



How competition is driving change in port governance, strategic decision-making and government policy in the United States



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ABSTRACT

The period from 2007 through 2016 saw little change in the fundamentals of port governance in the United States. Instead, increased competition resulting from the consolidation of the ocean carrier industry, a slower forecast for U.S. container trade growth, port congestion on the U.S. West Coast and the potential for shifting trading lanes from an expanded Panama Canal became the predominant force driving change in the U.S. port industry. Recognizing the competitive threats, the U.S. government responded through increased funding, greater agency engagement, modest reform of the harbor maintenance tax and legislation regarding the establishment and reporting of port performance metrics. State governments invested and took steps to position their ports to withstand increased competition. At the local level, ports responded through strategic collaborations and by shifting from traditional landlord roles to supply chain participants. The West Coast Ports exhibit greater efforts at strategic collaboration than the East Coast Ports that are actively competing for cargo through an expanded Panama Canal. Some East Coast port investment is speculative and out of scale with market and financial conditions. The potential of over-investment, stranded assets or market share losses could drive more ports to consider regional collaboration, governance changes or creative leasing strategies to facilitate terminal collaboration to enhance their market power.

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1. Introduction

Fawcett (2007) provides the historical context and founding principles that explain the genesis of the decentralized control of the seaports in the United States. U.S. commercial seaports are owned and managed by governmental agencies, either a state, city, bi-state agency, or special district. The cargo-handling terminals within the port jurisdiction are typically leased to private operators although, in a few cases, the governmental port authority operates the terminals. Brooks and Cullinane noted in 2007 that port governance in the U.S. was stable compared with other regions of the world. This statement is still valid today. U.S. port governance continues to consist of a mixture of public and private services, as defined by Baltazar and Brooks (2007) and Brooks and Cullinane (2007).

The vast numbers of private and public organizations found operating within U.S. seaports, often with conflicting priorities, create a highly competitive environment (Brooks & Pallis, 2011). Inter-port competition has intensified as improved inland freight infrastructure provides port users the ability to substitute ports to reach hinterland markets (U.S. Department of Justice and the U.S. Federal Trade Commission, 2011). Competitive forces become more pronounced when economic

conditions and market forces threaten a seaport's cargo volumes. The downturn of 2007–2009, combined with slower growth in world trade meant many U.S. seaports experienced their first declines in cargo volumes in decades. In 2009 container traffic on the U.S. West Coast dropped nearly 14%, non-containerized cargo fell by 23% and work opportunity for longshore personnel fell by 21% (Pacific Maritime Association, 2010). This decline in cargo volume, coupled with the corresponding loss of revenue, created financial challenges for ports that needed investment to remain competitive. In response, the U.S. federal government began to increase funding for port projects, individual U.S. states are becoming more proactive to ensure the competitiveness of their ports and some ports have intensified their collaboration to reduce market risk.

The objective of this paper is to examine how competition is impacting governance and strategic decision-making at U.S. seaports as well as driving change in government policy. This paper begins with an overview of recent trends in the maritime industry that are affecting U.S. seaports with emphasis on how these trends are creating an increasingly competitive marketplace. Responses to these trends will then be examined at three levels: 1) efforts of the U.S. federal government to respond to the needs of the U.S. seaports; 2) examples of actions taken by state governments to address their ports competitive issues; and, 3) examples of actions taken by individual ports to position themselves to preserve or grow their market share of U.S. trade.

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2. Market trends affecting U.S. seaports

As public entities, the U.S. seaports have the dual role of providing for the needs of maritime commerce while at the same time serving the public interest, often with varying demands to drive economic development and job creation in the surrounding region. Seaports are also expected to be stewards of their environment. Seaports react to changes in the maritime industry, expanding facilities to accommodate trade. The shipping lines order larger ships and the seaports respond. If navigation channels needed deepening, seaports seek federal dollars or fund the dredging themselves. Historically, seaports made these investments and received a return on their investment by long-term leasing of the facilities to a terminal operator that often had strong ties to a shipping line or by leasing directly with a shipping line. The traditional port business model, therefore, depends on a long-term commitment of cargo movements that produces a revenue stream lasting long enough for the port to retire its debt.

With more modest trade projections, competition among the U.S. seaports has intensified. By the end of 2015, not all ports have achieved their pre-recession cargo volumes, particularly on the U.S. West Coast, although the value of goods moving through the U.S. seaports increased by \$400 million between 2007 and 2014 (Martin Associates, 2014). Containerized volume through Los Angeles and Long Beach peaked in 2006 at 15.76 million teus, declined to 11.8 million teus in 2009 and slowly recovered, reaching 15.3 million teus in 2015 (Knatz, 2016). Inter-port competition intensified as predatory pricing practices shifted cargo from one port to another in the same region. For example in May 2009, the Port of Long Beach adopted a 10% fee reduction in wharfage rates for any incremental increase in intermodal containers moved through its port by its customers (Port of Long Beach, 2009). Los Angeles countered with incentives of its own, with slight variations or at slightly higher amounts (Port of Los Angeles, 2013). Competition spread from seaports within a specific region to competition between coastlines due to the Panama Canal expansion.

On the U.S. East and Gulf coasts, the expansion of the Panama Canal is viewed as an economic opportunity for port cities, stimulating port facility development to handle a potential increase in cargo. Recognizing that the full benefits of an expanded canal could only be realized if U.S. ports were equipped to handle the larger ships, the Panama Canal Authority (ACP) encouraged the U.S. East and Gulf Coast ports to invest in their own facility development. The ACP negotiated over 25 Memorandums of Understanding (MOUs) with East and Gulf Coast seaports, large and small, beginning in the year 2003. The renewal of many of those agreements over the past few years creates a perception that the Panama Canal expansion provides business opportunities for numerous ports of various sizes and attributes. The sheer number of MOU's runs counter to the concept of a strategic network that warrants concentrating and accelerating investment for dredging and landside improvements in a fewer number of ports.

While the economic downturn had a great impact on tempering port growth, the ocean carrier industry, long plagued by financial stress, took actions to increase their efficiency and reduce costs. The global ocean carrier industry is an asset-intensive business, and the ocean carriers have been hard pressed over the past decade to sustain a profit. The size and strength of ocean carriers is measured by ship capacity (the number of container slots it owns on ships), not by utilization of its capacity. Ocean carriers have continued to order new ships, despite an existing oversupply of vessel capacity. Excess vessel capacity results in rate wars as shipping lines lower their rates to fill ships. Characterized as a "race to the bottom," these shipping lines financial losses are self-inflicted by the ship supply/ship capacity imbalance. The Journal of Commerce (JOC) reported in November 2014 that the revenue per TEU for the world's largest shipping lines declined for the three prior years due to excess capacity in the shipping fleet, despite growth in container volume. JOC reported in February 2016 this trend continued through 2015. Ocean carriers survived the downturn by slow steaming,

restructuring debt, government subsidies, and seeking reductions in port charges.

Rather than curb their appetites on ship purchasing, the ocean carriers sought to restore profitability by doing three things: 1) ordering larger ships to achieve an economy of scale; 2) rationalizing use of their assets by creating alliances with other shipping lines; and, 3) calling at the most efficient port terminals, with continual reevaluation of terminal selection. The third action was significant for seaports, as ocean carriers restructured or divested of their obligations to call at specific terminals. This action undermined the port's ability to bind an ocean carrier's volume through a long-term lease. The "super" alliances created by the world's largest shipping lines can control a significant share of trade in a trade lane, increasing their leverage in negotiating with seaports and terminal operators. As the negotiating leverage of the alliances increases, the negotiating power of the seaport and their terminal operators is diminished.

