INSTITUTIONAL STRUCTURE AND AGENCY IN THE GOVERNANCE OF SPATIAL DIVERSIFICATION OF PORT SYSTEM EVOLUTION IN LATIN AMERICA

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Abstract

Port development is challenged not only by growing trade flows, but by institutional conditions that are more contextual, exhibiting aspects of both path dependence and contingency. This paper analyses the intersection of two clear trends in the evolution of port systems, decentralisation of port governance and deconcentration of port traffic. The goal is to identify how the institutional setting governing the spatial diversification of container port activity has changed as a result of this intersection and whether it is suitable to deal with new challenges as they arise. An additional question is whether the new institutional settings created by port reform in developing countries are suitable to support the successful application of port devolution policies imported from developed countries with different political and institutional histories.

Based on four national case studies of port reform in Latin America, the paper discusses how the interplay between structure and agency in the reform of port governance has in some cases created merely a "new" path dependency. Findings show that short-term gains in technical efficiency in individual ports contrast with a long-term loss of power from the public to the private sector and the lack of integrated transport and logistics policies necessary to support ongoing port development.

Key words: port development, devolution, institutions, competition, port systems, governance path dependency

1. Introduction

Ports play a critical role as gateways and facilitators of trade. In the last twenty years, ports have undergone an intensive process of evolution trying to adapt to a diachronic, evolutionary and volatile economic environment. This evolution is directed by and develops within specific institutional contexts and structures. Research on port development has tended to focus on describing the symptoms, usually scale or spatial patterns, with less attention given to the causes of and drivers for successful port development. The results of analytical models of this process vary by region and economic context, particularly in developing countries. Beyond global changes in the volume and structure of trade, the market structure, strategy and technological development in the maritime container industry, institutional structures and frameworks impact on individual port and port system development in different ways and at different spatial scales. Given current challenges to port infrastructure capacity in Latin America and the Caribbean (LAC), the question emerges as to whether the chosen development path and institutional setting created by port reform in the 1990s still delivers the right "fit" or if reform might be necessary again.

Decentralisation of port governance from the national scale is a clear trend across the globe, as processes of devolution and privatisation have swept the port sector in the last few decades. Likewise, the spatial deconcentration of port traffic from primary to secondary ports is another clear trend, as port systems move towards maturity. This paper analyses the intersection between these two trends, aiming to identify how the institutional setting governing the spatial diversification of container port activity has changed as a result of this intersection and whether it is suitable to deal with new challenges as they arise.

An additional and related question is whether the new institutional settings created by port reform in developing countries are suitable to support the successful application of port devolution policies imported from developed countries with different political and institutional histories. Previous research (Gong et al., 2012) suggested that port devolution works in a context of well-developed institutional infrastructure and capacities, such as integrated transport policy frameworks, investment strategies and plans, transparent disclosure, pricing competition and regulatory policy. Similar strategies of devolution have been applied in developing countries through the decentralisation of port governance from national ministries to local port authorities and the concessioning of port terminal operation to private operators. This paper reflects on whether the expected results (technical efficiency improvements leading to increased capacity) from port reform have been sufficient, and whether the resulting institutional structures are able to keep pace with new challenges such

as the concentration of power in the port industry, deficiencies in hinterland access and the spatial diversification of port activity.

In order to analyse the governance of spatial diversification of container port activity, four case studies of LAC countries are examined. The first aspect of the analysis is port governance reform, the new scales defined and institutional structures in place. The second aspect involves an analysis of container traffic diversification and container port development, both inside and outside the new governance regimes. Finally, the two issues are brought together to explore how each is influencing the other, and to draw conclusions regarding the suitability of the new governance structure to manage deconcentration of container traffic as a port system moves through the stages of its evolution. In particular, the paper considers the management of reactive and proactive deconcentration and whether the new structures produce sufficient agency to achieve the capacity and efficiency increases required to support the country's trade needs.

2. Port system evolution

Numerous studies on port system development exist, evolving from the traditional spatial analyses of port expansion and upgrading of berthing and handling facilities (Bird, 1963; Taaffe et al., 1963; Rimmer, 1967; Hoyle, 1968; Hayuth, 1981; Barke, 1986; Van Klink, 1998) to the more recent focus on port competition through hinterland accessibility, such as the concept of port regionalization as one possible pathway in port system evolution (Notteboom and Rodrigue, 2005; Monios and Wilmsmeier, 2013). Other influences on port system evolution include the competition in the maritime foreland, focusing on intermediate transhipment hubs and the structure of maritime services (Sánchez and Wilmsmeier, 2006; Rodrigue and Notteboom, 2010), and in particular the role of the concentration of liner services (e.g. Frémont and Soppé, 2007; Lee et al., 2008; Wang and Ducruet, 2012).

Ducruet et al. (2009; p.359) argued that "concentration stems from the path dependency of large agglomerations", while drivers of deconcentration include "new port development, carrier selection, global operation strategies, governmental policies, congestion, and lack of space at main load centres." According to Barke (1986) and Hayuth (1981), port system concentration will eventually reach its limits and invert, leading to a process of deconcentration, a phenomenon discussed by Slack and Wang (2002), Notteboom (2005), Frémont and Soppé (2007). Wilmsmeier and Monios (2013) argued that existing theory falls short of differentiating between deconcentration that emerges upon failure of a system in a reactive manner, deconcentration that materializes from proactive port development

strategies, and deconcentration that emerges from new economic and industrial development. Thus the drivers of deconcentration processes can be related not only to the port system, but also to the transport system (i.e. hinterland infrastructure and carrier strategy) and the economic system (e.g. logistics strategies, economic development).

The rise of secondary ports has already been identified in recent research (e.g. Wang and Ng, 2011, in China; Wilmsmeier and Monios, 2013, in the UK; Wilmsmeier et al., 2014, in LAC). However, unlike previously dominant ports, the emergence and location of such ports has not been explained satisfactorily by natural location advantages, suggesting that such developments are driven to a large degree by other factors, such as the planning and regulatory regimes in each country. It is recognized that to some extent these factors will be unique to each port system; nevertheless, some of these key influences, such as port devolution policy, the introduction of the private sector to port operations, the ongoing relation between the private operators and the changing regulatory system, have been hypothesised to be key factors in any such critique (Wilmsmeier et al., 2014).

3. The role of institutions in port development

A functioning port infrastructure – more precisely, the services it provides – is essential to economic welfare in modern societies. Port infrastructure facilitates trade, integrates transport modes and connects producers and consumers in different markets. In short, it is essential for the functioning of the economy and for developing welfare. Port infrastructure also forms a significant part of a country's capital stock. As a corollary, in order to maintain or improve existing port infrastructure, the public and private sectors need to make considerable investments. Given the economic relevance of port infrastructure within a country's logistics system, its governance is a critical factor.

This work therefore focuses on key elements that characterize port infrastructure as part of a larger transport system, and deliberately discusses the port infrastructure and governance nexus in the context of the port system development and capacity challenge. Governance is defined as the institutions, mechanisms and processes through which economic, political and administrative authority is exercised. This definition builds on an extensive literature arguing that governance has gone beyond government (e.g. Imrie and Raco, 1999; Hooghe & Marks, 2001), and acknowledges the important roles that private actors and civil society play in policy making. Importantly, governance as an analytical concept allows a focus on the arrangements that are non-hierarchical, multi-level or network based, and acknowledges the high degree of complexity facing modern policy problems.

The port system has been characterised as an autopoietic system (Sánchez and Wilmsmeier, 2010), meaning that it changes its state with each new input, although it has an especially high inertia due to time-lagged investments and long-term strategy replication, thus raising the importance of the first mover advantage which means that a delayed action may no longer be suitable to the new state of the system. Examples in the context of port system evolution include when a new port is developed outside the national planning regime, or when globalised international port operators monopolise the trade flows of a country. Both examples exert a significant impact on the effectiveness of other actions that may already have been initiated but not yet concluded (due to the time-lagged nature of transport infrastructure investment). In developing countries, autopoiesis may be particularly challenged because, even though the transport system steers and organises itself, the global tendencies of the system are defined by its environment and not itself (e.g. globalised port operators); therefore, while this imbalance between a local transport system and the globalised port system applies to all countries, developing countries tend to have less developed institutions to manage potential power imbalances. This recursive relationship lies at the heart of the interlinked factors influencing port system evolution.

Ng and Pallis (2010) showed how port governance is largely determined by local/regional institutional characteristics, despite attempts to implement generic governance solutions. Notteboom et al. (2013) applied the concept of institutional plasticity (Strambach, 2010) to port development, arguing that, while port development is path dependent, a port authority can achieve governance reform by a process of adding layers to existing arrangements. In this way, the port authority does not break from the existing path of development, but develops new capabilities and activities via a process of "institutional stretching". The key distinction is, therefore, that port development is path dependent, heavily constrained by past actions and institutional design, but also contingent, in relation to private investment and public planning (Notteboom, 2009).

