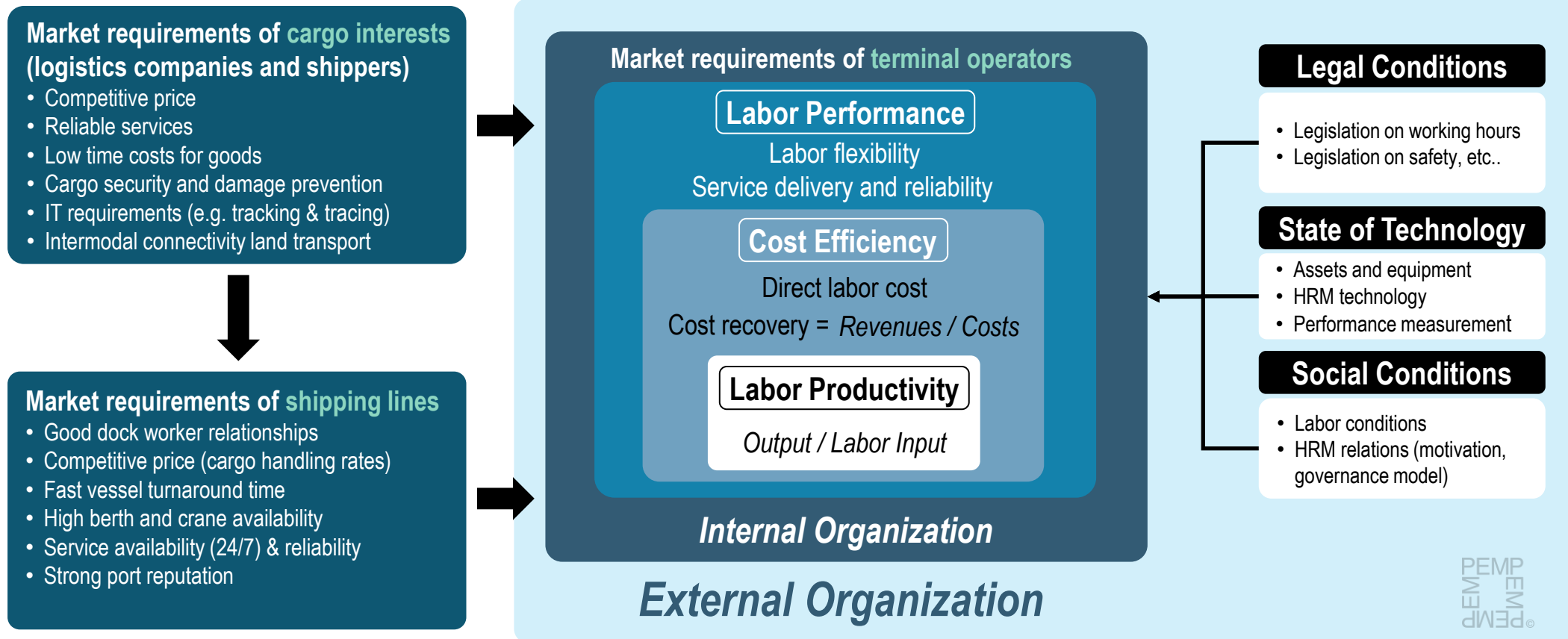
International Transport Workers' Federation

International Labor Organization

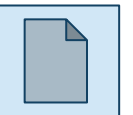
Market Requirements

- Dock labor is a production factor
 - To terminal land and capital goods such as cranes, yard equipment, and terminal management system hardware and software.
 - Small share of total direct jobs in many ports.
 - Key production factor for port terminals.
- Dock labor and terminal operations
 - Impacts container handling rates, service reliability, vessel turnaround time, and berth availability.
 - Port customers and cargo handling companies can significantly impact dock labor arrangements.
 - Shippers, third-party logistics service providers, and shipping lines pressure terminal operators to meet their market requirements.
 - Three underlying dimensions:
 - **Labor productivity.**
 - **Cost efficiency.**
 - More qualitative aspects of **labor performance.**

The Impact of Changing Market Requirements on Dock Labor



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Productivity

- Dock labor input quantity
 - Number of person-hours worked.
 - Size of the dock workforce deployed to handle cargo.
 - Cargo volume handled per time unit (i.e., an hour, shift, week, month, or year).
 - Created value-added for the terminal operating company.
 - Value-added of dock labor is the enhancement added to the supply chain by the workforce of the terminal operating company

Cost Efficiency

- Dock labor costs
 - General cargo terminals: 40% and 75% of the total operating costs.
 - Container terminals: As high as 50%.
 - Dry bulk terminals: 15% and 20% of total operating costs.
- Cost recovery
 - Important consideration for terminal operators.
 - Terminal pricing schemes that generate revenues above the total fixed and variable terminal operating costs related to capital, land, and labor.

Qualitative Aspects Impacting Terminal Performance

- Service reliability
 - Undermined when there is a shortage of gangs or dock workers.
 - Delays in vessel loading and discharging operations.
 - Can be caused by sudden non-anticipated peaks in demand or a (short-term) significant drop in the availability of dock workers (due to holiday periods, weekends).
- Service quality
 - Damage-free terminal operations.
 - Disruptions to normal operations and generate costs for the cargo owner.
 - May indicate a lack of training or a low level of commitment among dockworkers.
 - Lack of communication between the vessel and the terminal, equipment breakdowns, or the late receipt of load plans.

