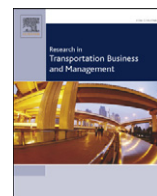




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# Research in Transportation Business & Management



## Revisiting port governance and port reform: A multi-country examination



### 1. Background and rationale

Ten years ago, a themed volume on *Devolution, Port Governance and Port Performance* was published as part of the Elsevier book series/journal *Research in Transportation Economics* (Brooks & Cullinane, 2007a). The volume was motivated by a wave of port reforms that had been observed taking place around the globe in the 1990s and early 2000s. Although these port reforms were eclectic in both their objectives and the forms they took, they did share a common context in terms of a dynamic world economy characterized by a revitalized globalization of production and consumption, consequent burgeoning growth in maritime trade and, more specifically, booming demand for container transport and its supporting infrastructure provided by container ports and terminal operators. Scholars then active within the international Port Performance Research Network (PPRN) provided some much-needed precision in defining the emerging devolution of responsibilities within the port sector and its (expected) impact on governance and performance, before moving on to examine the then current state-of-the-art with respect to the port management environment. This work, together with that of Brooks and Pallis (2012), are now acknowledged as “important milestones that contributed significantly to understanding the problem of port governance, strategy and performance” (Borges Vieira, Kliemann Neto, & Amaral, 2014). The extensive analyses contained within the volume revealed the complexity and variation in port policies, governance models and resulting outcomes which proliferated across the international arena.

By 2017, port reform has had more than 10 years to evolve. The port reform timeline has moved on, with some countries having implemented no reforms at all, others having achieved significant improvements in performance and yet others rethinking what they have done. The 10th anniversary of the publication of this earlier book provides a highly appropriate time for scholars studying port economics, management and policy to reflect and revisit port governance developments.

The current volume is the outcome of this reflection. In *Revisiting Port Governance and Port Reform*, contributors examine 25 countries with a focus on changes in national port policies with respect to devolution, regulatory reform and newly imposed governance models that have been instigated over the past decade and which have exerted a significant influence on the nature of port management. The impact that these policies have had on port strategies and port performance is analysed on a country-by-country basis, with each contribution examining what has happened over the recent past within their particular geographical domain.

The overwhelming conclusion of scholars studying port reforms at the turn of the century was that “while governments may have had the best of intentions in establishing a more commercialized footing

for port operations, the outcomes had not (at least yet) always delivered the full benefits sought” (Brooks & Cullinane, 2007b: 632). However, such a conclusion may be a function of the timing of the analysis which underpins it; at that time, port governance configurations had rarely been in place for long enough to observe steady-state consequences or results.

Moreover, port reform is a complex process that unfolds and is adjusted over time. Relevant policy actors decide to initiate change in the light of a specific environment, having a vision of (or objective for) what they would like to see as port performance output. Implementing authorities take actions to develop goals and targets and to implement systems and processes that seek to effectively execute these decisions. Changes are accompanied by transition times, and might be affected by several variables. Therefore, intentions and desired goals might not result in respective action. Within the port reform process, port governance decisions (i.e. strategies and structures) are the inputs aiming to produce the best output, as embodied within the performance of the port (Brooks & Pallis, 2008). Either because of flaws in the decisions taken or because of flaws in the implementation of appropriate decisions, inconsistent governance frameworks might possibly produce performance deficiencies. Thus, an assessment of the output of governance should follow the initiation of any change, with the conclusions derived from this assessment, along with the contextual environment, both providing the background for the initiation of further changes aiming to minimally adjust, or comprehensively reform, the specifics of the governance model in place.

Given this context, the studies of national policies on port governance included within this volume serve to enhance our understanding of whether choices made before the end, or at the turn, of the century have produced matching (contextual) environment-strategy-structure framework configurations as proposed by Baltazar and Brooks (2001). This will inform any assessment of whether port policies that have implemented changes in port governance have actually secured the performance outcomes sought. The studies within this volume also reveal how, and when, those responsible for a particular country or port system proceeded to the assessment of the governance models in place; how and which ways they have attempted to fix any mismatched (or inappropriate) configurations, or; used port governance in order to respond to the problems of other sectors which arose during the post-devolution period. In other words, the analyses within this volume not only reveal the prevalence, nature and results of assessments of changes in port governance policy, but also whether decision makers have, during the first 15 years of the 21st century, implemented remedial structural adjustments to port governance arrangements, ranging from relatively simple fine-tuning to complete reversal of previous decisions.

The richness of the analyses contained within the individual contributions to this volume mean that there are considerable lessons to be drawn from comparing and contrasting the port reform experiences of the different nations covered. By so doing, an overarching perspective on the similarities and differences between the experiences of different countries can be developed in order to identify and evaluate causes and effects of the different nature and speed of implementation of port reform processes, as well as the successes and failures achieved. The countries addressed within this volume are listed alphabetically in [Table 1](#), which also provides the date(s) of any major port reform within each country and the major motivation(s) for that reform.

The similarities between the instances of port reform which took place during the first wave in the 1990s appear to be far greater than the cases of reform observed during the past decade and analysed within this volume. The first wave of port reforms in the 1990s was marked by devolution and/or decentralization and the transformation of mostly public port authorities to corporate entities with full or, at least, substantial autonomy. In the past decade, however, legislative adjustments have been of a more complex nature and vary considerably; there is no longer a single theme, such as 'devolution' or 'opening the market to private terminal operators,' that pervades the experience of the immediate past fifteen years as was the case in the 1990s.

This does not mean that there are not common challenges or similar answers. The rich and eclectic nature of the initiatives undertaken around the globe clearly imply that we have moved further away from a belief in, or reliance upon, a 'one size fits all' single port governance model. Despite this, the studies contained within this volume do reveal some commonalities in terms of both issues that decision makers have attempted to address and the observed reforms in anticipated response.

In [Section 2](#), a range of common characteristics to emerge from international port reform processes are identified and analysed individually. In [Section 3](#), the flaws or controversial outcomes that have been identified from individual country analyses are presented and their implications for the further implementation of port reform policies are analysed. [Section 4](#) draws conclusions and outlines a future research agenda for the port governance field.

## 2. Common characteristics of the port reform process

### 2.1. Pressure for reform from influences beyond the port sector

While the structuring of port governance frameworks has obviously been the subject of specific legislation that exclusively addresses the organisation of a nation's port sector, the nature of the changes embodied within a revised port policy is often shaped either by policy and/or legislation that more directly relates to other sectors, or to broader macro-economic circumstances. For example, [Caldeirinha, Felício, and da Cunha \(2017\)](#) explain that while Portugal expedited its port reforms in the 1990s and, again, in the 2000s via specific port laws, the governance of Portuguese ports was also shaped indirectly via wider legislation on corporate governance (2006) and public management (2007). Similarly, [Rodrigue \(2017\)](#) details how the emergence of Panama as a major logistics cluster has prompted additional reforms to port governance that, in turn, provide the foundation for the further growth of the cluster.

At the time the original volume was published ([Brooks & Cullinane, 2007a](#)) the world economic environment was very different from that which pertained just two years later. How to respond appropriately to a world economy where much greater uncertainty prevailed emerged as a critical question for which answers were sought. Previously, great faith had been placed in new public management, but the events surrounding the global economic crisis and the impacts that have been felt in some countries has rocked the foundations of that faith as populism gains ground and bureaucrats and politicians come under more scrutiny in the post global economic crisis era. It is clear from the contents of some of the country analyses that port reform has often been

explicitly instigated as part of a wider political strategy to help extricate nations from economic malaise or, indeed, has been foisted on nations as a condition of bailout packages.