Jacobs and Notteboom (2011) drew on the economic geography literature to define the movement from critical moments to critical junctures, and Wilmsmeier et al. (2014) identified the key critical moments in port system evolution in LAC (Figure 1).

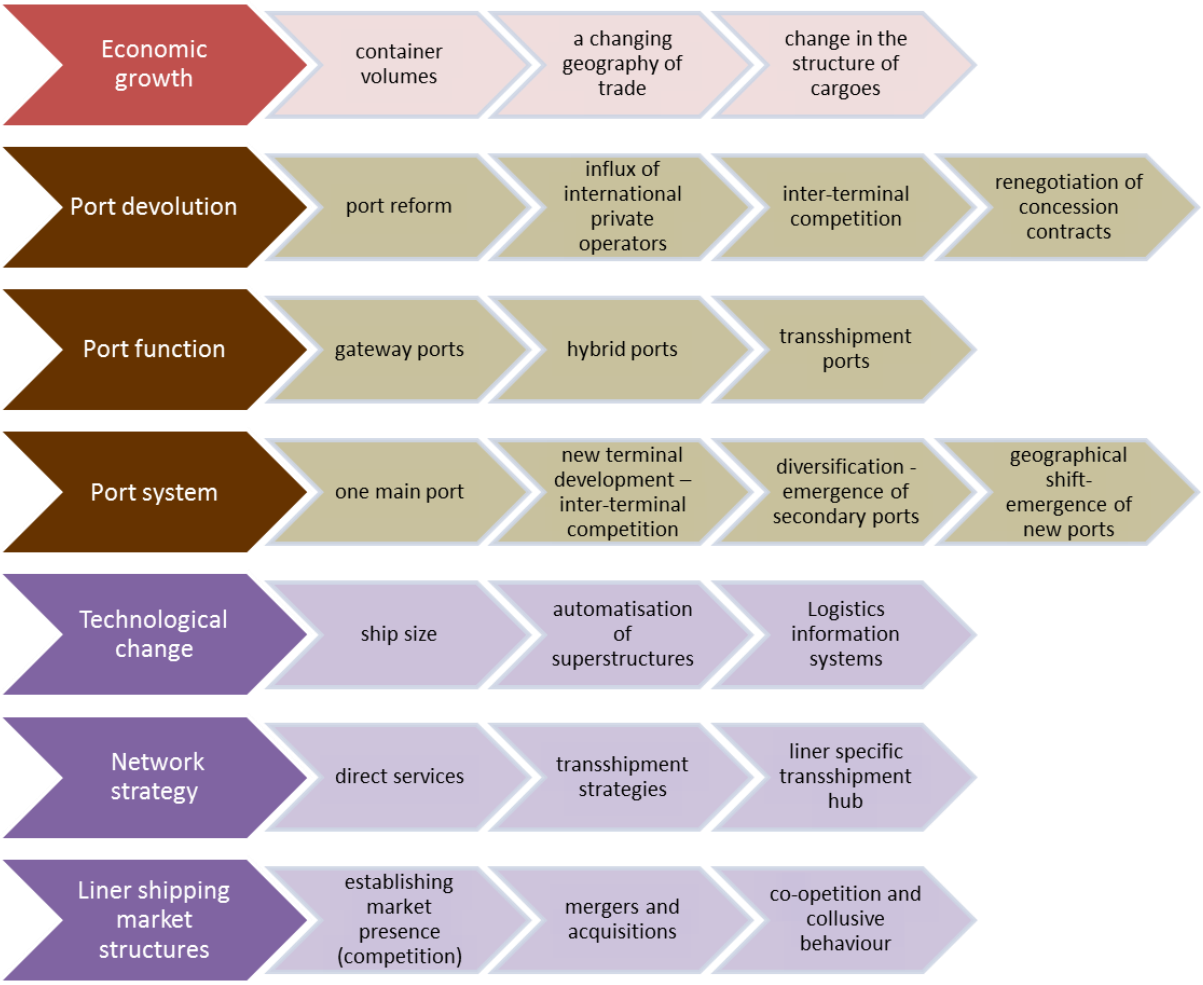

Figure 1. Critical moments in port system evolution

Source: Wilmsmeier et al. (2014)

This paper focuses on the port devolution and port system factors in the figure, in order to analyse the intersection of two clear trends in the evolution of port systems, decentralisation of port governance and deconcentration of port traffic. This analysis will enable a reflection on the interplay between structure and agency in determining to what degree the current institutional setting developed on the basis of experiences in developed countries (i.e. port devolution and privatisation) is adequate for managing such processes in developing countries.

4. Structure and agency in port devolution

Global trends towards political decentralisation and devolution have been identified in the literature (Peck, 2001; Rodríguez-Pose and Gill, 2003). Devolution, however, is not

necessarily an actual transfer of power but can be more of a qualitative restructuring (Brenner, 2004), characterised as uneven processes of hollowing out (Rhodes, 1994) and filling in (Jones et al., 2004; Goodwin et al., 2005), often resulting in asymmetrical acting capacity.

MacKinnon et al. (2010) argue that any consideration of the role of actors requires an approach that can assess structure and agency, and they note that Jessop (2001) is critical of Giddens's (1984) structuration theory for "assuming that a particular structure is equally constraining or enabling for all actors" (p.274). Of particular relevance for this paper, MacKinnon et al. (2010) stress "the contingent nature of state strategies, requiring concrete research to examine the interaction of structure and agency in particular temporal and spatial contexts" (p.274). This process is facilitated by considering the path dependent nature of state restructuring. According to Peck (1998; p. 29), "Geographies of governance are made at the point of interaction between the unfolding layer of regulatory processes/apparatuses and the inherited institutional landscape." It is this interaction that is the focus of this paper, the new geographies of governance created in the port sector at the intersection of an applied process of devolution and the legacy of current and previous institutional regimes.

Moreover, what is under consideration is the autopoietic manner in which each new input alters the system and affects the success of future shifts in governance. Interestingly, in relation both to the autopoietic nature of port system evolution already discussed and the recursive relationship identified between port and shipping line strategies by Monios and Wilmsmeier (2015), Jones et al. (2004) identify a recursive relationship between state personnel and institutions. MacKinnon et al. (2010; p.275) use the terminology of Duncan and Goodwin (1988) to assert that state personnel are both agents and objects of reform: "Devolution has not only created new organisational forms, strategies and relations which have changed the role of state personnel, it has also been ultimately interpreted and delivered through the actions of such personnel." This viewpoint can be transferred to port actors and even port institutions such as port authorities. These institutions have in many ways been both the agents and objects of reform, with a high degree of regulatory capture evident in port sector actors through their relationships with terminal operators and shipping lines. In their implementation of port devolution processes, these actors will be strongly influenced by the inherited legacy of their port system, raising the question of the extent to which a "new" path dependency is created that might in fact result in adverse effects. The case study analysis in this paper will explore to what extent such results are already becoming evident.

5. The Latin American and Caribbean port system

Figure 2 shows all LAC ports with more than 100,000 TEU in 2012.