Qualitative Aspects Impacting Terminal Performance

- Strikes

- Negatively affect service reliability, quality, and dependability.
- Can reduce labor productivity and impose costs on the port and logistics community.
- Variety of costs
 - Port deviation costs for ship-owners
 - Time costs for ships in port.
 - Lost revenues for inland transport operators
 - Time costs and broader logistics costs for cargo owners.
 - Costs to factories linked to major disruptions in the production line (stock-out).
- Result of disputes about labor conditions between employer organization and labor unions.
- Endemic in the history of the port industry.

- Accidents

- Lack of training or equipment failure.

Longshoreman Collective Bargaining in the United States

	WEST COAST	EAST COAST
Longshoreman's Unions	International Longshore and Warehouse Union (ILWU)	International Longshoreman Association (ILA)
Employers Associations	Pacific Maritime Association (PMA)	United States Maritime Alliance (USMX)

Labor Flexibility

- Flexibility in working hours
 - Passive flexibility
 - Employer establishes schedules that consider legal provisions, breaks, and holidays.
 - Defined by the labor contract.
 - Active flexibility
 - Dock labor employment system with many casual workers.
 - Dockworkers have, within certain limits, freedom of choice for specific tasks.
 - Does not impose a work obligation at specific times (for example, for weekend work or work on holidays).
 - Finding enough volunteers is often a matter of offering bonuses for performing such tasks.
- Flexibility in terms of total labor quantity
 - Adjusting the workforce size to match the amount of work.
 - Crucial for effective terminal operations that experience peaks in cargo-handling demand.
 - Recruit workers outside dockworker pools (temporary labor offices) when shortages occur.



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C. Meeting Market Requirements



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Deployment of New Technology

- Technological advances in cargo handling facilities
 - Labor productivity and quality improvements.
 - New requirements in terms of the skills and qualifications of the workforce.
- Automation
 - Related to the perceived labor productivity benefits and cost savings.
 - Deployment of new terminal technology, particularly automation, is highly context-specific.
 - Same technologies leading to different labor acceptance outcomes.
 - Where labor or skilled labor is scarce, automation tends to be easier to deploy.

Legal Status of Dockworkers

- Status

- Civil servants in state-owned service ports.
- Employed by a private terminal operating company.
- Employed through dock labor schemes.

- Registry

- Many dock labor employment systems require that only registered dock workers perform dock work in the port.
- Imposed by legislation or from collective bargaining agreements.

Open and Autonomous Labor Pool Systems

- Centrally managed pool of registered dock workers
 - Can be mandatory or not.
 - Can be de facto or imposed by law.
- Dock labor pool schemes
 - Designation of an in-group of officially registered dockworkers.
 - Registered workers are not permanently employed at a particular stevedoring enterprise.
 - Hired through a central pool or hiring hall, which stevedores are obligated to use as their primary source of casual labor.
 - A system of minimum pay guarantees or unemployment benefits.
- Dock workers are increasingly employed by terminal operators rather than being contracted through pools.



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D. Improving Port Work Conditions



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Increased Training Initiatives and Modalities

- Training and experience levels
 - Impact labor performance.
 - Customized training plans based on experience and proven competence.
 - Occupational categories for dock workers, with rules governing the flow from one category to a higher one.
 - Regulation of the influx of new dockers.
 - Screening of potential candidates, training facilities, trial period modalities, and labor evaluation systems.
- Dedicated training centers
 - Voluntary or obligatory professional training courses for newly registered dockers.
 - Special schooling for dockers willing to move to another job category.

A Push for Continuous Work

- Continuous Work
 - High time costs of vessels make high quay productivity and 24/7 operations indispensable.
 - Labor services should be offered as continuously as possible.
- Work scheduling
 - Individual rather than collective breaks, flexible start times, and variable shift lengths.
- Extended work hours
 - Managing overtime, night shifts, and weekend work.
 - Weekend work considered a normal shift.
- Work shift transition
 - Seamless transition from one shift to another.
 - Reducing the idle time of the handling equipment.

Changes in Hiring Systems

- Variation in hiring systems
 - Hiring moment, such as hiring at fixed moments per weekday or continuously.
 - Persons involved in the hiring process, such as the foreman and company officials.
 - Characteristics and governance of the supervisory system.
 - Interaction between the docker and the hiring entity, such as physically in a hiring hall or by electronic systems.
 - Control given to the docker, such as matching voluntarily or controlled externally.

Specialization, Categorization and Qualification

- Dockers in ports are not a homogeneous group
 - Significant differences between their members.
 - Tasks carried out, required skills, hiring process, training arrangements, and career planning.
- Division between permanent (regulars) and non-permanent workers (casuals)
 - Global terminal operators increasingly demanding direct employment.
 - Casual workers are deployed during periods of peak demand.
 - Large proportion of dockers on an almost continual basis (the quasi-permanent workers or semi-regulars).
 - Continuity rule whereby a docker hired on a particular day can be rehired for the next day(s) without having to be rehired each day at a central hiring place.

Specialization, Categorization and Qualification

- Job categories versus job qualifications
 - Dockers, with varying degrees of labor mobility between categories.
 - Allowing a (casual) docker to be deployed for any dock work, subject to them having the right qualifications.
 - Multi-skilling arrangements enable the functional combination of several jobs to be performed within the same shift.
 - Push for terminal operators to move away from job categories and opt for job qualification systems.

Enhancing Motivation and Commitment

- Extrinsic motivators
 - Wage levels and a performance-based bonus system.
 - Increase the remuneration of dockworkers through higher base wages.
 - Bonus systems linked to flexible tasking and irregular working hours.
- Intrinsic motivators
 - Non-financial employment motivation and mental well-being, aiming to enhance job satisfaction.
 - Societal status of the profession and professional pride.