The global economic crisis of 2008 provided the impetus for many ports to reform, in particular to transition towards fuller implementation of the landlord model, in order to devolve operational responsibility to the private sector and cut costs, often with the specific objectives of improving efficiency, increasing volumes and enhancing profitability. With major transshipment activity, for example, the port sectors of both Korea and Taiwan are heavily dependent on the state of the global economy and trade ([Song & Lee, 2017](#); [Tseng & Pilcher, 2017](#)). Their competitiveness as transshipment centers, however, was severely undermined during the global economic crisis of 2008. Both countries resorted to port reforms as a partial measure for restoring their international competitiveness as transshipment hubs. In the case of Korea this amounted to amending previous reforms, while in Taiwan their 2012 legislation represented their first major reform of the port sector.

As a result of the economic difficulties faced by some countries, changes to port governance structures have also been prompted, or even imposed, by international institutions. In Portugal ([Caldeirinha et al., 2017](#)) and in Greece ([Pallis & Vaggelas, 2017](#)) in recent years, decisions on port policy and governance have effectively been externally imposed, with a troika of international institutions monitoring the country's adherence to a raft of imposed bailout conditions. Similarly, as [Panayides, Lambertides, and Andreou \(2017\)](#) point out, the financial crisis that engulfed Cyprus in 2013 resulted in the need for international creditors to rescue the State. One of the main conditions for the bailout was the liberalization of inefficient State assets and the commercialization of the Cyprus Port Authority has been viewed as an important element fulfilling this key requirement.

On the other hand, more than any of the other countries profiled in this volume, the United States experienced the least level of reform pressure internally but faced significant pressure from global market forces ([Knatz, 2017](#)). Changes in port investment and port management strategies have been driven by labour unrest and the Panama Canal investment; on the west coast, these pressures have translated into greater cooperative activity (e.g., between Seattle and Tacoma) and on the east coast, the ramping up of the opportunity to serve a larger hinterland due to the ability of the Panama Canal to handle bigger ships has led to substantive investment in port deepening and over-investment in facilities. Therefore, there was insignificant governance reform (some tinkering with the Harbor Maintenance Tax) but there was significant additional funding by government in response to external forces.

### 2.2. The influence of politics, culture and institutional arrangements

Port policy generally and port governance more specifically have always reflected not only changes in government, but also changing politics within a nation. During the period 2005–2011, Portugal's national port system was still very dependent on government policies, but following a change of government in 2011 the objective of liberalization has dominated ([Caldeirinha et al., 2017](#)). Examining the British case, [Monios \(2017\)](#) stresses the importance of politics by analysing how a change in government has fundamentally altered the port governance landscape; port privatisation lost all impetus in the UK with the defeat of the Conservative Party by the Labour Party in 1997. The cases of Italy ([Parola, Ferrari, Tei, Satta, & Musso, 2017](#)) and Greece ([Pallis & Vaggelas, 2017](#)) provide evidence of similar shifts following electoral results and highly politicised processes lasting almost, or more than a decade to conclude (Italy 2006–2016, Greece 2008–present).

The examination of port governance and related reforms in Italy by [Parola et al. \(2017\)](#) reveals a convoluted process of drafting, approving, implementing, and fine-tuning that involves different port communities and stakeholders reacting to national and global changes. It is asserted that the strong negotiating power held by local port stakeholders such

**Table 1**  
Date and purpose of most recent port reform by country.

Country	Date of last major reform (previous one)	Type/purpose of port reform
Australia	2010 (1990s)	The latest port reform allows for the long-term leasing of port infrastructure to private sector holding companies that have responsibility as the 'landlord' for the port. The main motivation for this reform is to raise capital for investment in general land-based infrastructure.
Belgium	2009 (1999)	Amending the Ports Decree so that responsibility for the execution and financing of the construction and provision of sea locks was transferred from regional authorities to a limited company. The Port Decree had been adopted in 1999 aiming to create a transparent and competitive governance framework, and establish a level playing field among seaports.
Brazil	2013 (1993)	Refinement of terms/basis of competition; centralization of governance (efforts in 2013 were made to address flaws in the implementation of earlier approaches)
Canada	1998 (1982)	Elimination of a layer of bureaucracy and alteration of type of devolution to increase local responsiveness. Ports remain government agencies but are managed by local boards. Future reform towards privatisation is beginning to be discussed as a result of a recent review of transport policy as a whole.
Chile	2011–2015 (2004–07, 1990–1999)	Three reform periods delivered a more devolved approach to governance in ports but future reforms may reverse direction as the results have not been entirely satisfactory from a national government perspective.
China	2004	Building on the radical reforms which were enacted in legislation in 2004, further port policy has been implemented which has attempted to promote private sector participation in port operations. Efforts have been made to foster collaboration between ports and to facilitate inland infrastructure development and integration with the port system. These have resulted in greater layering in the administrative bureaucracy which relates to the sector.
Cyprus	2016 (1973)	The purpose of the latest port reform is to improve efficiency, increase investment and enhance the regional competitiveness of the country's port system. Although profitable, volumes have been falling for 15 years. Responsibility for port operations have now been taken away from the public sector national port authority (the CPA) by a process of concessioning to the private sector. The CPA retains the role of national port regulator and holder of landlord rights.
East Africa (Kenya & Tanzania)	Kenya 2004 (1977) Tanzania 2004 (1993, 1977)	The governance form was originally determined at independence in 1977, with critical revisions in 2004. Further reform is needed.
France	2008–2011 (2004–2007)	Changed the organisation of France's main ports, via the application of the port concession system and the withdrawal of port authorities from operating terminals; also allowed the sale of public assets (cargo handling equipment) to private operators and the transfer of port employees (crane operators) to private cargo handling companies. Finally, it modified the traditional French system of "port presidency" to governance by a board of directors. This reform followed the devolution of ports of general interest (2004–2007).
Greece	2008–current (1990–2003)	A new model of governance reform appears in the most recent wave but success is too early to predict. Concessions of terminals appeared, but the decision to proceed with the selling of the majority of the master concessions in major ports prevailed. Although the reform draft was first presented in 2009, political instability coupled with a deep financial crisis led to lack of decisions at the Parliament and inertia. Conflicts in authorities and responsibilities have grown, not diminished and new institutions have been formed
Hong Kong	–	Against a background whereby port operations in Hong Kong have always been in the hands of the private sector, there have been no major port reforms instigated. The focus of port policy in recent years has been on the further facilitation of port development through appropriate marketing initiatives and infrastructure development on the part of the Hong Kong Government. Recent trends have been the emergence of a customer-centric approach to port operations, the development of strategic partnerships and the export of skills and expertise in port management and operations.
Italy	2016 (1994)	Italy introduced a 'port systems' governance approach, with the existing 24 port authorities replaced by 15 Port System Authorities (PSAs) that inherited the responsibilities and the power of the traditional port authorities, having a broader geographical scope and special Port Directorates (PD) managing local resources. Although the first reform draft had been presented in 2006, already, a persistent political instability coupled with a deep financial crisis led to lack of decisions at the Parliament and inertia. The 1994 port governance reform had introduced the landlord model, in the case of 24 port authorities.
Japan	2011 (1995)	Prompted by the increasing competitiveness of Busan in Korea as a major transshipment centre for Japanese cargoes, the latest port reforms were introduced in order to focus investment resources on just a few major ports in Japan, so that they might better compete for transshipment cargoes and load centre (hub) status. An important part of the reforms was also to open up the operation of container terminals to the private sector and to bring the private sector into port management.
Korea	2010 (1996)	The earlier reforms were much more revolutionary in terms of introducing the private sector into container terminal operations. The latter reforms are much more inward-looking in terms of seeking to prompt the greater international competitiveness of Korea's port sector by introducing a rather complicated reorganization of the port control structure, revolving around the establishment of commercialized port authorities in the country's largest ports.
Mexico	2013/14 (2005, 1993)	Improvements in port development, co-ordination and communication have been achieved but modal cooperation remains elusive. Solid lessons are possible for many countries seeking improvement; hinterland modal cooperation is flagged as a factor to be addressed.
Netherlands	2004/2011/2013	Corporatization of major Port Authorities in successive phases.
Panama	2014/2012 (1999)	Creation of a Logistics Office under Ministry of Commerce and Industry in 2012, and establishment in 2014 of an inter-ministerial Logistic Cabinet under the direct oversight of the Ministry of the Presidency, with the objective to integrate public policy with the private sector for the setting of a master plan for logistics development. In 1999 the Panama Canal Authority (PCA), an autonomous agency of the Government, had taken full control and ownership of the canal from the Panama Canal Commission, a branch of the US Army.
Portugal	2005–2007 (1998)	Legislative changes referring exclusively to ports (2005), autonomy in operations, centralized investment planning, merging of authorities. Port legislation influenced port governance, as did legislation on corporate governance (2006) and public management (2007).
Singapore	2004 (1996)	The nation has reached a steady state in terms of port policy and the governance structure of port operations. More recent port policy has focused on the development and marketing of the port from the perspective of reinforcing Singapore's status as a port city and a major international transshipment hub, with a particular emphasis on the importance of its role in South-East Asian trades.
South Africa	2002 (1990s)	Good progress in reform but there is the potential to unlock more value from reform in the short and medium term by examining trading and bureaucratic requirements, as opposed to reform of ports governance directly.
Sweden	2009/10	Private sector port operations are extremely common in Sweden, particularly in servicing a significant trade in bulk cargoes. Municipalities are the major public sector entity involved in port ownership and operation. The nation's main