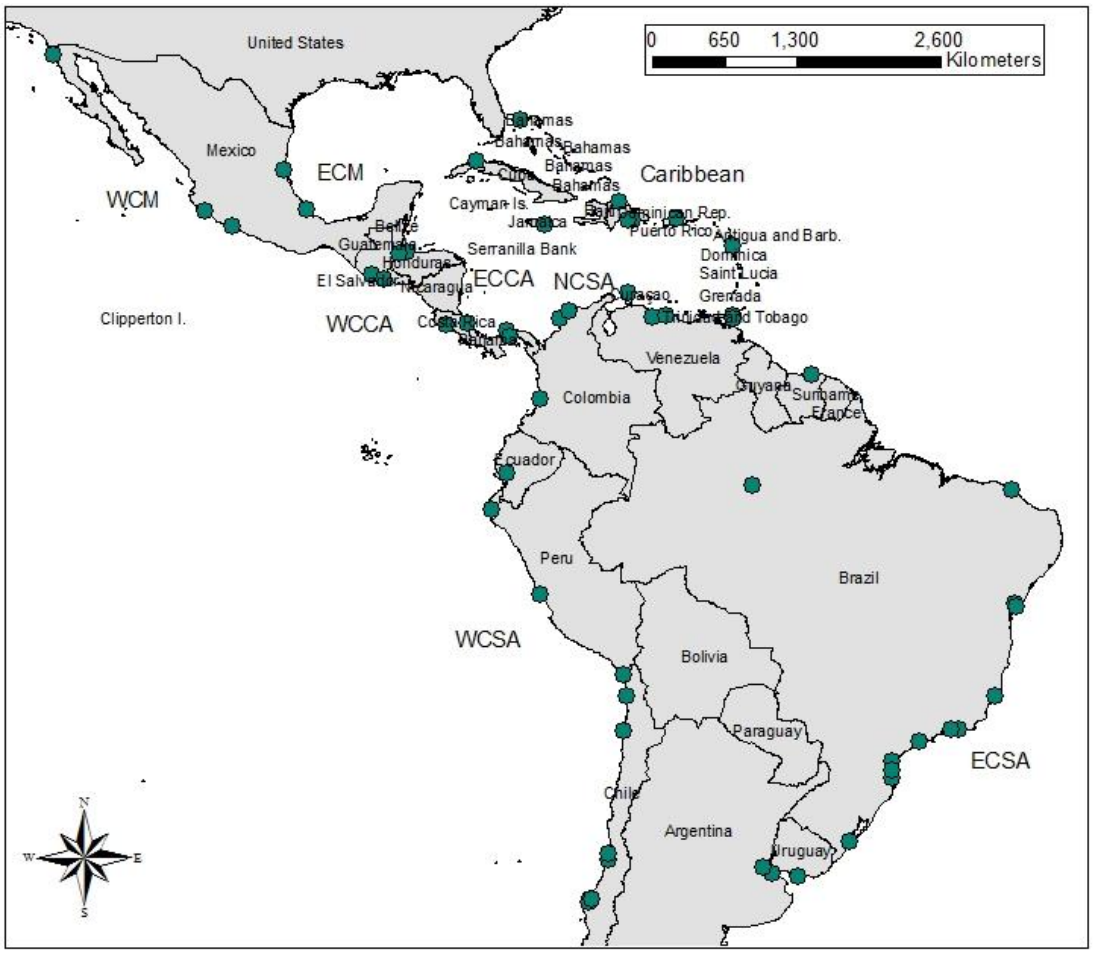

Figure 2. Map showing all LAC ports with throughput over 100,000 TEU in 2012

Source: authors

The map reveals what at first appears to be a relatively even spread across the coastlines of each country. However, container throughput within each country or coastal range is not spread evenly across all ports (see Wilmsmeier et al., 2014 for full analysis). Container throughput in the Latin American and Caribbean port system grew from 12.6 million TEU (twenty-foot equivalent units) in 1997 to 45.6 million TEU in 2012. Throughput in 2012 was equivalent to 7.2 per cent of all global port movements (Figure 3).

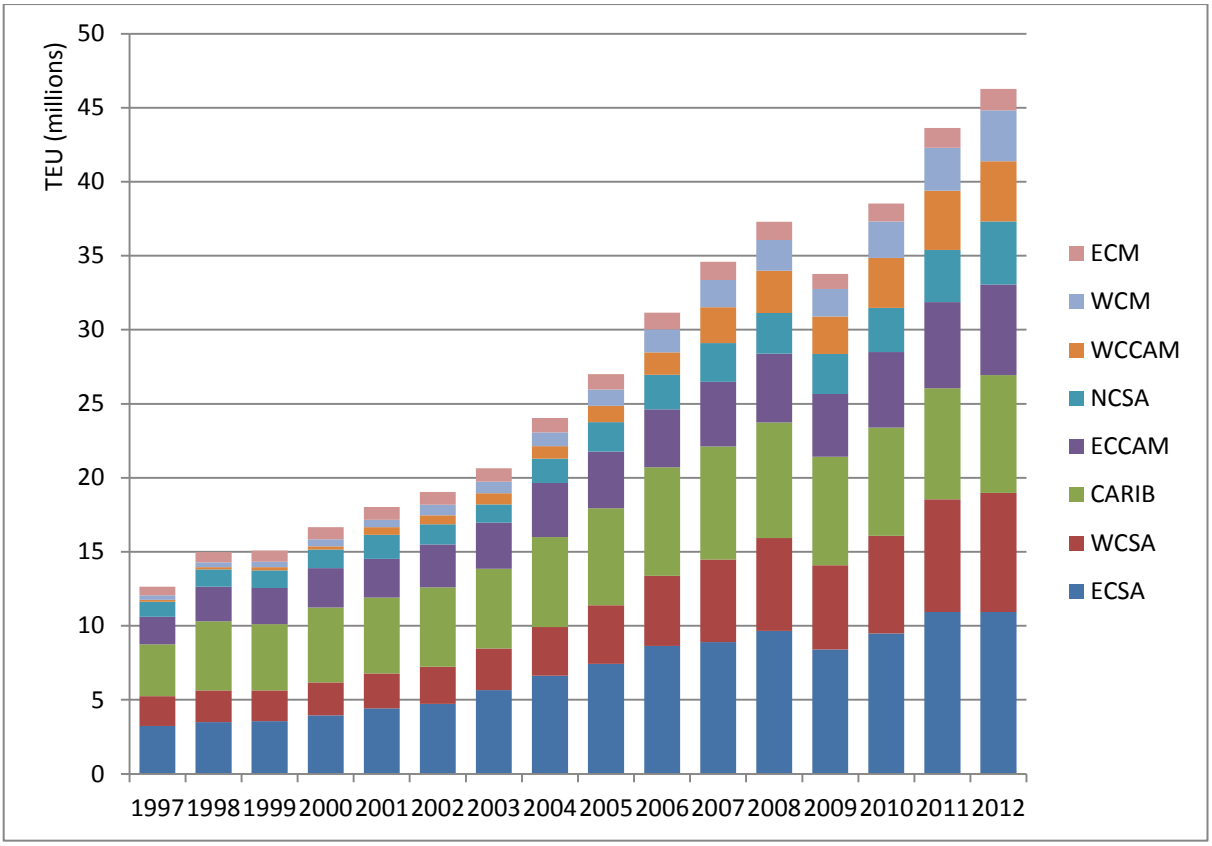

Figure 3. LAC container throughput by coastal range 1997-2012, TEU

Source: authors

In 2012 almost one-fifth of all containers in LAC were moved in Brazil (17.8 per cent), followed by Panama (14.8 per cent), Mexico (10.5 per cent), Chile (7.8 per cent) and Colombia (7.3 per cent).

The LAC port system has been shown, overall, to conform to expected trends in port system evolution (see Wilmsmeier et al., 2014 for a full analysis). Most ranges demonstrate the expected pattern of an early rise of one or two dominant ports, followed by the rise of secondary ports which leads to deconcentration. The exceptions are ECCA, NCSA and WCCA. NCSA and WCCA are at the earlier stage of development towards an initial concentration, still witnessing the dramatic rise of a single dominant port, whereas ECCA is the only coastal range not following the expected pattern, as Colón has been able to maintain its dominance. This is due, however, not to changes in its own coastal range but primarily to taking transhipment traffic from Caribbean ports.

While the overall volume of container traffic in LAC is small in the global context, its spatio-temporal development over the last 15 years emerged from sustained overall economic growth and was accompanied by a wave of port reform in the majority of the countries of the region, starting in the 1990s. Recently, however, discussions on port infrastructure capacity

limitations in LAC have resurfaced (Perrotti and Sánchez, 2011). The following section uses four case studies to evaluate the current situation of port infrastructure development and its institutional framework with specific focus on the governance of spatial diversification of container trade activity and port infrastructure capacity development.

6. Case studies: governance of spatial diversification of container port activity

6.1 Chile

6.1.1 Port governance reform

Until the late 1990s, investment in infrastructure and maintenance of the public ports were almost fully undertaken by the national government, under a tool port model. The government was in charge of managing the ports, making infrastructure investments and planning the national port policies. The Chilean port reform in the late 1990s, based on Law 19 542, created 10 independent port authorities (Empresas Portuarias) from the national ports company (Empresa Portuaria de Chile, Emporchi). These organisations have the mandate to control port operation and development while maintaining a sound financial status. A regulatory framework was established based on the landlord model, where terminals should be operated by the private sector under concession agreements. An important feature of the law is that it limits the development of new quay infrastructure to the private sector after a public tendering process[1].

The intention of the new concession system was to promote effective infra- and superstructure investment (e.g. cranes, yard equipment, berths, yards) and to enhance management, expertise, commercial capacity and technology in the terminals. A further aim was to reduce port costs and to enhance service quality, particularly by reducing waiting and service times.