The rate at which container ship size increased over the period 1996 through 2015 has accelerated. The average size of a container ship between 2001 and 2008 was 3400 teus, rising to 5800 teus between 2009 and 2013. Today the largest ships are 21,000 teus with the average size at 8000 teus (International Transport Forum, 2015). These large ships only achieve an economy of scale if they sail full, reinforcing the benefits of shipping alliances which fill ships by consolidating cargo from among their alliance partners, optimizing the use of vessel fleets on specific trade routes.

Ocean carriers now prefer short-term agreements with terminal operators because of the flexibility to move their ships from one port terminal to another. Short-term agreements are a significant departure from the model that seaports traditionally used to finance their investments by locking in a shipping line's business for 30 years. Investments in port infrastructure come with greater risk when made without the safety net of a long-term cargo volume commitment. Seaports and the U.S. federal government could fund a channel deepening project and find that the cargo has shifted to another port. Yet, ocean carriers still expect the seaports and the U.S. Federal government to continue to make significant infrastructure investments. Notteboom and de Langen (2014) noted that European container seaports face similar challenges as ocean carrier alliances maximize the efficiency of their terminal network on a global basis, leaving ports with little leverage in assuring cargo moves through their terminals. The result is that the traditional business model landlord ports have used to develop, lease and finance terminals is outdated and must adapt to the changing business model of their customers.

The American Association of Port Authorities (AAPA) surveyed its 83 members, which represent nearly all of the leading US seaports along all coasts in the United States, to identify the capital expenditures planned for each port region (American Association of Port Authorities, 2015). The survey results indicate that U. S. public seaports and their tenants and customers plan on investing approximately \$9 billion each year for the period 2012–2017, for a total investment of 46 billion as compared with a total port investment from 1946 to 2005 of \$30 billion (in current dollars). Note these surveys are based on a port's current perception of its needed improvements in the coming years. These capital plans are continually revised as market conditions change and are generally subject to annual budget approval by the relevant governing body. Much of this investment is for seaports that hope to increase market share as a result of the Panama Canal expansion. Thus, the shipping lines are striving for efficiency by rationalizing their assets while seaports, at least on the U.S. East Coast, in their quest to service cargo through an expanded canal, still seek to duplicate assets. AAPA released an update of this survey in April 2016 for the period from 2016 through 2020. The total planned investment was \$154 billion, heavily weighted toward energy projects in the Gulf Ports (Table 1).

The U.S. Maritime Administration Panama Canal Expansion Study, Phase I Report (U.S. Maritime Administration, 2013) predicted that with the expanded canal, ocean carriers are likely to replicate the west

Table 1

U.S. Port's Projected Capital Expenditures for 2016–2020 (U.S. Dollars).

Source: American Association of Port Authorities, <http://www.aapa-ports.org/advocating/PRdetail.aspx?itemnumber=21209>.

Region	Projected port's expenditures	Private sector capital	Total
North Atlantic	3,641,587,000	1,217,000,000	4,858,587,000
South Atlantic	7,592,716,466	1,787,000,000	9,379,716,466
Gulf Coast	4,999,477,595	122,792,800,000	127,792,277,595
Great Lakes	503,200,000	504,500,000	1,007,700,000
North Pacific	1,293,438,518	2,734,000,000	4,027,438,518
South Pacific	4,573,279,326	3,139,655,000	7,712,934,326
Total	22,603,698,905	132,174,955,000	154,778,653,905

coast pattern of ship calls, stopping at 2 to 3 seaports along the coastline rather than 4 or 5. The concern that East Coast seaports could lose vessel calls has not yet tempered infrastructure plans. Instead, the potential for federal funding is a further impetus for “canal fever” as multiple seaports pursue speculative investments in anticipation of increased cargo volumes. Economists with Boston Consulting Group have forecasted a 10% shift in market share from the West Coast to the East Coast with the opening of the expanded canal. This forecast assumes no significant change in economic conditions, energy prices or the shipping industry over the next five years (Bratton, Burke, Ulrich, Raetz, & Laxmana, 2015), a broad caveat that may be unreasonable in a rapidly changing maritime industry. Should ocean carriers using larger containerships reduce their port calls on the U.S. East Coast as predicted, some seaports may find that their infrastructure investments will not deliver economic returns.

3. The evolving federal role

Over the past decade, the U.S. federal government recognized the need to increase funding for seaports and expedite port projects. Most of these efforts reflected the growing awareness by key federal agency representatives and elected officials about the expansion of the Panama Canal and its potential impact on the U.S. port system. New funding programs were established allowing ports to be direct applicants. Several key federal agencies have increased their engagement in port matters after recognizing the need to improve the efficiency and resiliency of the supply chain. Increased scrutiny also resulted from a national concern over the port congestion on the U.S. West Coast in 2014 and 2015. These factors resulted in the federal government and the U.S. Congress focusing attention on its seaports and addressing funding and policy issues through federal legislation. The resulting policy and funding initiatives broaden the federal role in seaport matters.

3.1. Expedited federal action for port development

In July 2012, President Barack Obama announced that seven projects for five seaports on the U.S. East Coast would receive expedited reviews for federal permits as part of the White House's “We Can't Wait Initiative.”¹ The projects included channel deepening projects in Charleston, South Carolina; Savannah, Georgia; Jacksonville, Florida; Miami, Florida; and New York/New Jersey, along with raising the Bayonne Bridge at New York/New Jersey, and an intermodal yard for Jacksonville, Florida. All these projects were identified as critical for handling cargo through the expanded Panama Canal. A federal permitting dashboard was created to allow the public to monitor progress online.² Only two of the federal approvals needed for these projects were completed on schedule but all projects benefited from high-level

¹ <https://www.whitehouse.gov/the-press-office/2012/07/19/we-can-t-wait-obama-administration-announces-5-major-port-projects-be-ex>

² <https://www.permits.performance.gov/>

government oversight, and all were advanced at a pace faster than normal.

The singular focus of the “We Can't Wait” initiative on East Coast seaports prompted the U.S. West Coast seaports to band together to ensure that, as the primary gateways for Asian cargo, the federal government was not going to ignore them. A loose collaboration of the West Coast's major container seaports was created that included Los Angeles, Long Beach, Seattle, Tacoma, Portland and Oakland, known as the West Coast Port Collaborative Group. Along with the senior executives of the two western railroads and the International President of the International Longshore and Warehouse Union (ILWU), this group pressed congressional representatives on the inequities of the Harbor Maintenance Tax and competitive threats from Canada and Mexico. The Collaborative Group made significant inroads on educating congressional members about the Harbor Maintenance Tax, helping to induce its reform.

3.2. Reform of the harbor maintenance tax- the power of port collaboration

The Harbor Maintenance Tax (HMT), created by the Water Resources Development Act of 1986, is an ad valorem tax of 0.125% on the value of waterborne imports and some domestic cargos shipped through U.S. seaports. The funds are to be used by the U.S. Army Corps of Engineers for operation and maintenance of the nation's federal navigation channels, primarily maintenance dredging projects. Because the tax is based on cargo value, a significant amount of the tax is collected from the cargo moving through the large container ports, most which have little need for maintenance of federal channels, especially on the U.S. West Coast. The tax revenues are predominately spent on seaports on the East and Gulf coasts. Large container seaports are thus donor seaports, receiving little benefit from collection of the tax in their regions. In addition, U.S. bound marine cargoes that enter North America via Mexico or Canada and then are shipped into the United States over land do not pay the tax. Funds are also being used at seaports that do not contribute to the HMT such as recreational harbors. This is because the U.S. Army Corps has the obligation to maintain federal channels authorized as long as a century ago in ports that no longer have a role in cargo handling (Frittelli, 2013). Annually, the fund collects about 1.6 billion, however only about \$850 to \$900 million in expenditures are appropriated. Within insufficient funds to maintain all facilities, the Army Corps spreads its funding across numerous facilities rather than concentrating its investment in the more economically significant seaports (National Research Council, 2012). The failure of Congress to authorize use of the full amount for federal navigation responsibilities means that at any one time a significant number of seaports are not maintained at authorized depth.