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Table 1 (continued)

Country	Date of last major reform (previous one)	Type/purpose of port reform
Taiwan	2012	Previously organized so that each of the 4 big ports were managed by a totally integrated public sector body. Now strategic decision making has been separated from operational management within national public sector institutions, in anticipation of further devolution of operations to the private sector. The major motivation is to promote the international competitiveness of Taiwan's port sector and to foster economic growth on the back of trade.
Turkey	2004 (1993)	The latest wave of reforms included the devolution of some of the biggest ports in Turkey in terms of berth length and terminal area as well as container handling volume that were owned by TCDD (Turkish State Railways). It was also decided to proceed to the privatisation of a group of them. In 1993, Turkey had proceeded in a very similar way to the devolution and commercialization of a group of 19 ports owned by Turkish Maritime Facilities (TDI), a reform followed by the operated privatisation of a group of them.
United Kingdom	1990s	The UK port sector has attained long-term stability in its governance structure and is unique in its full privatisation approach. Questions are recently arising, however, as to the potential role of an industry regulator to ensure appropriate levels of capacity provision and service quality.
United States of America	No substantive reform	Governance continues to struggle at the local level, but questions are raised about whether past approaches are suitable for future market dynamics.

as terminal operators, concessionaires, ship agents, freight forwarders and unions, is likely to result in the idiosyncratic nature of national reform patterns, something which is also identified in relation to France (Debie, Lavaud-Letilleul, & Parola, 2013) and Greece (Ng & Pallis, 2010). In relation to Japan's port governance policy, the influence of deep-seated cultural mores is revealed in the poignant statement of Shinohara (2017) that: "Another factor that influenced the forming of the port policy is more ideological. The fact that Busan is performing well as a hub port is psychologically difficult to accept for the Japanese".

The port reforms that eventually emerge from efforts to instigate a change in policy may be different from what was originally intended. This is inevitably the case within any long political process. In the case of Italy, Parola et al. (2017) suggest that this is the case in all key drivers of port competitiveness, namely financial autonomy for long run infrastructural investments, stakeholder representation, the independence of managers, governance models and devolution process. Pallis and Vaggelas (2017) demonstrate how in the Greek case a heavily politicised process has not only delayed reforms, but also changed targets and models (from concessions of activities to the selling of master concessions).

In their examination of the Dutch case, de Langen and van de Lugt (2017) identify how institutional differences might result in the different treatment of ports in different countries. To illustrate, they note that, in the Netherlands, private law allows for the different treatment of corporatized (even non-profit) entities by the government, as compared to what is allowed in France or Belgium (Debie, Lacoste, & Magnan, 2017; Van de Voorde & Verhoeven, 2017). Cultural traditions might also result in different practices. For example, the advanced model of negotiation of tariffs with port user associations that exists in the case of the biggest European port, Rotterdam, is not too common elsewhere.

Unlike other papers in the volume, the paper by Dooms and Farrell (2017) places reform in both Kenya and Tanzania in a continental context drawing on published reports of reform in other countries on the continent. Particularly obvious is that this paper is the only one to address the issues and challenges associated with corruption in the port industry.

### 2.3. Incremental implementation and elongated time lines

Even following the introduction of policy and/or legislation enabling port reform, the establishment of a new port governance system often proves to be the product of a long process that unfolds over time. Even rigorously planned time horizons often transpire to be overly optimistic and the actual time-lines for reform end up being much longer than anticipated (Delmas & Tokat, 2005). A variety of time spans for

completed implementation have been reported within the contributions to this work. While implementation in the Netherlands has not been subject to delays, in France it took three years to implement transfer to new port entities and in Greece the transformation of plans to decisions has been remarkably slow. The time period between reform efforts in Brazil was a full 20 years (Galvaio, Robles, & Guerise, 2017), and the U.S. has not yet perceived any grounds to prompt substantive reform of its original port governance system, based on a multi-model approach.

There are numerous potential reasons why the time lines for port reforms become elongated as time progresses:

- Planned for events in the implementation process may not come to fruition on time or even at all.
- In practice, the implementation plans for port reforms have a tendency to evolve over time as the emerging situation might dictate.
- The outcomes of ongoing or one-off evaluations of port reform may mean that policy makers are not in the position to quickly instigate revised policy decisions and plans. This is discussed by Brooks (2017) for the Canadian case, Parola et al. (2017) with respect to the Italian case and by Pallis and Vaggelas (2017) in the Greek case.
- The industry is entering a mature phase where impacts flattened as the product life cycle sees slowed growth (Wilmsmeier & Sánchez, 2017).

In their examination of the Italian case, Parola et al. (2017) point to the cause of delays during the implementation stage as being the embeddedness of ports in specific institutional and economic domains. This results in institutional divergence between the objectives set at governmental level and the interests and objectives which persist at regional/port level. In the absence of both local acceptance and a bottom-up perspective on the implementation of port reform, the presence of multilevel organizations and associated interests and motivations may constitute a potential barrier to the successful implementation of a new port governance framework.