In general the port reform is viewed as a "a largely successful experience, both because of the financial results that public and private companies involved have achieved, and because of the quality of the port facilities, services and rates on offer" (Michea, 2014). While this finding is true at individual port level, the capacity, strategy and planning pf the port system as a whole presents several deficiencies. Particularly, as the reform did not create a national ports authority but left the Ministry of Transport and Telecommunications (MTT) with a central role in the development and management processes of port companies (and in limited cases powers to approve or reject specific stages of the independent planning). Furthermore,

[1] The port authority company is only allowed to invest in new infrastructure in the case of failure of the tendering process.

the MTT was given the responsibility to propose 'strategic plans' for port development, without clearly specifying the nature and reach of these plans and strategies.

However, after the reform the MTT "abandoned its infrastructure planning role in the freight sector in general" (Michea, 2014), and completely relied on the decision making of the individual port authorities. In consequence, the country today has neither a national port system development strategy nor a strategy to integrate the ports within the wider transport system.

6.1.2 Container port traffic and port system evolution

Geographic location plays an important role in the Chilean transport system and therefore has a significant impact on its economy. The ports of Valparaiso and San Antonio are the two largest Chilean container ports, handling 55% of the country's container volume in 2013, a share that has been reducing since 2004, when both ports handled a 69% share. This reduction is significant as it occurred in a market that expanded from 1.5 to 3.8 million TEU in the same period, indicating a process of geographical deconcentration of port activity. Table 1 shows container throughput at Chilean ports.

Table 1. Container port throughput (TEU) in Chile, 1997-2012

Year	San Antonio	Valparaiso	San Vicente	Iquique	Arica	Coronel	Lirquen	Puerto Angamos	Antofagasta	Punta Arenas
1997	373,236	271,739	48,212	99,047	71,761	-	61,093	-	41,994	21,054
1998	415,001	255,687	-	107,903	75,268	369	85,542	-	38,779	21,468
1999	374,945	278,142	-	90,748	73,927	35	90,679	-	41,904	18,749
2000	455,604	256,386	-	107,545	65,366	181	65,985	-	48,753	14,342
2001	413,900	291,403	-	105,250	54,350	295	72,341	-	47,119	12,330
2002	438,570	300,031	-	111,510	53,966	1,742	103,255	-	41,626	14,784
2003	524,370	319,368	-	135,267	56,637	3,052	143,454	-	47,266	14,834
2004	639,762	388,353	-	158,957	61,285	-	140,673	31,000	41,399	15,957
2005	773,024	377,275	147,968	208,303	57,186	-	171,791	32,000	50,046	18,702
2006	676,300	614,841	255,566	226,197	68,053	3,767	189,661	49,000	49,966	19,895
2007	650,697	843,957	492,917	263,251	87,335	1,228	203,578	93,291	72,365	22,118
2008	687,864	946,921	604,560	334,302	116,720	968	231,397	97,226	76,685	27,008
2009	729,033	677,432	494,275	207,940	109,572	118,253	206,541	115,486	81,414	22,636
2010	870,719	878,787	363,557	264,974	130,984	139,474	231,636	129,000	103,795	24,359
2011	928,432	973,012	425,967	237,758	170,110	170,771	314,956	158,323	88,213	27,836
2012	1,069,271	942,647	585,280	245,290	182,039	167,682	143,635	134,162	90,232	32,211

Source: authors, based on UN-ECLAC database[2]

[2] Excluding some very minor ports.

The data reveal the emergence of three new ports (Coronel, San Vicente and Puerto Angamos[3]) entering the market in the south and north of the country. All three derive from the economic development in their hinterlands, but actually do not compete over the same hinterland with the two traditional main ports. Consequently this spatial differentiation of port activity stems from a local demand and at the same time does not alleviate the pressure on infrastructure capacity in the central region of Chile. The operator of the main container terminal in San Antonio is the same as in San Vicente. Thus, while the individual port San Antonio was not able to increase its market share within the port system (although it did grow in absolute terms), the private operator's share in port activity and geographical influence grew strongly.

However, for the two major ports Valparaiso and San Antonio, port expansion in the existing port footprint has reached its limits and faces additional challenges, as in both cases political, natural and geographical barriers limit the development of new terminals or new ports nearby. Expansion plans for San Antonio and Valparaiso exist, but in the case of Valparaiso the engineering work and impact on the city would be substantial and for a new terminal within the city boundaries an economically efficient rail access is impossible to construct. Furthermore, in the case of Valparaiso a significant effort has already been put in place to extend the lifecycle of the container terminal (Cullinane and Wilmsmeier, 2011) by building an inland "dry port" terminal to allow blocks of containers to be pushed to the hinterland for processing, thus relieving congestion in the port yard. In the case of San Antonio a development plan for an "outer port" has been drawn, but such a project would potentially alter the existing competition between the terminals within San Antonio and also with Valparaiso, making the discussion a political one in an institutional vacuum given the non-existence of a national port infrastructure and logistics development strategy.

Another main impediment is the nonexistence of naturally-protected bays or sheltered waters. The extent of capital expenditure requirements, already high for port infrastructure, is exacerbated in both ports by the history of seismic activity, with significant additional construction necessary in order to ensure the physical viability of port facilities. Additional capital expenditure may also be required in order to comply with environmental standards,

[3] Puerto Angamos started to operate in 2003 and in 2005 the concession was granted to the Ultramar Group. One important difference to other ports is that the container activity is only a minor part of the port's activity and it has been able to grow on the backbone of the mining and economic development in this northern region of Chile.

with both local communities and regulatory bodies able to exert influence over the port industry and both ports being situated close to the city centres.[4]

The MTT is now attempting to create a National Port Development Plan, but the question is how far such a plan can then proactively contribute to a more integrated port system development, given the current decentralised structure of governance. The symptoms of the failure of institutions can also be seen by the re-emergence of strikes in Chilean ports, where the reform left development to the private sector, but did not govern the overall framework and conditions of labour. The main reasons for the strikes in 2013 and 2014 were labour conditions and salary disputes (46% of all strike days in Latin America in 2013/14 took place in Chile).

6.1.3 Summary of key issues

New secondary ports in other parts of the country have been developed by private operators, and other ports show natural growth which is being accommodated by the existing infrastructure. The issue in Chile is a lack of capacity in the centre of the country, where the two dominant ports, after initial private investment to increase technical efficiency, have again reached capacity limits. There is currently an institutional impasse over who will develop a new terminal or port. The re-emergence of labour issues creates further uncertainties in the port sector and might be perceived as an additional risk by potential investors (ECLAC, 2014). Finally, the need to build new breakwaters in any case poses additional challenges as according to existing law these would have to be built by a private investor, thus a whole question of governance and agency emerges for this basic infrastructure.

6.2 Mexico

6.2.1 Port governance reform

Prior to 1993 all ports in Mexico were operated by the single national operator PUMEX (Puertos Mexicanos). In 1993 Mexico engaged in an extensive port reform process involving the privatization of terminal operations through concession agreements. During the port reform 64 API (integrated port administrations) were created. The goal was to deregulate and decentralize port administration and planning and to facilitate the privatization of port operations and stimulate private investment under the landlord port authority model. APIs are commercial public enterprises that manage the ports in which private, municipal and state

[4] Valparaiso's status in the UNESCO World Heritage list is an important determinant in the development of sustainable and low impact port development. For details see: http://whc.unesco.org/en/list/959

representatives participate. The land managed by the APIs is concessioned from the state. The port law delimits the administrative function and the authority to avoid discretional interventions (Wilmsmeier, 2006). A final aim was to reduce corruption and monopolies. However, the federal government remains the highest level port authority and gives the guarantee for concessions.

An important component of the port reform in Mexico was the influx of global terminal operators. Over the last decade HPH has been the most active global port operator in Mexico and in 2012 reached a participation in Mexico of just above 50% of container throughput. The role of APIs is very significant as the growth in demand is creating the need for further capacity expansion. The initial container terminal concessions are currently up for renewal, and the result of these negotiations (either to re-concession to old operators or to new ones) will have a significant influence on the Mexican container market.

6.2.2 Container port traffic and port system evolution

Table 2 shows natural growth at the smaller Mexican ports and a significant dominance of Manzanillo and Lázaro Cárdenas (both on the Pacific coast), as well as the rise of Veracruz and Altamira (on the Gulf coast). In 2004 the container throughput on both coasts was almost similar, but by 2012 72% of container throughput was handled through terminals on the Pacific coast (Wilmsmeier et al., 2014). The rise in importance of Asia as a trade partner and transhipment activity on the Pacific Coast have been the drivers of this imbalance between coasts.