The West Coast Port Collaborative Group raised the issue of the HMT causing diversion of U.S. bound cargo to Canada with the Federal Maritime Commission (FMC). This was followed by a formal request by elected officials from Washington State and California for the agency to study the impacts of cargo diversion. The FMC's study found that the HMT was only one of many factors affecting cargo routing (Federal Maritime Commission, 2012). The report was released with dissenting opinions that expressed the concern that the report was not based on a model that could isolate the effect of the HMT on cargo routing. Taylor and McKinstry (2013) in their review of the questions posed by the FMC study determined that Canadian and U.S. seaports compete on a level playing field. Canada handled only 2.6% of the total containerized freight imported or exported for the U.S. in 2010 while U.S. ports handle a greater share of cargo destined for Canada. Despite the FMC findings, the HMT became a political issue, setting the stage for reform by Congress.

A modest reform of the HMT was successfully implemented through the Water Resources Development Act of 2014 (WRDA). The legislation establishes a target for 100% spending of the tax collected for maintenance of the U.S. navigation system by the year 2024. Section 2012 of

WRDA expanded the allowable uses for HMT funds at donor seaports, emerging harbors, underserved seaports and Great Lakes seaports. A donor port is defined as a port where the total amount of HMT collected exceeds 15 million dollars annually and where that port region receives less than 25% of funding collected within its region for the previous 5 years. Donor seaports must also be located within a state where more than 2 million containers were loaded or unloaded from vessels in fiscal year 2012. To address the inequities of donor seaports, HMT funds can be used for dredging at terminal berths (traditionally a non-federal responsibility) and to remove contaminated sediments. WRDA authorized 50 million dollars for donor seaports and energy seaports for fiscal years 2015–2018 to be split equally among the qualifying seaports. This amount may be continued through 2022. The availability of the \$50 million is only triggered when the U.S. Army Corps appropriations for operations and maintenance exceed a baseline funding target, a provision necessary to pacify concerns that donor seaports would receive funds before essential operations and maintenance was funded.

The legislative reform, while seemingly significant, does not guarantee funds for donor ports but requires annual appropriations by the U.S. Congress. In the first year of the bill's implementation, only half of the \$50 million dollar fund was appropriated. In March 2016, Washington state senators, representing the Seattle and Tacoma port region, introduced proposed legislation seeking a more aggressive reform of the Harbor Maintenance Tax that would guarantee funding for donor seaports.

3.3. Channeling federal funding for landside access to seaports

Infrastructure projects that provide landside access to seaports received federal funding generally through their state or local metropolitan planning organization funding process or by congressional earmarks. Without a guaranteed source of transportation funds devoted to freight, seaports had minimal success competing for funds among local priorities. In 2005, the U. S. Congress passed its periodic surface transportation authorization bill which was called the Safe, Accountable, Flexible and Efficient Transportation Act: A Legacy for Users (SAFETEA-LU). This legislation, recognizing the need to fund larger multijurisdictional freight projects, led to the designation of "projects of national and regional significance." Congress proceeded with approximately \$1.8 billion in congressional earmarks for these projects, before the DOT developed their anticipated project selection criteria. For the first time, however, federal highway funds could be allocated to railroad projects, justified by the reasoning that shifting container traffic onto rail improves the capacity of the roadway system.

In a further recognition that freight projects are challenged in securing government transportation funding, in 2009, the U.S. Department of Transportation (DOT) established a federal funding program geared toward projects that were multimodal and multi-jurisdictional. The program, the Transportation Investments Generating Economic Recovery Discretionary Grants (TIGER), allowed ports to apply directly to the federal government for transportation funds. DOT established a merit-based process that evaluates projects based on five outcomes: safety, economic competitiveness, state of good repair, quality of life and environmental sustainability. DOT also considers innovation, partnership, project readiness, cost benefit analysis and cost sharing. Seaports were prompted to work together and with their customers to provide matching funds and to increase the probability of grant funding. When the American Recovery and Reinvestment Act (the stimulus package in response to the recession) was introduced in 2009, it provided \$1.5 billion for transport projects through the TIGER program. Another significant aspect of TIGER funding was the ability of applicants to seek funding for in-terminal improvements, infrastructure that could be used inside a terminal leased to a private terminal operator.

The TIGER program represents a fundamental shift in federal funding policy for freight which is merit based and more transparent (Monios, 2013). This concept of performance-based funding and

increased transparency was further embodied in the 2012 short-term extension to the 2005 federal transportation authorization bill called Moving Ahead for Progress in the 21st Century Act (MAP-21). MAP-21 required DOT to encourage states to develop comprehensive long-term freight planning and investment plans, and to establish freight advisory committees. The level of seaport engagement in the state freight planning process as a result of MAP-21 was very high, with 71% of the seaports having participated in the development of their state's freight plan with 64% represented on a local freight advisory board (American Association of Port Authorities, 2015).

By 2016, Congress had invested \$5.1 billion in 8 rounds of TIGER grants through annual appropriations to the DOT. Five hundred and ninety-six million in TIGER funds have been distributed to seaports. Through partnerships, the first \$500 million in investment leveraged an additional \$700 million in maritime freight investment (American Association of Port Authorities, 2015). A dedicated fund for freight projects was finally established by the 2015 reauthorization of the surface transportation bill. Known as the Fixing America's Surface Transportation Act (FAST), the bill approved \$11 billion in freight programs that can benefit seaports of which \$6.3 billion initiates a new National Highway Freight Program.

3.4. Increased visibility of the Federal Maritime Commission

The Federal Maritime Commission (FMC) is the independent agency of the U.S. government responsible for regulating competition within the international ocean transportation system and protecting the public from unfair and deceptive practices. The FMC regulatory authority requires it to review agreements between and among ocean common carriers and marine terminal operators. Although a seaport may be defined as a marine terminal operator and as such, files their agreements with the FMC, port administrative staff traditionally had little involvement with the FMC, often relegated that duty to the port attorneys. A regional seaport association that meets to confer on tariff rates and charges must have an approved "discussion agreement" with the FMC. This agreement grants anti-trust immunity for the seaports while discussing rates under the purview of the association. Until recently, there was little demand for individual seaports to seek discussion agreements from the FMC to collaborate with each other or their customers. Fawcett (2007) does not mention the FMC when listing federal agencies involved in seaport governance, which was reflective of the nearly invisible role of the FMC in seaport matters a decade ago.

The port-FMC relationship began to change as the FMC took a more active role in seaport policy matters with the 2003 approval of a discussion agreement among the marine terminal operators at Los Angeles and Long Beach called the West Coast Marine Terminal Operators Agreement (WCMTOA). Initially focusing on issues with motor and rail carriers, the WCMTOA agreement was expanded in 2005 to address expanding operations into off-peak hours. An agreement between the Ports of Los Angeles and Long Beach and the Marine Terminal Operators to create and implement the Clean Air Action Plan (CAAP) was approved by the FMC in 2008. However, the same year, the FMC challenged an element of the Port of Los Angeles/Long Beach's CAAP, specifically the Clean Trucks Program, an environmental program that banned trucks by model year and established fees for port access by non-compliant trucks. New leadership at the FMC abandoned the legal challenge and brought a change in perspective that recognized an opportunity for partnership with seaports in achieving many of the administration's policy, environmental and trade goals. This change also coincided with the appointment of a new FMC commissioner, Mario Cordero, a former harbor commissioner at the Port of Long Beach. With intimate knowledge of the types of issues that seaports face, Cordero seized on the ability of the FMC to use public forums to examine issues impacting trade.