Formal assessments of the tranche of port reforms implemented in some countries in the 1990s has led to governmental policy documents that have either initiated readjustments or simply confirmed the continuation of the previous government approach. The first UK port policy document in a generation *Modern Ports: A UK Policy*, in 2000, and the *2014–2019 National Plan for Port Recovery in France* are two such examples. In spite of extensive port reform in the 1990s. Italy is now encouraging the merger of ports and port authorities and Greece has changed from the approach of corporatizing state-owned enterprises to one based on full privatisation. In other countries, such as Belgium, Korea and China for example, the national port system is still very dependent

on government policies and action plans (Van de Voorde & Verhoeven, 2017; Song & Lee, 2017; Notteboom & Yang, 2017). Despite wide-ranging experience and exemplars, the precise level of desired state intervention in the port sector remains a theme of utmost controversy and discussion in several countries.

#### 2.4. The demise of full privatisation and the dominance of the landlord concept

To a certain extent the 'public versus private' debate had largely been answered at the time of the publication of Brooks and Cullinane (2007a). Despite the predilection for promoting private sector involvement in ports, only a few countries over the past decade have gone so far as to change the ownership status of their ports from public to private. The UK continues to lead the world in terms of full privatisation of the port sector, with 15 of 20 major ports and a group of other privately owned and operated ports handling 69% of tonnage. This has been the outcome of a long tradition commencing with Felixstowe in 1886, but was greatly enhanced by port reforms instigated in the 1980s and 1990s. It is interesting to note that no other UK ports have been sold since 1997, despite a voluntary privatisation application made by the Port of Dover in 2012, which the UK Secretary of State for Transport rejected (Verhoeven, 2014). The only recently implemented model approaching full privatisation is that adopted in Australia; whereby long-term leaseholds over the port assets (including land) are sold to the private sector, usually for 99 years (Chen, Pateman, & Sakalayan, 2017).

Full privatisation has not been without its problems or critics however. For example, Saundry and Turnbull (1997) asserted that ports in the UK had been sold at hugely undervalued prices, often with a significant loss to the taxpayer. This, together with a simultaneous deregulation of port labour, meant that the ensuing increase in port efficiency following privatisation was likely to have been achieved rather deterministically. In addition, Monios (2017) points out that bold assessments of investment proposals by the private sector have led the British government to reject them. Another key problem in the case of private entities owning the assets under full privatisation is that in several cases the same private company is the harbor authority, the owner of the land on which the port sits and the port operator. This is a phenomenon that is also observed in Turkey, where the control of operations and management is transferred to contractor companies together with new capital assets that are expected to be transferred back to the government at the end of the concession contract (Esmer & Duru, 2017). Similarly, in 2014, Greece endorsed the master concessions model, selling 51% of the shares of its major port, Piraeus, to a third party (Pallis & Vaggelas, 2017).

Such a model of privatisation continues to be contemplated for the future. For example, in Canada, the Canada Transportation Act Review panel's report encouraged the government to further 'privatise' the ports but without specifying how; Brooks (2017) concluded that this was a step for which only a few of the ports were ready. The expected 'good governance' standards that would have to be met for true privatisation were simply not well inculcated in the thinking of existing port Boards of Directors.

The most common and dominant model of port governance to emerge in the early twenty-first century has undoubtedly been the landlord model, whereby a public port authority acts as both landlord and regulatory body, while private companies carry out port operations (World Bank, 2007). Its increasing popularity, particularly within Europe, is undoubtedly due to the fact that it is the recommended model of the EU (Carvalho & Marques, 2007). The landlord model has a number of variants, depending upon the level of decentralization and autonomy of the port authority involved (Ferrari, Parola, & Tei, 2015), the cultural disposition of the country considered (Suykens, 1988; Suykens & Van de Voorde, 1998) or the level of involvement of the landlord in furthering and enhancing port activities (Verhoeven & Vanoutrive, 2012).

#### 2.5. The "size effect" and the treatment of secondary ports

The 'size effect' is an important factor in explaining the heterogeneity of port organisation. Port governance regimes comprising at least two tiers of treatment are common, particularly in nations where port operations are highly concentrated within just one or a few key ports. This applies:

- In the UK, where 20 ports account for 87% of total throughput. Notably, the UK Trust ports were allowed to go private in 1991, yet all have remained in the public sector, with the exception of one (Monios, 2017).
- In Sweden, Gothenburg dominates the country's container handling and its privatisation in 2010 represented one of the biggest privatisations ever in Sweden, across all sectors (Bergqvist & Cullinane, 2017). In Sweden, numerous small ports remain public entities, while three significant container ports have been privatized by means of concession.
- In Greece, where Piraeus and Thessaloniki account for virtually all of the country's container throughput, the private investment in the port of Piraeus is of a similar magnitude to that of the Swedish case (Pallis & Vaggelas, 2017).

In Canada, the port reform process of the 1990s introduced a three-tier approach, with the largest ports of strategic interest to the country given greater autonomy (Canada Port Authority ports), second-tier 'local and regional' ports divested to local interests, and 'remote' ports retained by the federal government (Brooks, 2017). Such an approach continues today. The government of Chile has focused most of its attention on San Antonio and Valparaiso as key to future development, with less attention on secondary ports (Wilmsmeier & Sánchez, 2017).

To conclude, it is not uncommon for there to be different treatment for municipal or secondary ports, which are generally small in size, even where there is significant pressure to identify opportunities to enhance their efficiency and get value from their assets (e.g. in Greece and the UK).

#### 2.6. The changing nature of the port authority role

A key characteristic of port reform across the international arena has been the emergence of new forms of 'Port Authority', undertaking a very different role than has traditionally been the case. Historically, port authorities were generally created at the national or regional level to have an integrated and holistic role within port activities, having responsibility for all of the statutory/regulatory role, infrastructure ownership and control, as well as port operations. The very nature of, and *raison d'être* for, international port reforms has inevitably involved the port authority divesting some of these responsibilities and, in many cases, to adapt by engaging in new functions and activities. The separation of control of infrastructure from operations is a characteristic reflected in most reforms of transport over the past few decades and this is also germane to the specific case of the port authority. Most have retained at least control over, if not ownership of, port infrastructure, irrespective of whether the port authority in question is nationally (e.g. Cyprus), regionally (e.g. Belgium and the Netherlands) or port-based (e.g. Korea). The case of Taiwan provides one exception to this in that most port operations remain state-run in the hands of the port authority (Tseng & Pilcher, 2017). Canada remains another example, where ownership of the port lands and infrastructure assets was retained by the federal government, but managed on behalf of the government by the PA, with suprastructure and equipment owned by the terminal operator (lessee); in Canada, some of the port berths are managed by the PA so a pure landlord model is not in play (Brooks, 2017). With the most obvious exception of the UK, where both assets and regulatory functions have been devolved to the private sector, in most cases the regulatory

function has been retained within the purview of the port authority or the port authorities are regulated by the government (but they control management and operations).

Perhaps among the most common incremental amendments to port reform policy over the past decade has been the increasing number of port authorities that have gained further autonomy in managing operations. *Esmer and Duru (2017)* explain how a second wave of reforms in Turkey in 2004 focused on the expansion of privatisation in the case of a further group of ports, in order to allow investments by third parties. France decided that the Boards of Directors of the major ports would be both 'judge and jury' when deciding on strategy, managing and controlling implementation (*Debie et al., 2017*). The number of autonomous port authorities has also increased in Italy, France, Greece, the Netherlands, Portugal and the UK.

Thus far, the focus has been on the more obvious and most common manifestations of the port reform process on the role of the 'Port Authority'. In fact, there are many more subtle ramifications of the change in the nature of the port authority role over the past decade that need to be considered. Aspects that are relevant to such discussion may include the question of where the responsibility lies for defending the public interest and how? How are local and regional needs captured and who is responsible for acting upon them? Who is responsible for initiating the attraction and/or securing of investment funds and who decides upon what costs are justified in doing so and what terms and conditions are acceptable? How does inter-port competition interact with intra-port competition? All such considerations allude to the incontrovertible fact that any debate or discussion on the emerging role of a contemporary port authority is no longer firmly anchored to the 'landlord' concept.