The number of container terminals in the country increased from 7 to 14 between 1994 and 2002 and to 17 by 2014. So, rather than entirely new ports, the port development has been achieved by the development of new terminals within existing ports. This not only increases capacity, but raises the possibility of intra-port competition, by concessioning two or more terminals within the same port to different operators.

Table 2. Container port throughput (TEU) in Mexico, 1997-2012

	Pacific coast						Gulf coast		
Year	Manzanillo	Lázaro Cárdenas	Ensenada	Progreso	Mazatlán	Pacific coast share (%)	Veracruz	Altamira	Gulf coast share (%)
1997	256,405	8,111	14,796	19,753	8,679	38%	364,259	141,902	62%
1998	276,542	7,167	13,668	28,777	10,433	36%	427,415	162,529	64%
1999	319,570	4,468	20,744	43,017	15,228	38%	484,523	166,191	62%
2000	426,717	752	26,822	56,581	16,813	42%	540,014	182,545	58%
2001	458,472	-	26,016	60,117	18,315	43%	543,327	206,864	57%
2002	638,597	134	53,142	59,140	12,900	50%	548,422	225,937	50%
2003	709,209	1,646	46,332	60,369	16,394	50%	571,867	256,417	50%
2004	830,777	43,445	39,202	68,159	15,954	53%	591,736	297,017	47%
2005	872,569	132,479	75,101	71,837	17,559	55%	620,858	324,601	45%
2006	1,249,630	160,696	123,711	75,692	30,111	62%	674,872	342,656	38%
2007	1,409,614	270,240	120,324	75,584	29,363	63%	729,717	407,657	37%
2008	1,409,782	524,791	110,423	66,477	27,668	65%	716,046	436,234	35%
2009	1,110,356	591,467	110,952	53,517	29,322	66%	564,315	400,968	34%
2010	1,511,378	796,023	135,606	56,434	25,795	69%	662,537	488,013	31%
2011	1,762,508	953,497	132,727	61,925	22,744	70%	729,622	547,612	30%
2012	1,992,176	1,242,777	140,468	64,229	39,263	72%	806,047	578,685	28%

Source: authors, based on UN-ECLAC database[5]

In terms of specialization of terminals and investment in port terminal equipment, the port reform in Mexico can thus be considered to have reached its goal. Container terminal development was driven by international terminal operators Hutchison Port Holdings (Lázaro Cárdenas, Manzanillo, Ensenada, Veracruz), and SSA (Acapulco, Manzanillo, Veracruz, Cozumel, Progreso), and, since 2014, ICTSI (Manzanillo) and APM Terminals (Lázaro Cárdenas).

The concession processes have faced challenges when they considered second terminals in existing ports as these concessions ideally produce intra-port competition. By way of example, the signing of the contract for TEC II in Lázaro Cárdenas (APMT) to construct the new terminal was delayed, because the present operator (HPH) moved for legal action against this new competition and the conditions created by the port authority.

With the new terminals (Lázaro Cardenas, Manzanillo) in general the port system will receive an important expansion of port capacity, which will further be enhanced if port

[5] Excluding some very minor ports.

development plans at Veracruz on the Gulf coast turn into reality. However, as mentioned, future new terminal developments all run the risk of legal action as they will alter existing intra-port competition.

As the government is aware of the lack of transport infrastructure in general and port infrastructure in particular the government is implementing a Transport and Communications Infrastructure Investment Programme 2013-2018, which is designed to "turn Mexico into a global logistics centre of high added value." The programme plans to spend US$46bn on transport infrastructure, while 700 billion pesos (US$55bn) will be spent on telecommunications, including on improving internet access. While the idea of the programme is valuable, groups like the Asociación Mexicana de Agentes Navieros (AMANAC) argue that the investment should be diversified and not principally focus on the main container ports, but also on secondary ports (Guaymas, Pichilingue and Ensenada) and terminals for other cargo than containers.

AMANAC also argues that the current port and customs tariffs are not competitive and that a reform of tariffs is required by the Secretaría (Ministerio) de Comunicaciones y Transportes (SCT) as homologation of tariffs currently reduces competition between ports. Furthermore, AMANAC and other agencies continuously point out that investment in ports alone is not sufficient but that the accessibility of the hinterland of the port needs to be improved.

6.2.3 Summary of key issues

In terms of port capacity, the Mexican port system is in a good position which can partly be attributed to the early reform and the influx of private operators who developed new terminals within the existing ports. New terminals continue to be developed so medium-term port capacity in Mexico is expected to be sufficient.

However, the downside of the system is that, while the decentralisation process helped local port development and broke the national monopoly, in the current situation one international terminal operator dominates half of the country's throughput. This is, however, expected to change once the new terminals in Manzanillo and Lázaro Cardenas are fully operational. However, the question of competition between terminals and ports will remain and the country will have to face these global operators in any future concession process. Another issue of growing concern is the hinterland connections of the ports; in some cases road and rail access is hindered by poor infrastructure or fragmented operations (Wilmsmeier et al., in press) and the overall investment in ports may not suffice in the long term. However,

it can be concluded that, at least in comparison to the other cases in this paper, the current investment programme and the steering at national level has helped to create a favourable environment for port development. It should be expected that the port infrastructure development on the Caribbean/Gulf coast will now be able to catch up with the processes on the Pacific coast.

While there are criticisms to the current situation, the current Mexican government seems to have taken a more proactive role in promoting investment in infrastructure, but there is a need for a more systemic and logistics-driven vision remains as the geography of Mexico should allow for a wider level of competition than just between terminals in each port.

6.3 Brazil

6.3.1 Port governance reform

In 1990, the Empresa de Portos do Brasil S.A. was dissolved, and in 1993 port law 8630 was passed, which allowed for the sector's denationalisation with the aim of decentralisation, autonomy and flexibility of the port system, a new operating schedule (24 hours), and the system was opened to the private sector for the provision of new services and port operations. 28 Consejos de Autoridad Portuaria (CAP) were created, which facilitated a greater participation of the local community in port management, as well as 26 Organos de Gestiao de Mano de Obra (OGMOs - entities made up of operators and workers, whose objective is to provide labour in every port). A further eight regulatory updates and decree laws related to ports were enacted between 1993 and 2011 (cf. Galvão et al., 2013). The Decree Law 6,620 established strict rules limiting private ports to handling only their own cargo, dis-incentivizing investment into the sector from private parties.

Since June 2013, the Decree no. 8033 regulating Law no. 12815 supersedes the Port Modernization Law 8,630/93. The Secretariat of Ports (SEP) is to lead an integrated strategy aimed at modernizing the public ports administration, while the Brazilian Agency for Waterway Transportation (ANTAQ) will be placed in charge of all procedures for port bidding. In order to increase competition, the criterion formerly used in tender proceedings (highest bid) has been replaced by greatest capability to move tons and lowest cost. Therefore, in concession and lease tenders the following criteria will be used separately or in combination: (a) greatest capability to move, (b) lowest fees or (c) shortest time to move freight.

These criteria may be combined with other criteria seeking to increase competition, such as highest investment amount; lowest consideration payable by the authority providing the

concession; or best technical proposal. It also provides that tenders will preferably be in the form of open or combined bidding.

ANTAQ can now allow private terminals to move third party cargo, replacing the former concept of private port facilities focused on their own cargo. In addition, private terminals are now permitted to compete with public ports. Private use terminals are new port facilities located outside the area of an organized port exploited under an authorization given by ANTAQ for a period of up to 25 years, extendable for successive periods, provided that the port activity is maintained and the authorization holder makes the necessary investments to expand and upgrade the port facilities. The Regulating Decree is therefore an important guideline for investors interested in developing new projects in this sector. Most of the new investments are to develop green field sites outside, but near, established ports. The new law also includes automatic renewal of long-standing concessions and fixes the duration of concessions at between 20 and 50 years. It also removed the restriction that excluded shipping companies from running port terminals in Brazil.

Another aspect of the new port law is the centralization of intermodal infrastructure planning. The laws have created more defined responsibilities between the ministries, regulatory agencies and port authorities in hopes of streamlining the intermodal transportation network. The private sector is concerned about the bottlenecks in Brazil's trade infrastructure as well as the costs in getting products to the global markets. One of the biggest problems facing exporters in Brazil is the country's reliance on trucks and poor highway systems to connect goods to ports. In 2013, a truck gridlock stretched for 31 miles outside of Santos, a major port in São Paulo that accounts for 25 percent of all agricultural exports. A lack of railway and waterway infrastructure forces companies to rely on a limited number of roads to transport goods from farms and mines to the ships at port.