A significant FMC role is its regulatory review of ocean carrier alliance agreements such as the 2M Alliance (Maersk and Mediterranean Shipping Company) and the Ocean 3 Alliance (CMA CGM, China

Shipping, and United Arab Shipping Co). Its other significant regulatory activity is the approval of discussion agreements that facilitate collaboration and cooperation among seaports or seaports and their customers. Seattle/Tacoma and Los Angeles/Long Beach have amended or filed new discussion agreements with the FMC over the past several years to permit collaborative discussions.

In the midst of the West Coast port congestion in late 2014, the FMC held four public forums to listen to industry stakeholders about the changing dynamics of the industry. Challenges identified include: 1) the availability of container chassis; 2) efficient handling of the large container ships; and 3) trucking (Federal Maritime Commission, 2015). Considerable industry comments focused on the need for all parties to share data and collaborate as a way to mitigate congestion.

Despite its desire to be helpful in resolving port congestion issues, however, the FMC has few tools to effect change in port operations. It has a blunt tool in seeking injunctive relief (§ 6(g) of the Shipping Act of 1984), and a list of prohibited acts that the agency can adjudicate (e.g., § 10(d)(1), which prohibits unreasonable practices). Most of the recommendations that came out of the four forums require local stakeholder implementation with no formal role for the FMC. A congestion pricing program, known as PierPASS, put in place by WCMTOA was identified as a potential area where the FMC could play a direct role. Created in 2005 as a way to shift trucking of loaded containers to and from the Los Angeles and Long Beach ports to nighttime hours, it has the unintended consequence of motivating truckers to queue up outside port terminals, often for hours, waiting until 6 pm when no fee is assessed. Truck queues not only create congestion outside the terminal on public roadways but inside the terminal immediately after 6 pm. While successful at shifting truck movements to nighttime hours, the program falls short of the goal of the predictability of nighttime gates at port terminals.

It is unclear, at this time, if the FMC will take formal regulatory action to resolve congestion issues caused by the unintended consequences of the PierPASS pricing strategy. A regulatory response necessitates a consensus among Commissioners who often reflect the partisan view of their political party. Currently, the Commission supports a less formal regulatory approach but a more active facilitation role, voting unanimously to direct one of its commissioners to work with stakeholders at the Los Angeles and Long Beach seaports to identify commercial solutions to congestion issues.³

3.5. Increased focus on port performance

On July 1, 2014, the West Coast contract between the Pacific Maritime Association (PMA), representing port terminal operators, and the International Longshore and Warehouse Union (ILWU) representing dock workers at 20 West Coast seaports expired. At the time the contract expired, the larger West Coast seaports were already experiencing congestion due to the unavailability of chassis used by trucking companies to retrieve containers from port terminals. The handling of larger container ships also contributed to the congestion. The concurrent implementation of a shift in ownership of the chassis from the ocean carriers to private leasing firms further complicated the contract negotiations, because the shift threatened the ILWU jurisdiction over chassis maintenance. As negotiations dragged on, the ILWU began a “slow-down” in October 2015, further exacerbating the congestion.

Unlike Europe and Asia, where trucking companies or shippers own or provide the chassis, until recently, the U.S. ocean carriers retained ownership of chassis. The chassis were stored within port terminals and maintained by a union workforce, in most cases, the ILWU. Chassis ownership provided the carriers with access to the U.S. market and was used as a marketing tool, so the transfer of chassis ownership did not

begin in earnest on the U.S. West Coast until 2011 (O'Brien, Reeb, & Kunista, 2016). This transfer of ownership from ocean carriers to chassis leasing companies shifted the maintenance of the chassis to private companies not represented by the PMA labor contract, a contentious issue that delayed agreement on a new contract. As the number of ships, waiting at anchor, to access the ports increased, President Obama dispatched the U.S. Secretary of Labor to the negotiations. A resolution was reached when the PMA conceded the right to inspect chassis to the longshoreman over the objections of the chassis owners. In effect, labor and management deferred the issue under pressure to reach agreement on a final contract. The new contract, covering the period July 1, 2014, through June 30, 2019, includes a clause to reopen the chassis maintenance issue in the event of a legal challenge by the chassis owners.

No comprehensive analysis of the economic impact of the west coast port congestion which began in July 2014 and lasted through March 2015 is available. The University of Maryland's Inforum estimated the impacts of a complete port closure for the National Retail Federation and the National Association of Manufacturers at the time the contract expired (National Retail Federation, 2014). A complete closure did not materialize; however, large retailers reported difficulty in meeting their 2015 first quarter projections due to the congestion.⁴ A survey undertaken by the *American Shipper* revealed that a third of the retailers and a quarter of manufacturers surveyed planned on making structural changes to their supply chain by shifting at least 20% of their business to East Coast seaports and distribution centers (Johnson & Kasper, 2015). These same parties also began to seek federal legislation to ensure that port disruptions would not reoccur.

Several members of the U.S. Congress proposed to reform the port labor/management negotiation process or to establish specific port performance metrics. The only successful legislative remedy to date has been the inclusion of language in the 2015 Fixing America's Transportation System (FAST) Act requiring the establishment of port performance metrics. The bill creates a Port Performance Freight Statistics Program and requires establishment of an advisory group of industry stakeholders to work with the U.S. DOT's Bureau of Transportation Statistics on an annual report to Congress on port performance. This program requires reporting from the 25 largest seaports by tonnage, teu, dry bulk throughput and capacity. Through this process, the DOT will make recommendations on port performance measures to be established, and the advisory group will report to U.S. DOT annually on recommendations to improve port efficiency.

The National Retail Federation (NRF), an organization that advocated strongly for congressional action on port performance, recommended to the U.S. Secretary of Transportation a specific set of port performance metrics for consideration by the stakeholder group which began meeting in July 2016 (Table 2).

4. Regionalization, self-regulation and changing roles: strategies to protect markets

Notteboom, Ducruet, and De Langen (2009) and Brooks, McCalla, Pallis, and Vanderlugt (2010) provide numerous cases how seaports in proximity have forged collaborative relationships in Europe and Asia, and Canada. Heaver (2015) found competition motivating port collaborations in Canada, while recognizing that the nature of collaboration differs from place to place. His research also emphasizes that supply chain stakeholders recognize that information sharing is fundamental to improved efficiency. Three trends are apparent among U.S. seaports. First, there is increased collaboration among seaports, including those that have traditionally been competitors and between ports and their state governments. Second, landlord seaports are beginning to move beyond their traditional roles and injecting themselves directly into the

³ “Chairman Cordero Announces Commissioner Dye to Lead Supply Chain Innovation Project.” The Federal Maritime Commission Newsroom, February 1, 2016. <http://www.fmc.gov/NR16-01/?CategoryId=1>.

⁴ Retailers say West Coast port congestion pressured Q1 sales, *American Shipper*, May 21, 2015

Table 2

Performance measures suggested by the National Retail Federation extracted from their January 14, 2016, letter to US. Secretary of Transportation Anthony Foxx.