The future of the 'Port Authority' continues to evolve. Based on the evidence within this volume, in some geographical contexts there is a clear tendency towards cooperation between ports, both organically and as part of deliberate strategies to promote such cooperation, even where such potentially cooperating ports are also in direct competition within a shared hinterland. This desire for cooperation is often motivated by a port's regionalization strategies, as well as by logistical advantages that may accrue. These ambitions for cooperation contradict, however, not only the laissez-faire approach of allowing competition to take its natural course, but also the more proactive pursuit of greater selectivity in resource allocation as is the case in Japan, where port policy now focuses public sector investment on just a few strategic hub ports that are perceived as having the potential to compete as international transshipment centers (*Shinohara, 2017*).

Most examples of port cooperation, as in Italy, are between ports within the same region. However, this might also include cooperation between ports that co-exist within the same region but across national borders. For example, the collaboration which exists between some Spanish and Portuguese ports (*Caldeirinha et al., 2017*) and also the feeder-hub relationship which exists between Hong Kong and certain of the ports in mainland China, albeit sometimes complicated by the fact of common ownership (*Cullinane, Wang, & Cullinane, 2004*).

In their paper on Belgium, *Van De Voorde and Verhoeven (2017)* point to a national policy of seeking to stimulate better cooperation among seaports in three strategic areas: societal integration of ports, the anchoring of ports in logistics chains and the reinforcement of the sector's competitive position vis a vis the ports in neighbouring nations. The authors describe how in 2007 an informal reform comprising soft measures, aimed at developing far-reaching forms of cooperation among seaports, followed the formal port reform (a legislative Decree in the 1990s had given autonomy to Port Authorities). Similarly, the 2009 Decree passing responsibility for execution and financing of infrastructure construction to Belgian port authorities was followed, in 2013, by an informal reform whereby the government tried to revitalize the initiative with a new and ambitious cooperation agreement.

Attempts to achieve greater cooperation between ports has led to some merger and consolidation of port authorities within certain

geographical contexts. In Canada, in 2008, three ports in the lower Fraser River/Vancouver area combined to form the largest port in Canada, Port Metro Vancouver (*Brooks, 2017*). In Portugal and Italy, for example, each 'Port Authority' has responsibility for more than one port and, in Portugal's case, an Association of Port Authorities provides yet further scope for wider geographical cooperation (*Caldeirinha et al., 2017; Parola et al., 2017*). In France, 'inter-port authorities' have been encouraged to broaden their scope of action, in order to integrate strategic issues such as investment coordination and engage in a wider range of activities (*Debie et al., 2017*). A merger of port authorities took place in Belgium in 2016 (i.e. Ghent-Zeeland) and the Flemish Ports Association again provides another layer of cooperative possibilities (*Van de Voorde & Verhoeven, 2017*). The most advanced case of consolidation is the creation of port system authorities in Italy that integrate previously separate regional port authorities, with the aim of coordinating and aggregating port authority functions and activities, but with no explicit mandate beyond the scope of the port(s) under its purview. The scope of responsibility for these new port system authorities involves: 1) addressing the complexity of planning procedures within the port domain, since this increases both the cost and time associated with political intervention and reduces the responsiveness of public and private actors involved in port activities; 2) allowing and promoting financial autonomy and; 3) to challenge the monopolistic provision of both marine (e.g. mooring and piloting) and peak-time labour pool services (*Parola et al., 2017*).

At the same time as new types of port authorities have resulted from merger and consolidation, this greater centralization does raise a question over the amount of managerial and decision making autonomy which is really held by port authorities under such models, particularly when the commercialization or corporatization of centralized port authorities may well have left the government as a 'puppet master', when and where relevant authority has not been fully devolved. A question could be raised, therefore, as to whether such structures represent merely the first phase of a strategy to reverse the pendulum on port devolution. However, centralization may also be seen as an appropriate approach in countries where ports are viewed as national strategic assets, particularly if there is one dominant port to serve the country or several countries.

While merger and consolidation may be a formal governance mechanism, cooperation or marketing agreements are another governance path to addressing local challenges or seeking new business. *Knatz (2017)* explores in her article on U.S. port governance a relatively unchanged governance model, one that has not seen the same pressures for reform, but has witnessed the agreement of two 'ports in proximity'—Seattle and Tacoma—to create a new model for the development of business and to fend off the migration of existing traffic to the competing Canadian ports of Vancouver and Prince Rupert.

Based on their examination of the case in the Netherlands, a different type of emergent port authority organisation is recommended by *de Langen and van de Lugt (2017)*. They note that a transition of port governance towards what they refer to as a 'Port Development Company-model' has taken shape in the past decade, even though the final steps in this process remain yet to be completed before full transition is achieved. Their analysis challenges the embeddedness of the port authority in the public sector. Reminding us that the "Port Company Rotterdam" was the very first name of what is now called the "Port of Rotterdam Authority", which was corporatized in 2004, the authors advocate a model of a state-owned port development company, rather than a public-sector embedded port authority. The two main justifications they provide for this recommendation is that development is a commercial activity and large contemporary ports provide foci for clusters and business ecosystems. Gothenburg's dominance over Sweden's port sector mirrors that of Rotterdam's position in the Netherlands and it is perhaps this common characteristic that has led to the relevant regional port authority for Gothenburg port emerging post port reform as a quasi-regional development agency (*Bergqvist & Cullinane, 2017*).

This emerging form of port authority is redolent of its potential role as the hub of an innovation network contributing to a Regional Development Platform Model (RDPM), as conceptualized in Cahoon, Pateman, and Chen (2013). Indeed, it is likely that more of this type of entity will be encouraged by over-investment in ports as ports compete within global supply chains and seek enlarged hinterlands to service. In countries like Kenya and Tanzania, where competition legislation is not as strong, this will give rise to new concerns and perhaps further reform (Dooms & Farrell, 2017).

### 2.7. The presence of additional public institutions

Portugal has created an autonomous administration body to support the technical regulation, licensing, coordination, supervision, and planning of the transport sector including ports (Caldeirinha et al., 2017). A second authority regulates competition in transport, including ports. In a very similar way, Greece has created an independent regulatory authority for ports in 2013, and a port level public authority acting as supervisor of ports (Pallis & Vaggelas, 2017). France endorsed a different three-dimensional model, where local governments are the concession authorities and Chambers of Commerce the main concession-holders, with competition opening up via concessions in some cases only (Debie et al., 2017).

This is not a universal approach appreciated by all however. In the UK, for example, there is no equivalent body established to regulate the port industry, even though such entities exist in other privatised utilities such as gas and water. Assessing the situation, Monios (2017) concludes that using a national port regulator to institute performance reviews and penalties would be a better way to incentivise new development and expansion.

Similarly, Notteboom and Yang (2017) describe a process of institutional layering in port governance that has transpired in China since the introduction of the Port Law of 2004 and related policy initiatives. This process of layering has meant that new rules, procedures, functions and mandates are gradually being added to existing institutions and institutional arrangements (Martin, 2010; Notteboom et al., 2013).