Dock workers largely back the new law. Yet some port industry players caution that the federal government's newfound authority in terminal leasing is already causing more legal difficulties. In August 2012 Brazil launched its Logistics Investment Programme which includes investment of over US$25 billion in the port sector from private and public sources and an additional US$1 billion for improving the ports' accessibility. Terminals at the port of Santos as well as ports in Paranaguá are in the first round of bidding.

6.3.2 Container port traffic and port system evolution

Table 3 reveals a significant concentration at the country's major port of Santos, with some concentration towards other ports. Many minor ports have experienced natural growth

due to the overall market increase, while others have taken an increase in market share. Traditionally, Santos has been the principal container port in Brazil and 36 per cent of Brazil's container throughput was handled in the terminals of Santos in 2012. However, its market decreased in comparison to 1997, when the port was responsible for over 43 per cent of Brazil's container movements. Rio de Janeiro as the second biggest container port in Brazil in 1997 lost 50 per cent of its market share over the last 15 years (although it grew in absolute terms).

Table 3. Container port throughput (TEU) in Brazil, 1997-2012

Year	Santos	Paranaguá	Navegantes	Rio Grande	Manaus	Rio de Janeiro	Suape	Itajai	Itaguai/ Sepetiba	Itapoa	Vitória	Salvador	Pecem	São Francisco do Sul
1997	829,486	139,141	-	194,963	60,738	202,763	30,642	118,822	-	-	62,472	52,496	-	95,394
1998	799,478	161,569	-	224,577	31,078	198,197	48,953	129,563	-	-	72,875	51,375	-	116,707
1999	774,959	194,939	-	261,929	48,553	204,289	39,142	136,062	-	-	86,810	79,116	-	151,111
2000	800,898	252,879	-	316,972	88,807	217,332	62,822	176,815	3,790	-	91,738	95,307	-	168,334
2001	892,802	281,891	-	346,321	102,448	252,071	75,816	243,554	16,910	-	93,203	106,761	-	176,222
2002	1,068,606	271,219	-	438,196	128,688	271,589	108,958	334,726	20,065	-	128,451	134,664	-	258,826
2003	1,385,421	309,924	-	522,980	109,230	325,222	60,721	441,867	27,307	-	143,564	169,092	-	281,057
2004	1,749,539	378,834	-	572,326	108,167	344,439	133,882	564,012	132,039	-	190,535	191,834	-	275,514
2005	2,236,580	420,318	-	666,834	75,030	326,177	171,409	642,375	187,402	-	220,761	208,029	-	280,915
2006	2,445,941	493,787	-	595,802	53,532	335,145	184,428	684,497	259,891	-	249,734	225,682	117,934	260,486
2007	2,532,900	595,261	12,379	607,275	12,095	387,809	237,077	668,521	229,742	-	267,890	230,270	143,667	316,050
2008	2,677,839	604,690	216,539	607,177	349,100	424,700	229,700	474,438	282,007	-	272,100	263,722	137,500	277,746
2009	2,255,862	630,597	398,935	629,586	309,700	350,295	242,765	195,176	206,667	-	209,096	244,204	139,102	190,321
2010	2,715,568	546,564	424,229	647,188	383,000	315,489	324,191	384,950	125,196	-	243,788	233,736	167,209	113,251
2011	2,985,922	681,678	581,493	618,039	481,000	415,446	417,666	438,752	183,601	39,544	280,262	242,758	190,656	177,793
2012	2,961,426	743,830	618,434	611,133	490,000	437,205	393,452	385,193	332,195	270,415	270,408	251,566	149,103	115,868

Source: authors, based on UN-ECLAC database[6]

[6] Excluding some very minor ports.

The Brazilian port system has undergone significant changes driven by the economic development of various regions and states, but also as a response to slow or insufficient expansion of port infrastructure in comparison to growing demand. The process of deconcentration in Brazil is strongly influenced by port access issues (e.g. limited draft in Santos) and port hinterland accessibility (Santos, Rio de Janeiro) as congestion from lack of accessibility has generated significant cost increases (e.g. specific surcharges).

In 2008 APMT assumed management of Ceará Terminal Operator (CTO) the stevedoring and container terminal operating company at the Port of Pecém, in Northern Brazil. CTO was established as a consortium at Pecém in 2003 with a view toward the region's vast potential of export reefer containers carrying such cargoes as bananas, melons, pineapples, and mangos. Overall container throughput for the facility was projected at 100,000 TEU annually, but has since then surpassed the measure. In addition, the Portonave terminal was developed in the port of Navegantes., with the backing of MSC. Itapoá started operating in 2011 after 18 years and US$314m in private investment. Thus the port is a good example for the challenges to obtain licenses and guarantees from international, federal, state and municipal agencies.

These proactive private sector terminal developments were outside the regulatory framework as the 2007 decree stipulated that private terminals must move mainly their own cargo as opposed to third party cargo. Thus the Decree 6620 could be considered to have encouraged investment within existing terminals opposed to greenfield development. However, it upset members of the Brazilian Association of Ports and Terminals (ABTP) because it erected more barriers that impeded much-needed investment in new greenfield sites along Brazil's 8,500 km coastline.

There is rising demand for additional ports and terminal capacity in states like Pará, home of the Amazon River basin. The government plans to auction four groups of public ports to private buyers, starting in Santos and Paranaguá, the country's most utilized ports. Though the Banco Nacional do Desenvolvimento (Brazilian Development Bank—BNDES) will continue to play a large role in financing infrastructure, the Brazilian government hopes to gain $7.2 billion in private investment in concessions over the next five years.

There is hope that the new port law will facilitate terminal development in order to close the current gap in port infrastructure (beyond container terminals), as it aims to facilitate investment in infrastructure. However, as in the other cases the role of the national government in terms of national port system development remains unclear.

6.3.3 Summary of key issues

While Brazilian container port development did move down the expected road of decentralisation, the new port law aims to recentralises public sector power; however, it does not solve the uncertainty existing in current legislation. The new port law now tries to stimulate greenfield development, without solving the legislative issues in existing port areas. Thus latest developments focus on attracting investment in hardware, but do not solve the institutional structure and agency issues. Local port authorities actually are stripped of some of the powers that had been devolved to them (Codesp in Santos, APPA in Paranagua, and CDRJ in Rio de Janeiro). A modification of the 1993 port law could have worked as well, as one of the aims of the new law was also to "legalize" the three greenfield terminals (Portonave, Itapoa and Embraport).

The new port law is facing legal challenges as the government claims that the pre-1993 tender contracts are now invalid (e.g. Codesp in Santos) and also the SEP is currently reluctant to extend the contracts for post-1998 leases, which further contributes to legal uncertainty for investors. A further key issue that remains is the number of public agencies, beyond SEP and ANTAQ, that are involved in port activities, which lead to significant delays and uncertainties, as was seen in the delay of 18 years in the development of Itapoá.

6.4 Argentina

6.4.1 Port governance reform

Prior to 1991, the state port authority (AGP) administered the ports, but lacked autonomy in decision making to guarantee economically efficient port operations. The port sector worked deficiently, struggling from innumerable regulations, unclear responsibilities, insufficient and ineffective services at very high prices and problems in the port labour sector. The excess of regulation stalled the potential of private investment in the ports. The country did not have a national port development framework, which also limited the necessary investment.[7]

Since Argentina was striving towards a more export-oriented economy with growing export flows, the National Congress passed a series of laws to push towards an opening of the economy in the beginning of the 1990s, driven by various intentions, the process of democratisation, and the challenge to recover the deficits of outstanding investments. The liberalisation process included the deregulation of certain economic activities and the introduction of a convertibility law. Argentina was in fact one of the first South American

[7] For details see Sánchez and Wilmsmeier (2006).

countries to allow for the privatisation of transport infrastructure at the beginning of the 1990s. After 1991, several decrees were passed regarding the deregulation of activities in the port sector[8] in order to establish free-market mechanisms for service provision, and to reduce tariffs and achieve a higher degree of international competitiveness.[9] After the reform, the port authority organisation in Buenos Aires was supposed to terminate but because of indecisiveness, the AGP still continues with its prior characteristics. This unclear situation did not send a clear signal of institutional strength to the port industry and shipping lines.

The port reform was part of a general change in the nation's economic policy, based on private initiative and the operation of key infrastructure components. One of the most important aspects of this initiative was labour reform, which eliminated restrictive labour practices, promoted stable relations between labour and terminal operators, and reduced the number of workers in ports. The goals of the reform were to improve efficiency, productivity and investment and hence competitiveness, encourage foreign trade, promote free competition and reduce the bureaucratic inefficiency of state-owned enterprises.

6.4.2 Container port traffic and port system evolution

Table 4 shows that Argentina still only has one major port, Buenos Aires, which handled 1.7m TEU in 2013, an astonishing five times more than all the rest combined. The next closest was Zárate with less than one-tenth of its total. This is an example of extreme concentration for a country this large.