Yard operations	Truck gates	Gate operations
Monthly average lifts per hour by vessel size and berth size (the number of containers moved either from a ship to the yard or from the yard to the ship, by a single crane in a single hour, averaged over all terminals within a port over a monthly period)	Average monthly and ranges for total truck turn time (using a standardized definition of total turn time that includes in terminal time truck waiting time outside the gate. Establish a metric for trouble tickets and trouble windows.	Average monthly container dwell time for import and export containers (number of days a container sits in the yard before it is moved to rail, picked up by a truck, or loaded on an outbound ship)
Monthly average vessel turn time by vessel size and berth size (number of days a vessel sits at berth, including fractions of a day)	Chassis availability measured by number of "good order" chassis available daily for interchange at gate opening by size • Percent of chassis that are issued "trouble tickets," which must be processed prior to leaving the facility • Average number of chassis that are out of service • Average chassis provider-facility equipment utilization rate; • Average chassis to container ratio by location to determine dislocation issues.	Average monthly port capacity (a measure to be developed that would take into account not the "on-the-ground" footprint of space set aside to hold containers, but also the vertical stacking limits and turnover (or flow) rates for containers moved through any given terminal)

business of their customer. Third, external competitive forces, economic conditions, and political crises have triggered local debates about the governance structure of specific seaports (see Section 5).

Van der Lugt, De Langen, and Hagdorn (2015), in their survey of 94 worldwide ports to determine the relationship between institutional structure and strategic goals, suggest that corporatized ports with more autonomy are leading the way among port authorities in moving beyond traditional roles and becoming more entrepreneurial. Market pressures, however, can be strong enough for ports with significant government control to move beyond their landlord role and become more entrepreneurial. The size of the port's market and its importance in providing jobs and supporting the regional economy would weigh heavily in favor of taking action. Governmental support or impetus can sometimes be the driver of entrepreneurial action and unlike a corporatized port, actions might be taken with less regard to the "bottom line."

The following cases were selected as representative examples of seaports who seek to retain and grow market share through a collaborative strategy (Seattle/Tacoma), coordinated use of regulatory authority and extension of traditional roles (Los Angeles/Long Beach) and greater collaboration between local and state government (Florida Seaports).

4.1. The Pacific Northwest Seaport Alliance- a regional collaborative approach

During periods of high growth rates, particularly in the 1990's and early 2000's, seaports in a particular region would collaborate to seek federal government investments in common hinterland infrastructure. The economic recession of 2007–2009 and its aftermath created a new reason for ports to collaborate.

The merger of cargo operations in Seattle and Tacoma is the most dramatic governance change in the U.S. port industry in decades. These Washington State seaports have a long history of collaboration but were also competitors serving the same market. A 2007 surprise announcement that Seattle customer NYK was moving to Tacoma turned the spirited competition into a bitter rivalry. Seattle officials accused

Tacoma of stealing its customers and termed it "another case of Tacoma expanding at Seattle's expense" (Morrison & Chamberlain, 2015). Business and port leaders from Seattle had raised the merger issue in the past but industry trends, coupled with market share loss began to bring about the alignment between the two cities and their seaports. Both seaports were on a trajectory to invest millions of dollars to secure business with the same customers (Seaport Alliance, 2015).

When a port administration realizes its customers' market power exceeds its own, an environment is created that allows discussions between port leadership of topics that might have been unimaginable in the past. The factors that triggered these two port cities to discuss governance alterations were the growing power of the ocean carrier alliances, the decreasing negotiating ability of the seaports and the divesting of the terminal operations by the ocean carriers making it difficult to commit cargo volumes long enough to realize a return on infrastructure investment. The challenges facing both seaports prompted the Seattle port director to reach out to his counterpart at Tacoma about closer collaboration. The FMC approved an agreement allowing formal discussions between the two seaports that led to the creation of the Pacific Northwest Seaport Alliance (Alliance) in August 2015. The Alliance merged the cargo operations of both seaports under a new authority with one chief executive and a board made up of the combined boards of both ports. The Port of Tacoma's chief executive became the CEO of the Alliance and for five years will manage both the Port of Tacoma and the Alliance. After five years, a separate CEO for the Port of Tacoma will be named.

The Alliance was created using an interlocal agreement and a charter that serves as the articles of incorporation. Washington State law through its Interlocal Cooperation Act allows local governments to cooperate with other agencies to provide services and facilities consistent with authorizing legislation. Rather than a complete merger of two organizations, the two seaports created a third entity and licensed their cargo handling operations to the new organization which would report to one executive. No board positions were eliminated and one port director was near retirement. A similar tool, a joint powers agreement, was used by Los Angeles and Long Beach to establish separate but port-controlled authorities to construct hinterland rail infrastructure, the Intermodal Container Transfer Facility in 1982 and the Alameda Corridor in 1989. The significance of the Alliance agreement, however, is that both seaports licensed their core business assets to the newly created governing body. The Port of Seattle and the Port of Tacoma continue to operate as separate entities, managing facilities and responsibilities not licensed to the Alliance.

Negotiation of the interlocal agreement between Seattle and Tacoma reveals that despite both seaports being landlord seaports, there are differences in their governance models. For example, Tacoma maintains port facilities for its tenants while Seattle assigns the maintenance to the tenant. Seattle operates an airport while Tacoma does not.

A successful merger of cargo operations was predicated on both parties contributing equal shares of business to the new entity. The facilities licensed to the new authority from each port had to have a similar value as revenues and expenses would be evenly split. The valuation process necessary to create a new organization of two equal partners highlighted the differences between the two ports. Due diligence revealed that Seattle had more debt than Tacoma, and the value of its land was greater by about \$300 million. Tacoma had higher income but needed more infrastructure investment. Each port's financial plan was escalated for a ten year period to compare net operating incomes. Various asset combinations were examined to determine which facilities of each port would be included in the Alliance. The final valuation supported the inclusion of all of the Port of Seattle's maritime-related warehouses and container business and Tacoma's container, break-bulk, auto, log and intermodal businesses into the Alliance. The majority of the Port of Tacoma is, therefore, in the alliance and the majority of the Port of Seattle, which also operates an airport, is not part of the Alliance (Morrison & Chamberlain, 2015).

The creation of the Alliance was a strategic step to address market uncertainties created by changes in the ocean shipping industry. The governance change at the seaports of Seattle and Tacoma resulted from its own managements' analysis of market conditions and were not imposed by an outside authority. The recognition that each port's individual market power was decreasing in relationship to their customers created the conditions to consider solutions which in the past would have been summarily dismissed as politically infeasible. The strategic governance change at Seattle/Tacoma reveals that when business and financial conditions dictate action, seaport managers can find solutions to minimize potentially destructive regional port competition and maximize regional competitive advantages. Governance changes, however, are no guarantee that the Alliance will recover lost market share and prosper. The Pacific Northwest Seaport Alliance recognizes the need for fewer, but larger terminals to better accommodate the increasing size of ships (Seaport Alliance, 2015). In fact, the Alliance is being very cautious in committing major capital expansion projects to service the 18,000 teu ships. The Alliance's capital plan for their first five years is only \$174 million with \$130.9 million allocated for container facilities.

4.2. Los Angeles and Long Beach- moving beyond their role as landlord seaports

The Ports of Los Angeles and Long Beach are landlord seaports have been moving beyond their traditional role to secure their ability to grow. These seaports have often acted as facilitators to resolve issues among their customers and stakeholders. However, in several cases, these ports have tried to directly influence their customer's behavior and business. In 2006, greater use of the seaports regulatory powers was employed to affect uniform and consistent environmental changes in port and terminal operations. In response to the congestion issues that began in 2014, both ports have sought to become supply chain participants. Both these initiatives require the ports working in close collaboration to create programs that uniformly apply to all tenants, reducing the potential that a particular customer might have a competitive advantage.