## 3. Port reform flaws and controversial aspects

Many of the papers within this volume allude to the successes achieved as a result of policies of port reform. Chen et al. (2017) acknowledge that recent Australian port privatisations have, in the short term at least, had positive effects on the balance sheets of state governments, but also that the outcomes of previous port reform in the 1990s, including labour reform, privatisation, and commercialization and corporatisation of port authorities, have resulted in improvements in the port productivity and financial performance of port authorities/corporations (Productivity Commission, 1998; Tull & Reveley, 2001; Everett & Robinson, 2007; Reveley & Tull, 2008). Similarly, Villa (2017) concludes that the port reform process in Mexico was more successful than reform efforts in other modes and argues that improvements in port development, co-ordination and communication have been successfully achieved. In China, policies of port corporatisation and privatisation have led to a much more market-oriented governance structure which has encouraged foreign investment and the diversification of ownership of port assets (Cullinane & Wang, 2006, Notteboom & Yang, 2017). Similar benefits are identified for Korea's port sector (Song & Lee, 2017).

In some cases the port reform process has attained a certain degree of maturity where incremental port reforms and ongoing port policy no longer revolve around simply achieving the standard objectives. In the case of Hong Kong, for example, Wong, Shou, Zhang, and Ng (2017) point to the role of port policy in supporting the export of private sector port services on the part of a Global Terminal Operator. China's continuing process of port reform also recognizes the 'internationalization of China's port-related companies' as an important objective to

achieve (Notteboom & Yang, 2017). In the case of Singapore, the objective has evolved to become the attraction of cargoes and shipping-related activities to the island-state by focusing on sustainable port city development, while maintaining a high quality of living and working environment (Xiao & Lam, 2017). In all cases, the evidence suggests that a high degree of success has been achieved in meeting these lofty objectives on the back of ongoing reforms to port policy.

Irrespective of whatever successes are claimed for the port reforms that have been implemented across the globe, such policies will always have their detractors. While some of this critique will be firmly grounded within specific political or philosophical beliefs or dogma, some of the criticism that has been levelled at policies and programmes of port reform can, in fact, be justified by the available evidence. Most infamously, the financial and economic performance of the fully privatised ports in the UK has failed to live up to expectations and higher efficiency, when compared to the performance of publicly owned ports, has failed to materialize (Saundry & Turnbull, 1997). Further shortcomings in the UK experience have been identified in relation to port investment, port competition, and port planning and control (Baird, 1995a, 1995b, 2000). Chen et al. (2017) point to the potential risks of port reform in relation to undervaluing port assets, increased port charges, impeded port competition, less port investment, and less concern for the public interest in the long term.

Several of the papers within this volume exhibit at least some degree of criticism of port reform efforts. In large part, this criticism is evidenced by, and justified on the basis of, observed flaws or controversial outcomes associated with the implementation of the port reform process. Some of these have occurred in many of the cases covered. The rest of this section, therefore, is devoted to identifying some of the more common flaws or controversial outcomes reported within this volume that have occurred as the result of the second wave of port reform efforts.

### 3.1. The absence of an evidence base

There is still very little evidence on best practice in port governance. Baird and Valentine (2007) provide some evidence with respect to the full privatisation model as applied within the UK. Where port reforms have been less extreme, questionable outcomes have been observed. Bergqvist and Cullinane (2017) conclude that the outcome at the port of Gothenburg has been less successful than anticipated. Ignoring the adverse consequences of fragmentation, what records that exist suggest only a modest increase in overall turnover has been achieved, while at the same time there have been price increases, industrial disputes and delays in investments. The Dutch case is also inconclusive (de Langen & van de Lugt, 2017), as the financial performance and shareholder policies differ on a port-by-port basis. In general, however, the authors deduce that Dutch ports exhibit greater profitability post-reform, suggesting that, at least, financial performance has been improved following corporatisation.

However, in general terms, the heterogeneity of models which have been applied in practice and the lack of consistency in the roles of public sector agents and stakeholders has precluded a comparative analysis of the outcomes achieved by port reform in relation to the objectives which are set for the reform. The middle ground between centralized control and full privatisation is extremely messy and there are no clear and transparent models, as well as no common data element agreements on how that performance should be measured.

In the EU in particular, where harmonization is an oft-heard mantra of the Brussels bureaucrats, every country does port governance differently. For many years, a 'Common Port Policy' had failed to emerge; it has only been recently (the autumn of 2016) that a framework has been adopted and even this is limited in application to only some port services within the core European ports. More generally, disagreements prevail across nation states, interest groups and stakeholders and there

is precious little evidence of a concerted effort being made to collect the required data on port performance evaluation and to relate this to national circumstances vis à vis the economic situation and port governance model applied.

### 3.2. Limitations of market structure

It is not only the size of operations which limits the prospects of successful port reform, particularly when it takes the form of a concession-based landlord model, it is also the structure of the regional and national market within which a port operates. While sufficient size of entity is required for the reaping of economies of scale, there may well then not be sufficient scale remaining within the system to ensure either intra-port competition (as in the case of Portugal) or inter-port competition (as in the case of Greece) or both (as in the case of Sweden's container handling sector). All these circumstances will compromise or limit the potential benefits to be derived from devolution within the port sector.

### 3.3. Investment planning

Parola et al. (2017) find that the introduction of the landlord model in Italy has resulted in higher productivity, additional investments by international terminal operators and the formation of skills and know-how. However, they also point out that the limited potential for strategic port development via long-term investments from private concessionaires highlighted limitations of the reforms in terms of port authority managerial mechanisms. Italy has tried to address the issue via further reforms. Portugal attempted to address it through centralized planning. In an environment of free entry in the UK, shortages of capacity in some ports, but also overcapacity in others, led in 2007 to the creation of a short-lived Infrastructure Planning Commission that was dissolved in 2009, and in 2011 to a new reassessment of the role of government. This concluded that the role of government should not be to plan and build ports, but simply to approve or reject development proposals and ensure ports meet their legal, environmental and social commitments and objectives (Monios, 2017). In Turkey, competitiveness was undermined by inefficient governance structures whereby, in the absence of clarification of responsibilities among governmental bodies, many parties have become involved in the decision making process. This has resulted in undue delays in the coordination of port investment, development and competition.

### 3.4. The coordination of logistics and supply chains

Many of the papers within this volume flag hinterland modal cooperation as an important factor in reaping efficiency improvements and, hence, economic prosperity from port reforms. Villa (2017), for example, notes that in Mexico modal cooperation to serve the port hinterlands remains elusive. In the case of the privatisation of the Port of Gothenburg in Sweden, one of the most challenging aspects has proved to be the coordination and development of rail services in relation to the different terminals and freight segments. To try and resolve similar problems, since 2009, Belgium has attempted to create a framework to address the issues of investment and integration with logistics, by further port governance reform. In the case of the Netherlands, but also Italy, the difficulty of integrating logistics strategies into the role of the port authorities has also acted as a driving force for further reforms. Similarly, in China, the government has advocated stronger coordination in transport planning by integrating the port-related transportation system into overall urban planning, by developing a stronger multimodal approach to planning issues and by encouraging enterprises to develop inland or dry ports. This has also intensified the tendency towards increased layering of authority and responsibility within China's port governance system (Notteboom & Yang, 2017). Doods and Farrell (2017) note that further port governance reform would be needed to move beyond current landlord roles in East Africa,

and they conclude that there remains further regulatory reform to be completed, particularly in Kenya. On the other hand, Havenga, Simpson, and Goedhals-Gerber (2017) identify that South Africa's interests would be better served through a focus on reducing trade barriers and impediments, and improving the bureaucracy faced by supply chains, than a focus on port reform per se. The logistics model they developed assesses the state of goods movement into/from the country and confirms this focus as the priority for change.