[8] Main instruments: Port Law No. 24093 and decrees 1740/91, 2284/91 and 817/92.

[9] This reform included: (a) Creation of administrative and management agencies for several ports, and the transfer of other national ports to the jurisdiction of sub-national government. (b) Liberalisation of contracting towing, stowage, etc. services. (c) Free crew selection by ship owners. (d) Free pricing for tariffs and freight. (e) Port service provision to be allowed 24 hours a day. (f) Greater legal safety for pre-existing and future private ports. In addition, flexible start-up rules were established.

Table 4. Container port throughput (TEU) in Argentina, 1997-2012

Year	Buenos Aires	Zárate	Ushuaia	Rosario	Bahia Blanca	Madryn
1997	1,023,958	-	26,980	-	703	14,914
1998	1,139,730	-	29,838	100	1,411	12,304
1999	1,076,102	-	22,598	355	3,047	12,220
2000	1,126,712	3721	26,159	444	5,328	n/a
2001	962,965	17,674	23,539	601	5,059	16,707
2002	745,658	26,424-	11,600	2,825	6,247	23,071
2003	897,123	56,089	15,559	8,481	9,591	24,173
2004	1,138,503	40,370	25,867	20,782	13,275	21,190
2005	1,255,000	17,025	30,474	18,258	11,217	21,778
2006	1,567,000	20,497	45,626	19,879	9,162	24,196
2007	1,709,000	22,903	55,730	26,109	10,314	20,808
2008	1,781,100	34,794	58,869	42,151	25,523	24,011
2009	1,412,462	63,920	39,593	39,138	28,558	20,453
2010	1,730,831	86,814	63,359	50,420	16,565	23,346
2011	1,851,687	107,928	63,049	49,819	31,196	27,755
2012	1,656,428	132,831	71,758	29,532	27,340	25,333

Source: authors, based on UN-ECLAC database[10]

Port operation in Puerto Nuevo, Buenos Aires city, was transferred to the private sector in 1994. The port was reorganised into six terminals, with separate calls for bids to promote intra-port competition. Concessions for terminals 1-5 were granted to globally operating port companies. Terminal 6 was closed a few months after the concession had been granted to a local group (Sánchez and Sgut, 2002). After these concessions were granted by the national government, a new container terminal was built a few miles away and under a different jurisdictional system. This terminal has had an outstanding performance record since its inauguration in 1996 and today is handling the greatest share of all containers in Buenos Aires. By contrast, the terminal in Zárate, while experiencing an important growth over the last decade, has never managed to develop into a serious competitor for the existing terminals in Buenos Aires.

A new terminal development is currently underway in La Plata (developed by ICSTI); it will add an annual capacity of 450,000 TEU to the Argentinean port system and is expected to be fully operational in 2015. However, the inland infrastructure to the new terminal has not

[10] Excluding some very minor ports.

been developed as expected by the government and thus the accessibility is somewhat restricted.

A key aspect of the current structure is that administrative agencies have to contribute to the transfer and/or privatisation efforts of port services and terminals. These units are still located at different jurisdictional levels: national, provincial or municipal. Each organisation has different decision-making and financing mechanisms, and this lack of coordination makes port access on the land and waterside in Buenos Aires a major issue. Terminals are in central urban locations and both rail and highway access must compete with the regular city traffic when serving the port. This is particularly a concern for truck traffic, carrying 85 percent of the port cargo[11]. Dredging is a critical and expensive task for the ports. However, the access channel has not been dredged at the new required drafts, which bears the risk that the port may become unable to accommodate direct deep-sea calls.

Additionally, so far Argentina's transport policy has not been integrated to national economic or trade policies.[12] The government has never allocated sufficient revenues for the development of infrastructure and today lacks sufficient revenues to invest in the necessary infrastructure, and maintenance on important parts of the country's transportation infrastructure is being deferred.

6.4.3 Summary of key issues

Argentina is different from the other three cases in that the port system remains heavily concentrated at one port, albeit a port with several terminals. All the others have followed the expected port system evolution model of early concentration followed by deconcentration. So the problem here is that proactive governance is needed to encourage deconcentration rather than stagnation and congestion at one port that threatens the viability of the port sector and the country's trade flows.

The post-reform structure tends towards decentralisation, and prevents the coordination of common port policies and strategies. In the case of Argentina the government strategy to drive intra-port competition has created a situation which inhibits the creation of further economies of scale and thus has opened a window of opportunity for Montevideo in Uruguay to compete with the terminals in Buenos Aires (Wilmsmeier et al., 2011) for transhipment cargo to the South of Argentina and to Paraguay. This competition was driven further by the

[11] 8 percent is moved by rail and the remaining share by waterborne transport.

[12] Over the past 10 years, the government's responsibility for transportation has passed through many departments within the executive branch. This constant shift appears to have brought about a lack of commitment to an integrated transportation system and in a weak position for the Transport Secretary.

existing cabotage laws in Argentina. The latest politicised moves by the Argentinean government to limit the transhipment of Argentinean cargo in Montevideo (mercopress.com, 2013) are not supportive to solve the actual issues of lack of scale and dredging in the Buenos Aires terminals, and are more likely to challenge the port system rather than improve it. In addition, this action suggests that one aim of decentralising port governance (namely, to reduce political interference in port operations) has been unsuccessful.

7. Discussion

Port reform in LAC was driven by a lack of port infrastructure, low productivity, technical inefficiency due to low levels of investment in container handling equipment, expensive port operations due to monopolized cargo handling, labour issues and absence of strategies and planning for long-term infrastructure development.

Due to the 1990s reforms, responsibilities for both operation and investment were shifted from the public to the private sector. The decentralization of port governance to the local level and the introduction of concessions for port terminal operations led to a landlord system with increasing participation of first international and later global terminal operators (Sánchez et al., 2003; Wilmsmeier et al., 2014). A major feature of the reform process in all countries was the elimination of state-run public monopolies (Estache et al., 2002), the decentralisation of port governance from the national level by the creation of local or regional port authorities and the involvement of the private sector to realise delayed investment in infra- and superstructure.

In all cases a new national entity was established, but with some differences, having more (Mexico) or less (Argentina) power. In Chile the planning function was left at national level, which has not been executed under a systems approach until very recent attempts. In Brazil, the latest reforms demonstrate the government attempting to regain control over ports.

Thus the national governments engaged in a strategy to push responsibilities into different spatial scales (local or regional) and to the private sector, based on the principal-agent theory under the assumption that this transformation will improve efficiency (Hartley et al. 1991; Parker, 1994). Numerous studies have discussed the success of the port reforms in the region (Hoffmann, 2001; Kent and Hochstein, 1998; Tongzon and Heng, 2005; Estache et al., 2002) by showing evidence of how technical efficiency in the container terminals increased (Morales et al., 2013, Wilmsmeier et al., 2013) as well as introducing intra-port competition between terminals. Port reform undoubtedly led the terminals in the region to catch up in terms of quay productivity, reduced port charges, the attraction of new investment to

modernize existing port infrastructure and an overall reduction in labour issues (although still with occasional disputes). Table 5 summarises the key findings from the case studies.

Table 5. Summary of key findings from the four case studies

		Chile	**Mexico**	**Brazil**	**Argentina**
Governance reform	Year of reform	Late 1990s	1993	1993	1991
	Governance reform	Decentralised from national to individual PAs	Decentralised from national to individual PAs But federal govt remains final guarantor of concessions	Decentralised from national to individual PAs, but main power remains with central government	Decentralised from national to individual PAs
	Aim of new governance structure	Increase technical efficiency and incentivise private investment (achieved)	Increase technical efficiency and incentivise private investment (achieved) Break national monopoly and corruption (achieved)	Increase technical efficiency and incentivise private investment (partly achieved)	Increase technical efficiency and incentivise private investment (achieved)
	Responsibility for port development strategy	Individual PAs and concessionaires.	Individual PAs and concessionaires.	Individual PAs and concessionaires.	Individual PAs and concessionaires.
	Recent change in responsibility for port development strategy	Recent attempts to develop a national strategy.	Recent attempts to develop a national strategy.	Recent new port law to promote greenfield investment and to correct legislative errors, as well as attempts to develop a national strategy.	None.
	Integrated national transport policy	No	Recent attempts to implement one.	No	No
Port traffic and development	Container traffic trends	Deconcentration to new ports (in other parts of the country). The central part of the country remains concentrated.	Deconcentration to new ports. And new ones developing. One operator controls over 50% of national throughput	Deconcentration due both to congestion at main port and regional economic development	Still concentrated at one port.
	New ports?	No, but conversion of existing terminals in the south and north	No new ports but new terminals within existing ports, and more coming onstream soon.	Yes, but partly “illegal" under the 2008 decree.	No.
	Port development reactive or proactive	Two new ports in south of the country were proactive In the central part it was reactive, due to congestion but only short-term solutions.	Reactive efforts by private operators to develop new terminals as throughput increased.	Reactive, due to congestion and limitations at current ports.	Neither. Needs proactive efforts to encourage deconcentration.
	Role of public sector in the development of	Concession granting and monitoring	Concession granting and monitoring	Concession granting and monitoring,	None.