In 2006, the seaports of Los Angeles and Long Beach began implementing a Clean Air Action Plan (CAAP), a program to significantly reduce air emissions associated with port operations and development. The seaports sought approval from the FMC to discuss various aspects of the CAAP among themselves and with their customers. The ports relied on a combination of mechanisms to secure customer participation in the CAAP including incentives and voluntary participation. In the case of the Clean Truck Program, the Ports used their regulatory authority to enhance their role as a market participant, setting conditions for trucking companies that service port tenants. Both Ports amended their tariffs to ban trucks from access to the ports based on model year, assessed fees for non-complaint trucks and required all trucking companies to be part of port-approved concessions.

It was a "self-regulation" strategy to overcome the seaports' inability to pursue development projects necessary for future growth. Giuliano and Linder (2013) and Clott and Hartman (2013) found that the measures used to impose the CAAP clean air goals restructured longstanding relationships between the seaports and their customers and regulators. At that time, the ports recognized they had sufficient market power to drive changes in their customers' behavior which had consequences that rippled through the supply chain. The seaports established standards for air emissions from port operations that went beyond the standards in place by federal, state and local air quality authorities. A series of legal challenges by the Federal Maritime Commission and by the American Trucking Association (ATA) were mounted asserting that the seaports were stretching the boundaries of their regulatory authority. When the Port of Long Beach modified its program to eliminate the concession requirement for licensed motor carriers, the ATA challenge focused on the Port of Los Angeles's role as a market participant, advanced to the U.S. Supreme Court. The Supreme Court ruling in 2013

left the majority of the Los Angeles Clean Truck Program in place, including the requirement that trucking companies enter into concession agreements with the Port.

In 2014, the two seaports received approval from the FMC to amend their CAAP discussion agreement to allow them to work on supply chain congestion issues. The ports established industry stakeholder groups to improve operational performance in specific areas such as chassis supply and interchange, truck drayage, container terminal optimization, appointment systems and off-dock storage. A Supply Chain Executive Committee made up of port executives oversees the working groups. Recognizing the need for the seaports to more actively engage in supply chain issues, the Port of Long Beach created a senior executive position devoted to supply chain optimization. The Ports are still at the "facilitator" stage but with a significant degree of engagement, working to bring parties together, test technologies and improve information sharing. During the height of the 2014–2015 congestion, the Port of Long Beach made a significant effort to expand its role by announcing plans to purchase and supply container chassis. Their efforts to enter the marketplace were unsuccessful, however, when their request for proposals attracted no response. The action, however, reflects the port's intent to become a supply chain participant, when necessary to improve cargo flow.

Affecting uniform change to address congestion issues could result in further use of the ports' regulatory authority under their tariff. One example is the Port of Long Beach's recent tariff revision to reduce "free time" (the number of days a container may rest in the terminal before storage charges begin to accrue). Reducing free time motivates the shippers to remove their containers from the terminal more quickly to avoid storage charges which improves terminal efficiency by reducing container dwell time.

4.3. Florida seaports: unprecedented state support to enhance competitiveness

There are 15 seaports along the Florida coastline. As the nation's third most populous state in the U.S., Florida's seaports predominately serve the Latin America, Caribbean, and South American market with the leading commodities being foodstuffs and produce. Florida accounts for 32.1% of all U.S. merchandise exports to Latin America and the Caribbean and 21.8% of all merchandise imports from the region (Enterprise Florida, 2014).

From 2010 to 2015, the State of Florida committed over \$850 million in improving infrastructure serving its ports. The state's ports are investing over four billion dollars during the period from fiscal year 2013/2014 through 2017/2018 with the Miami, Jacksonville and Port Everglades receiving 2.8 billion of the total (Florida Seaport Transportation and Economic Development Council, 2015). A \$220 million investment was made at the Port of Miami to dredge a deep water channel, completed in 2015, and another \$1 billion to construct a tunnel to improve port access, completed in 2014. The State of Florida's financial support of its seaports is unprecedented among the U.S. states and reflects the state's view that its seaports are an integral part of the state's economic development and job growth strategy. The state aims to position its seaports as a global gateway to handle cargo growth anticipated from an expanded Panama Canal.

Miami, Jacksonville and Port Everglades, along with some of the smaller seaports in Florida, all seek to capture a greater share of Panama Canal traffic. In 2015, data from Journal of Commerce's PIERS database indicated that the volume of loaded containers handled by the Ports of Miami, Jacksonville and Port Everglades were similar at 680,017 teus, 760,331 teus and 759,792 teus, respectfully. Jacksonville is generally ranked as Florida's number one container port because private terminals also operate within their jurisdiction, boosting their container volume to over 1 million teus (Port of Jacksonville, 2015). After a \$927 million investment in Florida ports made in FY 2014–2015, the 5 year Florida Seaport Council Plan identifies upcoming improvements

totaling \$1.3 billion for the Port of Jacksonville, \$306 million for Miami, \$625 million for Port Everglades and \$602 million for Port Canaveral (Florida Seaport Transportation and Economic Development Council, 2015). In addition, the U.S. Army Corps of Engineers initiated a feasibility study of widening and deepening the Port of Manatee channel, predicated on the growing business through the expanded Canal. Manatee has only two mobile cranes that can lift containers but still markets their port as the closest deep water Port to the Panama Canal while the neighboring Port of Tampa calls itself the closest full service port to the Panama Canal.⁵

Florida's port volumes increased due to diversion during the West Coast congestion crisis and continued growth will result from population growth and increased tourism. Geography and rail access to reach the nation's hinterland are constraints that Florida must overcome to continue to grow its share of Asian containerized cargo. Heavy traffic congestion, hampering the movement of containers from the state's southernmost seaports, has spurred investments in the rail system. The Florida East Coast Railway is investing in its intermodal yards to facilitate the movement of intermodal cargo out of Florida to inland destinations. Yet, Florida's goal of becoming a global gateway for Asian cargo transiting the Canal is tied to the ocean carriers making the decision to call there over other gateways such as Savannah, Georgia. The investment proposed at some ports in Florida is much higher than many larger U.S. container ports that handle much greater cargo volumes and generate significantly more revenue. Wang and Pagano (2015) examined the readiness and challenges faced by nine East and Gulf Coast Ports to handle larger vessels using the expanded canal. They concluded that despite all of the Ports claiming they can handle Post-Panamax vessels, readiness will be defined by the ocean carrier port selection. If the carrier alliances chose to call at a Florida port, they are likely to call at only one. Florida's investments are no guarantee that the seaports will thrive as they are competing for the same business.

Competition among the Florida seaports means they are not immune to public debate about their governance especially at some of the smaller seaports. In 2013, the Port of Tampa and Port Manatee (Manatee County Port Authority) both proposed new auto distribution facilities and plans to attract containerized cargoes. After discussions between the two seaports and the Florida Department of Transportation regarding a possible merger, Port Manatee's board passed a resolution opposing any merger with the larger Port of Tampa. The president of the Port Manatee Commerce Center, a warehousing, and transloading facility, commented that "consolidation was a redistribution of opportunity and that those with the most opportunity win and those with the least, lose."⁶

5. Governance struggles at the local level

The very nature of the decentralized control of U.S. seaports means that changes to their organizational structure are initiatives taken at a state or local level. When seaports are growing and free of controversy, there is little call to reform governance. Several factors appear to be triggers for governance debates. These are: 1) loss of cargo volumes or market share; 2) predatory pricing practices to induce a customer to shift cargo from one port to another within the same region; 3) concern over duplication of investment or facilities to attract the same business; or, 4) management issues that raise accountability or transparency issues. Three of these factors (loss or market share, predatory pricing, and duplication of investment) factored into the governance change at the ports of Seattle and Tacoma.