### 3.5. Jurisdictional tensions and conflicts

National and regional interests, as well as those of port cities are often at odds with each other. This is the case in China where a national desire for cooperation between competing ports in different provinces may not be reflected in the regional policies of the latter (Cullinane, Teng, & Wang, 2005; Notteboom & Yang, 2017). Conflict and an inability to reconcile with national agendas is also a characteristic of a Europe-wide port policy. Since these sorts of problems are conditioned on the nature of geo-political devolution within each country, this is generally a challenge affecting primarily Europe and Asia, although the US federal system is also subject to this sort of conflict (e.g. whatever policies are instituted in the ports of California could have significant impact on the wider country, particularly neighbouring inland states whose trade they are servicing). This is clearly a challenge for large countries as opposed to one-port countries, but not where there is clear legal jurisdiction as in Canada, where small ports have been left to local interests. In the UK, where there exist small trust ports and municipal ports, conflicts can occur as the result of the small ports not having a clear relationship with national policies.

### 3.6. Contract issues

Contract issues relate to problems that arise during the execution of port policy. In all of the French, Greek, Italian and Swedish cases reported in the volume, problems have arisen from large multi-national GTOs negotiating with port authorities for a concession, but the actual implementers of the concession are not the same personnel. Similarly, in Cyprus the port reform process was undermined by negotiations being conducted by the central government, rather than the national port authority. Critical mistakes have also been made in contract negotiations with respect to: the responsibility for a rail terminal forming part of a concession when it should have remained separate (Sweden) and; the question of port 'boundaries' where ports are so reliant on inland investments/connections (Netherlands and Germany). In addition, Canada's review of the Canada Transportation Act proposed the greater incorporation of equity in its future port policy.

## 4. Conclusions

The contents of this volume on port governance and reform has focused on what has occurred in this arena in the 21st century. It seeks to both update the situation and define the differences from what happened previously during the first wave of port devolution, as reported in Brooks and Cullinane (2007a). Coverage has included a range of countries where both radical and new first wave port reforms have been implemented, but also where port reform has continued in an incremental manner from what has gone before. Diverse approaches to devolution and port governance are clearly present in different geographical locations. Despite these different approaches, however, the general trend still clearly exists for greater devolution, privatisation or commercialization, within each country's context and understanding of the terms. Underpinning all such trends and approaches is the desire to govern ports in a way that makes them more profitable and efficient, and, increasingly, a way that makes them more sustainable and green.

Several common characteristics of port devolution in the 21st century have emerged from the analyses contained herein. These relate to the



drivers for reform, the influence of the domestic political situation, the often unanticipated length and incremental nature of the reform process, the emergence of the landlord concept as the preferred approach to devolution, the application of different governance models on the basis of port size, the changing role of the port authority and the additional layering of institutions that arises as a result of port reforms.

Flaws in port reform have become more evident with time, and served as a driver for further reform (e.g. Brazil). Such flaws will also drive future reform as they become more obvious (e.g. Tanzania and Kenya). While some flaws are completely bound up with the general concept of port devolution and reform, others relate more specifically to the implementation process (e.g. Brazil).

The responsibility for investment planning and maintaining the public interest need to be clearly identified in any process of port reform. The prospect of jurisdictional conflicts also needs to be thought through, not only in terms of how conflicting interests with respect to port activities are reconciled once conflicts appear, but also how these might impact on other activities where similar conflicts or tensions might arise. There is also a need to be precise in defining the boundaries, both geographical and of responsibility, relating to systems (particularly physical ones such as transport infrastructure) that interact with the port system. Recognition should be given to the fact that negotiators are unlikely to be in a position to operationalise what they have negotiated. Finally, there needs to be some process or system by which data can be collected that will provide evidence on the ongoing success or otherwise of the port reforms which have been implemented. To overcome all these potential challenges and problem areas will need political will to facilitate change. Given the continuing Global Economic Crisis, governments are continuously fighting financial fires and ports are perhaps not key priorities in many cases.

In terms of a future research agenda, the following appear to be obvious candidates:

1. There is a need to establish causality between port reform and performance changes, as recommended in Borges Vieira et al. (2014).
2. The impact of port reforms on the various aspects of port performance need to be estimated, modelled and utilised in predictions of prospective reform programmes, so that some form of move can be made towards identifying optimal or best practice governance models.
3. Investigations should be implemented into the potential impact of increased emphasis on environmental (green) considerations on port reform models and practice.

In conclusion, it seems apparent that many governments remain dissatisfied with the outcomes of port reforms and therefore continue to seek improvements in governance, together with a greater share of global wealth associated with a vibrant port sector. If the prospects for global trade remain pessimistic, however, such efforts may well prove to be fruitless.

## References

- Baird, A. (1995a). Privatisation of trust ports in the United Kingdom: Review and analysis of the first sales. *Transport Policy*, 2(2), 135–143.
- Baird, A. (1995b). *UK port privatisation in context. Proceedings of UK port privatisation conference*. Edinburgh: Scottish Transport Studies Group (21 September).
- Baird, A. (2000). Port privatisation: Objectives, extent, process and the UK experience. *International Journal of Maritime Economics*, 2(3), 177–194.
- Baird, A. J., & Valentine, V. (2007). Port privatisation in the United Kingdom. *Research in Transportation Economics*, 17, 55–84.
- Baltazar, R., & Brooks, M. R. (2001). *The devolution of port management: A tale of two countries, presented at the world conference on transport research*. (Seoul, July).
- Bergqvist, R., & Cullinane, K. P. B. (2017). Port privatisation in Sweden: Domestic realism in the face of global hype. *Research in Transportation Business & Management*, 22, 224–231.
- Borges Vieira, G. B., Kliemann Neto, F. J., & Amaral, F. G. (2014). Governance, governance models and port performance: A systematic review. *Transport Reviews*, 34(5), 645–662.
- Brooks, M. (2017). A new direction or stay the course? Canada's port-specific challenges resulting from the port reform program of the 1990s. *Research in Transportation Business & Management*, 22, 161–170.
- Brooks, M. R., & Cullinane, K. P. B. (2007a). *Devolution, port performance and port governance (research in transport economics, 17)*. Oxford: Elsevier.
- Brooks, M. R., & Cullinane, K. P. B. (2007b). Conclusions and research agenda. *Research in Transportation Economics*, 17, 631–660.
- Brooks, M. R., & Pallis, A. A. (2008). Assessing port governance models: Process and performance components. *Maritime Policy & Management*, 35(4), 411–432.
- Brooks, M. R., & Pallis, A. A. (2012). Port governance. In W. T. Talley (Ed.), *Maritime economics – A Blackwell companion* (pp. 491–516). Blackwell Publishing Ltd.
- Cahoon, S., Pateman, H., & Chen, P. S. L. (2013). Regional port authorities: Leading players in innovation networks? *Journal of Transport Geography*, 27, 66–75.
- Caldeirinha, V., Felício, J. A., & da Cunha, S. F. (2017). Government policies and Portuguese port governance in the period from 2005 to 2015. *Research in Transportation Business & Management*, 22, 11–20.
- Carvalho, M., & Marques, R. C. (2007). *Economic regulation in the Portuguese seaport sector*. Athens: In IAMM Conference, 3–6.
- Chen, P. S. L., Pateman, H., & Sakalayan, Q. (2017). The latest trend in Australian port privatisation: Drivers, processes and impacts. *Research in Transportation Business & Management*, 22, 201–213.
- Cullinane, K. P. B., Teng, Y., & Wang, T. F. (2005). Port competition between Shanghai and Ningbo. *Maritime Policy & Management*, 32(4), 331–346.
- Cullinane, K. P. B., & Wang, T. F. (2006). Port governance in China. *Research in Transportation Economics*, 17, 331–356.
- Cullinane, K. P. B., Wang, T. F., & Cullinane, S. L. (2004). Container terminal development in mainland China and its impact on the competitiveness of the port of Hong Kong. *Transport Reviews*, 24(1), 33–56.
- de Langen, P., & van de Lugt, L. (2017). Institutional reforms of port authorities in the Netherlands; the establishment of port development companies. *Research in Transportation Business & Management*, 22, 108–113.
- Debrie, J., Lacoste, R., & Magnan, M. (2017). From national reforms to local compromises: The evolution of France's model for port management, 2004–2015. *Research in Transportation Business & Management*, 22, 114–122.
- Debrie, J., Lavaud-Letilleul, V., & Parola, F. (2013). Shaping port governance: The territorial trajectories of reform. *Journal of Transport Geography*, 27, 56–65.
- Delmas, M., & Tokat, Y. (2005). Deregulation, governance structures and efficiency: The U. S. electric utility sector. *Strategic Management Journal*, 26, 441–460.
- Dooms, M., & Farrell, S. (2017). Lions or gazelles? The past, present and future of African port authorities: The case of East Africa. *Research in Transportation Business & Management*, 22, 135–152.
- Esmer, S., & Duru, O. (2017). Port governance in Turkey: The age of the global terminal operators. *Research in Transportation Business & Management*, 22, 214–223.
- Everett, S., & Robinson, R. (2007). Port reform: The Australian experience. In M. R. Brooks, & K. P. B. Cullinane (Eds.), *Devolution, port governance and port performance* (pp. 259–284). Oxford: Elsevier.
- Ferrari, C., Parola, F., & Tei, A. (2015). Governance models and port concessions in Europe: Commonalities, critical issues and policy perspectives. *Transport Policy*, 41, 60–67.
- Galvao, C. B., Robles, L. T., & Guerie, L. C. (2017). 20 years of port reform in Brazil: Insights into the reform process. *Research in Transportation Business & Management*, 22, 153–160.
- Havenga, J., Simpson, Z., & Goedhals-Gerber, L. (2017). International trade logistics costs in South Africa: Informing the port reform agenda. *Research in Transportation Business & Management*, 22, 263–275.
- Knatz, G. (2017). How competition is driving change in port governance, strategic decision-making and government policy in the United States. *Research in Transportation Business & Management*, 22, 67–77.
- Martin, R. (2010). Rethinking regional path dependence: Beyond the lock-in to evolution. *Economic Geography*, 86(1), 1–27.
- Monios, J. (2017). Port governance in the UK: Planning without policy. *Research in Transportation Business & Management*, 22, 78–88.
- Ng, A. K. Y., & Pallis, A. A. (2010). Port governance reforms in diversified institutional frameworks: Generic solutions, implementation asymmetries. *Environment & Planning A*, 42(9), 2147–2167.
- Notteboom, T., De Langen, P., & Jacobs, W. (2013). Institutional plasticity and path dependence in seaports: Interactions between institutions, port governance reform and port authority routines. *Journal of Transport Geography*, 27, 26–35.
- Notteboom, T., & Yang, Z. (2017). Port governance in China since 2004: Institutional layering and the growing impact of broader policies. *Research in Transportation Business & Management*, 22, 184–200.
- Pallis, A. A., & Vaggelas, G. K. (2017). A Greek prototype of port governance. *Research in Transportation Business & Management*, 22, 49–57.
- Panayides, P. M., Lambertides, N., & Andreou, C. (2017). Reforming public port authorities through multiple concession agreements: The case of Cyprus. *Research in Transportation Business & Management*, 22, 58–66.
- Parola, F., Ferrari, C., Tei, A., Satta, G., & Musso, E. (2017). Dealing with multi-scalar embeddedness and institutional divergence: Evidence from the renovation of Italian port governance. *Research in Transportation Business & Management*, 22, 89–99.
- Productivity Commission (1998). *International benchmarking of the Australian waterfront*. Canberra: Commonwealth of Australia.
- Reveley, J., & Tull, M. (2008). Privatisation postponed: Convergence and divergence in Australian and New Zealand port reform. In J. Reveley, & M. Tull (Eds.), *Port privatisation: The Asia-Pacific experience* (pp. 17–39). Northampton: Edward Elgar Publishing.

- Rodrigue, J. P. (2017). The governance of intermediacy: The insertion of Panama in the global liner shipping network. *Research in Transportation Business & Management*, 22, 21–26.
- Saundry, R., & Turnbull, P. (1997). Private profit, public loss: The financial and economic performance of U.K. ports. *Maritime Policy & Management*, 24, 319–334.
- Shinohara, M. (2017). Characteristics of Japanese port policy: Strategic ports and policy dilemma. *Research in Transportation Business & Management*, 22, 100–107.
- Song, D. W., & Lee, S. W. (2017). Port governance in Korea: Revisited. *Research in Transportation Business & Management*, 22, 27–37.
- Suykens, F. (1988). Op weg naar een Europese havenpolitiek? In J. Blockx (Ed.), *Liber Amicorum Lionel Tricot* (pp. 493–498). Antwerp, Belgium: Kluwer.
- Suykens, F., & Van de Voorde, E. (1998). A quarter of a century of port management in Europe: Objectives and tools. *Maritime Policy & Management*, 25(3), 251–261.
- Tseng, P. H., & Pilcher, N. (2017). Port governance in Taiwan: How hypocrisy helps meet aspirations of change. *Research in Transportation Business & Management*, 22, 38–48.
- Tull, M., & Reveley, J. (2001). The merits of public versus private ownership: A comparative study of Australian and New Zealand seaports. *Economic Papers*, 20(3), 75–99.
- Van De Voorde, E., & Verhoeven, P. (2017). Port governance and policy changes in Belgium 2006–2016: A comprehensive assessment of process and impact. *Research in Transportation Business & Management*, 22, 123–134.
- Verhoeven, P. (2014). Port privatisation in the United Kingdom and Continental Europe: An evaluation of past experience and new drivers. In H. Meersman, E. Van de Voorde, & T. Vanellander (Eds.), *Port infrastructure finance* (pp. 111–140). London: Taylor and Francis.
- Verhoeven, P., & Vanoutrive, T. (2012). A quantitative analysis of European port governance. *Maritime Economics & Logistics*, 14(2), 178–203.
- Villa, J. C. (2017). Port reform in Mexico: 1993–2015. *Research in Transportation Business & Management*, 22, 232–238.
- Wilmsmeier, G., & Sánchez, R. (2017). Evolution of national port governance and interport competition in Chile. *Research in Transportation Business & Management*, 22, 171–183.
- Wong, K. H. T., Shou, E. C., Zhang, H., & Ng, A. K. Y. (2017). Strategy formulation of new generation ports: A case study of Hong Kong International Terminals Ltd. (HIT). *Research in Transportation Business & Management*, 22, 239–254.
- World Bank (2007). *Port reform toolkit* (2nd ed.) (Washington).
- Xiao, Z., & Lam, J. S. L. (2017). A systems framework for the sustainable development of a port city: A Case study of Singapore's policies. *Research in Transportation Business & Management*, 22, 255–262.

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