⁵ "Ports downplay 'friendly' Panama Canal distance competition," Bradenton Herald News, January 24, 2014. Available from <http://www.bradenton.com/news/business/port-manatee/article34597341.html>.

⁶ "Port Manatee board: Oppose consolidation with Tampa Port," Bradenton Herald News, November 22, 2013.

Available from <http://www.bradenton.com/news/business/port-manatee/article34593654.html#storylink=cpy>.

A number of governance evaluations at both large and small seaports have occurred this past decade, but few changes resulted. Several cases worthy of examination are the realignment of the North Carolina seaports within its state government, the evaluation of the governance structure at the Port of Houston to impose greater state control and accountability, and a proposal to reform governance and address mission creep at the Port of New York/New Jersey.

5.1. Texas sunset commission review of the port of Houston

The Port of Houston, Texas, is a bulk and container port on the Gulf of Mexico. Various authorities from the surrounding Harris County appoint the seven-member board. The Texas Legislature authorized a review of the Port of Houston Authority by its Sunset Commission amid concerns about a lack of transparency and oversight due to its structure which was characterized as "neither city, county or state" (Sunset Advisory Commission, 2013). Although the port had representatives from city and county governments on its board, it was free to establish its own operating and financial policies without any outside oversight. This autonomy is in sharp contrast to many municipal ports like Los Angeles and Long Beach, which, as departments of their respective cities, must comply with city financial policies and are subject to audit by city auditors. A preliminary report on the Port of Houston prepared for the Sunset Commission noted that the governance of the port authority had not changed in over a century, and the original city-county boundaries did not reflect the current scope of its mission, nor its impact area. The report called for more state oversight along with state representation on the governing board (Teleki, 2013). Some members of the Texas legislature favored the state assuming complete control of the board. Neither of these changes was implemented. Instead, long-tenured board members were removed, and the Texas legislature set a 12-year term limit for new appointees and imposed oversight by the Harris County auditor (Sunset Advisory Commission, 2013).

5.2. North Carolina ports authority realignment

The North Carolina State Ports Authority (NCSPA) was established in 1945 to develop and improve the commercial ports of Wilmington and Morehead City and a small craft harbor called Southport. In the mid-1980s the NCSPA developed inland terminals in Charlotte and Greensboro. The governance structure of the NCSPA has undergone several changes since its creation. The creation of a state port authority was driven largely by the need to reduce the rivalry between the ports of Wilmington and Morehead. Originally, the Board of Directors numbered seven members all appointed by the Governor. A governmental reform initiative consolidated many state agencies in the mid-1970, placing the state ports under the newly created Department of Transportation. Within five years NCSPA was transferred to the State Department of Commerce. Under both departments, control of the ports was directly through the Commerce Secretary's office until 1989 when the State recognized the importance of greater autonomy in the management of the NCSPA. The 11-member State Ports Commission (six board members named by the Governor, four by the State General Assembly and the Secretary of Commerce as ex-officio) was then given authority to hire the executive director and set budget and policy for the NCSPA.

In December 2009, the Governor established a Logistics Task Force as a follow up to a statewide logistics study prepared at the direction of the State Office of Management and Budget by the North Carolina State University Institute for Transportation Research and Education (List, Foyle, Canipe, Cameron, & Stromberg, 2008). The List study examined the operational structure and governance of the state's freight logistics and transportation assets and developed recommendations to improve performance and efficiency. The mission of the Governor's Task Force was to inventory transportation assets including the port facilities and to make recommendations on how to implement an integrated logistics strategy to make the state more business competitive. The Task Force

in its final report to the Governor, dated February 2011, recommended that the North Carolina Ports Authority be transferred back under the direct control of the North Carolina Department of Transportation, which was affected and signed into law later that year. The role of the Port's Board of Directors and management team essentially became advisory to the Transportation Secretary, including the authority to hire the Executive Director.

The North Carolina Department of Transportation then initiated an examination of the state's maritime assets to more closely align the state, port and port stakeholders on a unified maritime mission that would capitalize on all the states resources and be more competitive (North Carolina Department of Transportation, 2012). The resulting "North Carolina Maritime Strategy Study" combined with the transfer of the NCSA to the state Department of Transportation was to facilitate collaboration and strengthening strategic use of logistic assets.

The State aligned the transportation functions of four State Boards (the North Carolina Board of Transportation, the Turnpike Authority, Global TransPark Authority, and the Ports Authority) under a Governance Director. Investments are guided by the state's 2013 Strategic Transportation Investment legislation which establishes a data driven scoring process to prioritize transportation investment. Local input is considered in this scoring process to try and balance the statewide perspective with regional views. Statewide projects are assessed against a strategic mobility formula that weighs benefits in the six areas: congestion (30%); benefit/cost (25%); economic competitiveness (10%); safety (15%); multimodal/military (5%); and, freight/military (15%). Port development projects typically have the ability to score points in all of the above categories. North Carolina's strategic funding formula, like the federal TIGER Program, is indicative of a growing trend in the U.S. to a more quantitative process for evaluating transportation investment.

5.3. The Port Authority of New York/New Jersey

The seaport operation of the Port Authority of New York & New Jersey (PANYNJ) is a component of the much larger Port Authority of New York & New Jersey that has responsibility for the entire interstate and international transportation infrastructure in the greater New York metropolitan area, including bridges, tunnels, bus and rail facilities, and airports. The PANYNJ also has real estate assets like the World Trade Center. It is a bi-state authority of New York and New Jersey authorized by an interstate compact approved by the U.S. Congress in 1921. Historically, the PANYNJ's broad mission allowed it to respond to transportation needs as necessary. Today, that broad mission means the agency has more on its plate than it can handle. Diversions in revenue to non-transportation economic development projects along with funding the rebuilding of the World Trade Center have hampered the ability of the agency to focus and prioritize funding for transportation projects (Erie, Mackenzie, & Doig, 2015).

The Authority has a 12 member board with six members appointed by each governor. The New York Governor appoints the Authority's Executive Director, and the New Jersey Governor appoints the Deputy Executive Director. The New Jersey Governor recommends the appointment of the Chairman of the Board and the New York Governor recommends the Vice-Chairman. The Deputy Executive Director has an independent reporting authority to the Board. This arrangement was put in place around 2007 to ensure that the senior leadership was responsive to both states. Unfortunately, this structure undermined the organization's accountability and efficiency. In effect, the Authority operates as two boards under separate executives that often provide inconsistent direction to agency staff.

In response to a politically motivated action to shut down a major bridge between New York and New Jersey by staff members within the New Jersey Governor's office, the Governors of both states commissioned a "Special Panel on the Future of the Port Authority" to evaluate the Authority's governance and mission. Created in 2014, the Panel was made up of the then current Chairman of the Board and Vice Chairman,

one commissioner and each governor's attorneys. No one outside the authority was part of the Special Panel although the Panel held public hearings to seek input for their deliberations.

The Special Panel issued a report with recommendations on governance and mission focus (Port Authority of New York and New Jersey, 2014a). Key recommendations include: 1) create a single CEO position in place of the Executive Director and Deputy Executive Director; 2) replace the board chairman and vice-chairman with two co-chairs or rotate the chairmanship annually; and, 3) refocus the agency on its core mission of transportation and consider selling real estate assets including the World Trade Center. Neither state governor was willing to support legislation that would have made these reforms mandatory but the agency is proceeding with the recommended reforms. Without legislative mandates, however, any reforms implemented could be undone by subsequent administrations (Erie et al., 2015).

A specific recommendation tasked the Authority's seaport (known as the Port Commerce Department) to work with industry stakeholders to undertake a study examining the competitiveness of PANYNJ versus other East Coast Ports. Despite the increase in cargo volumes at PANYNJ, the seaport operation does not generate a positive net income for the Authority due to the depreciation, amortization and debt service from past capital expenditures. An asset review found that many of the seaport's terminals do not meet the agency's metrics for alignment with the core mission nor do they meet performance objectives for revenue and efficiency. Before the Special Panel convened, the Port Commerce Department created the Port Performance Task Force (PPTF) in late 2013 after a series of extreme weather events and other business disruptions. The Task Force consisted of executive-level industry stakeholders from all segments of the supply chain with the mission of identifying measures to improve the overall performance and efficiency of the seaport. Information sharing, transparency and collaboration were deemed by the Task Force to be fundamental to improving performance. The PPTF produced a final report with 23 recommendations in June 2014 (Port Authority of New York and New Jersey, 2014b). The Port Authority is leading the information integration effort through the creation of New York-New Jersey's new Terminal Information Portal System (TIPS), a common Internet portal for the port's six terminals to help optimize transactions for the trucking companies and cargo owners.

6. Implications for managerial practice

The lack of change in U.S. port governance was viewed by Fawcett (2007) as a sign of continued support for a system that works. However, governance structures that have been in place for as long as a century do not necessarily serve the future industry dynamics. Nor may they recognize how a port authority's role in the marketplace may have changed. Competitive forces will continue to drive more change. In the U.S., the static governance of the previous decades is likely to be replaced by continually evolving strategies to address market dynamics. Recent trends would appear to support increasing involvement by state and federal government in port matters as well.

The outlook for the future is a continued trend toward greater integration among seaports and their terminal operators. Loss of business and cargo volumes tends to bring greater political scrutiny of the port's operation or administration. Should over-investment and market conditions lead to stranded assets in seaports, empty terminals or financial downgrades, there are likely to be more calls for regional solutions, including governance changes.

Enhancing the regional market power of seaports with collaborative and unified action can be fraught with challenging political issues. Seattle and Tacoma side-stepped the tough political issues associated with their merger by retaining their existing organizations and creating a third entity, the Pacific Northwest Seaport Alliance. The retention of the two existing separate authorities for retained functions made the merger more palatable from a political perspective. The true test of the Alliance's strength and durability

will come about as the new organization seeks to maximize its use of land between the two political jurisdictions. The Port of Seattle's high-value waterfront might be better suited for non-cargo uses and Tacoma's land better suited for terminal expansion. These sensitive land use issues have yet to be addressed. Whether the Alliance proves to be a better governance structure for improving competitiveness is worthy of future analysis. If the newly created Pacific Northwest Seaport Alliance is successful, it could serve as a model for other port regions that struggle with declining leverage and loss of market share in a more competitive environment.

Like Seattle and Tacoma, Los Angeles and Long Beach have used predatory pricing practices to shift cargo from one port to the other. Los Angeles and Long Beach also have challenges associated with the carrier consolidation and with carriers divesting of their linkages to specific terminals. But other factors that triggered the actions at Seattle and Tacoma such as a consistent loss of market share have not yet impacted Los Angeles and Long Beach. Instead, Los Angeles and Long Beach have used a combination of regulatory authority, active facilitation and market participation to address environmental and reputational risks to protect their market. Today, the fear that shippers will seek alternatives to avoid congestion at their seaports is strong enough for Los Angeles and Long Beach to reconsider their role in the supply chain. The attempt by the Port of Long Beach to enter the chassis leasing business shows how competitive forces drive entrepreneurial behavior. Rather than a supply chain participant, however, Los Angeles and Long Beach may be better suited to a role as supply chain "manager." While the work of the supply chain committees has not been completed, these ports may find the need to rely again on their regulatory authority, using their tariff to implement mechanisms to manage supply chain issues critical to their success.

On the U.S. East Coast, there are some examples of increased involvement by a state government in port affairs, but less active steps toward greater port integration. The expanded Canal, however, does not create an East Coast port versus West Coast port competition for market share as much as it creates an East Coast port versus East Coast port competition. States like North Carolina and Florida are both trying to position their seaports to gain market share, in the first case, by assuming active management of the state's maritime resources and in the second, by significant financial support. Some East Coast seaports are pursuing infrastructure investments, seemingly irrespective of the consolidation occurring among ocean carriers. Canal "fever" has prompted many seaports to consider investments out of scale with the size of their individual market and financial strength, particularly in Florida. Yet, the ocean carriers will seek to do business in port areas that provide the most reliable and efficient services, regardless of where investment has been made. As carriers adjust their services with the expanded canal, seaports will need to adapt to market realities. Those realities will necessitate seaports replacing their dated business models for one that adapts to the evolving business model of their customers while seeking to protect the investments already made. Those realities could also involve more ports recognizing the value of increasing their market power through stronger port collaborations. Governance changes, including port mergers may need to be examined.

Consolidation of terminals within container ports is the next logical step to reducing intra-port competition and would be a direct response to the competitive pressures of the large ocean carrier alliances who will chose to call at the most efficient terminals able to handle the largest ships. The continued consolidation among the ocean carriers resulting in fewer entities controlling the majority of cargo in specific trading lanes dictates that landlord ports with multiple smaller container terminals consider changes in their traditional leasing practices. This may include devising solutions to address the existing framework of long-term leases to facilitate the merger of terminal operations between different private operators. Terminal mergers and alliances within a port or port region may be a collaborative strategy to consider where political conditions make a port governance change infeasible.

7. Contribution to scholarly knowledge

Public port authorities in the United States are first and foremost administrators. Their strength is twofold: 1) the ability to facilitate solutions and provide tools that can be used by their supply chain customers; and, 2) the regulatory authority as imposed through tariff measures and lease conditions. U. S Ports are undertaking activities that have not commonly been done by landlord ports without fundamentally changing their status as landlord ports. In this regard, they are not moving beyond landlord port status as much as changing the definition of services that landlord ports provide.

Although the more significant changes in port governance this past decade have occurred outside the United States, there are subtle but significant changes in U.S. port relationships that provide a fertile ground for future research. This study examines how competitive forces are exerting pressure on the governance models of U.S. Ports and how maritime industry dynamics makes investments in port infrastructure riskier. The landlord port traditional business model of building for a customer and recouping investment over the term of a long-term lease is no longer a viable business model given the changing industry dynamics affecting large container ports. The economic benefits to ports and their regions by competing to handle the largest container-ships may not be commensurate with the increased financial demands to provide the infrastructure. A comparative analysis of return on investment could be undertaken at port areas where investments were made to prepare for an anticipated increase in trade from the Panama Canal. Such an analysis might validate a shift in federal funding policy to focus on strategic investments.

Decentralized control of ports means that the local governing bodies make investments to benefit the economic development of their own region, in competition against other regions. Decentralized control may be replaced by a more integrated regional or state government control as a way for ports to survive. The ports covered in this paper are not the only ones in the U.S. where governance debates are active and there are significant opportunities for researchers to examine strategies proposed for other U.S ports. For example, the City of Chicago is examining privatization of its Great Lake port as a solution to poor performance in the face of stiff competition, although the push to privatization of governance is not common in the United States. The state of Virginia undertook a review of its port facilities competitiveness, funding and governance structure ([Commonwealth of Virginia, 2013](#)). How U.S. seaports adapt to shifts in international trading routes in the post-Canal expansion period could provide motivation to examine existing models of port governance. Further examination of collaborations that develops from within port organizations as compared with solutions imposed by outside governmental authorities could identify factors necessary to a successful governance transition.

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