	new ports				
	Role of private sector in the development of new ports	All done by private operators	All done by private operators	All done by private operators, very limited public sector spending	None.
Results and issues	Capacity	Lack of capacity in central Chile where two dominant ports have reached capacity.	Will soon be fine.	Lack of capacity	Lack of capacity in Buenos Aires.
	Labour issues	Labour strikes.	Labour strikes.	Strong unions	Not known
	Other issues		Majority of throughput in the country handled by one operator.	Legal insecurity from new port law for existing lease and concession contracts	Delayed dredging, limited accessibility for large vessels

The table shows that the main features of decentralisation of governance scale and deconcentration of container traffic are common across the cases, but there are some different results regarding port development in each country.

Most of the terminal developments within existing ports can be linked to the influx of international port terminal operators in the region (see also Sánchez and Wilmsmeier, 2006). In 2006, 33 container terminals were being operated by international terminal operators in 12 countries of the region. This number increased to 66 by the beginning of 2012. Port reform has thus created significant advances at terminal level in terms of technical efficiency, but not always at port level. The main deficit is institutional, as none of the reforms managed to close the infrastructure gap from the 1990s. The reforms remain at a first level and have not managed to transform the new port authorities into institutions with real agency. An important focus of the reforms was on creating intra-port competition, many times leaving aside issues such as minimum scale efficiency (e.g. Buenos Aires - see Sánchez and Wilmsmeier, 2006), interport competition and port functions within a national or subregional port system.

Undoubtedly, differences exist between countries, but it is a common feature that the institutional structure and agency has not evolved in parallel to the port system, not even in reaction to changes in the environment. There can be no doubt that the institutions in charge of ports in the region today are not governing, but merely reacting in a firefighting manner to shortages of infrastructure. Institutions did not develop the capacity to adjust their governance model to a changing economic and market environment. The life cycle of the ports and port system in the region advanced, but not their management. Hinterland

connections are another common issue across cases, as a lack of an integrated transport and logistics policy means that even after ports and terminals are upgraded, insufficient landside infrastructure or fragmentation and bureaucracy in the rail sector lead to congestion, delays and increased costs for port users. Such issues are often not part of the port development process and are not integrated with other governance regimes such as rail regulation (Wilmsmeier et al., in press).

8. Identifying the institutional gap

The case of Chile exemplifies particularly well the current institutional challenges in the region. The need for a new port or new terminal as a greenfield development in Chile has been in the public domain for more than a decade; however, the lack of progress on the project can be considered a result of the path dependency created by the port reform in the 1990s. The decentralization process and the absence of national governance have created a lock-in that prohibits objective decision-making from a port system perspective. A decision is required from the national perspective, particularly as any of these solutions will serve an identical hinterland and a parallel development of more than one option would inherently lead to an overinvestment in port capacity.

The Chilean case clearly shows that port reform can be very effective to improve technical efficiency within the existing terminal footprint, but the port infrastructure has reached capacity limitations once again. Thus it might be argued that the current challenges are a result of a failure of agency, which is itself evidence of the failure of the institutional reform as regards state personnel (in that they were both the agents and objects of reform - cf. Duncan and Goodwin, 1988).

While institutional structures and settings are somewhat different in each of the LAC countries, all share the strategy of devolution and decentralisation, while mostly sharing the lack of port infrastructure (except Mexico), absence or non-implementation of national port system development plans or an integrated transport and logistics policy. The capacity limit and timely provision of port infrastructure was and is one of the main challenges in the region. Port reform in the region extended the life cycle of the existing port infrastructure through technical efficiency; however, the limits of port capacity are inevitably reached again, and now expansion is required outside the existing footprints. The lack of port capacity has already created in some cases a geographical shift of activity due to congestion (e.g. Santos, Brazil), leading to a reactive deconcentration to secondary locations. Thus, besides the emergence of new secondary ports driven by regional economic development, a certain

level of growth can also be attributed to negative spillover effects from congestion in other ports or the hinterland of those ports (see Wilmsmeier et al., 2014 for full analysis).

The case study countries are aware of the need and as mentioned Brazil has passed a new port law to facilitate investment and Chile has finally engaged in writing a national port development plan. Mexico also requires expansion of port capacity, but this process is underway, suggesting that the central coordination from SCT has led in the right direction; nevertheless, other issues remain regarding the renegotiation of existing concessions relating to these expansion plans (e.g. Veracruz). Yet the cases also reveal that the efficacy of these national efforts has been hindered by the lack of agency in the institutional settings that has developed in the two decades since the initial reforms, suggesting that the temporal element and the autopoietic nature of the system is inhibiting new attempts at reform.

The operation of container terminals is now primarily in the hand of the private sector. The institutional structure of private investors has undergone significant changes in the last decade and today global and international terminal operators control the greatest share of container throughput in the region (Notteboom and Rodrigue, 2012). This influx of global groups raises a contradiction in the devolution process. The reform aimed to create smaller, more active, local or regional entities, but these decentralized entities are facing global players when negotiating concession contracts, creating a new incongruence of power. A situation now obtains where local, regional and even national institutions in the region lack the institutional knowledge to critically reflect, analyse and negotiate the wider impact and repercussions when passing the "power" of their ports to these global conglomerates.

Table 6 identifies the key factors of the old path dependency that the institutional reform was intended to address, along with the current new path dependency that has resulted. The table reveals that the previous reforms have transformed relationships between the public and private sector, but have only solved part of the challenges and it seems as if the reform process succeeded merely in alleviating the symptoms for a period of time, but was not able to eradicate the causes of the challenges.

Table 6. Old and new path dependency in LAC port governance

Old path dependency	**New path dependency**
Lack of port infrastructure capacity	Lack of port infrastructure capacity
Lack of hinterland infrastructure	Lack of hinterland infrastructure
Delay of investment	Delay of investment
Labour issues	Labour issues
Lack of long term strategies and planning	Lack of long term strategies and planning
Lack of decentralised institutional capacity	Lack of systems approach to port development Lack of national institutional power
Lack of private sector involvement	Incongruence of power between public and private sector actors
Lack of technical efficiency	Resolved

The decentralisation process was successful in creating more local input in port development, but the steering, governing and coordinating roles of the state at a higher level was generally missed, or in some cases was created but not developed. A decentralized structure of port governance without a national framework or strategy remains a development of individual unarticulated entities where the system is not able to capture economies of either scale, scope or density. Thus the mentality of reform has once again been overtaken by reality (lack of infrastructure, poor performance).

Rather than a structural reform in order to improve management and flexibility to respond to changes in the industry, a lack of decision making remains evident – it is just that the power has shifted to different organisations. Indeed, in many cases, it is the same personnel in the same positions, only in superficially different organisations. So institutions have changed but governance, particularly the aspect of agency, has not been reformed in any real sense. As a result, a question to consider in future research is whether the region is perhaps pending reforms once again?

9. Conclusion

The overall aim of this paper was to use the LAC case to analyse the intersection of two clear trends in the evolution of port systems (decentralisation of port governance and deconcentration of port traffic), in order to identify how the institutional setting governing the spatial diversification of container port activity has changed as a result of this intersection and

whether it is suitable to deal with new challenges as they arise. In the 1990s policy makers in LAC initiated what was intended to be a virtuous cycle to promote technical efficiency and expansion of the container port system. However, the role of political traditions in deciding the structure and agency of reformed organisations was neither part of the political discourse nor has it been comprehensively assessed since. The case findings show that port reform has simply replaced an old path dependency with a new one, involving, critically, a loss of power from the public to the private sector. For example, when poor management by a private operator leads to congestion or labour strikes that close the port and threaten the national economy, government actors have few levers to address the problem. Devolving to the local level in hopes of achieving a more active and informed local governance, it rather created institutional weakness vis-à-vis global terminal operators. Moreover, the reform failed to produce an integrated policy framework. It is open to question whether the short term gains of technical efficiency in individual terminals make up for such long term losses of control. Some recent attempts to regain national influence have been inhibited by the evolution of the institutional setting since the initial reforms, in which the required agency to disrupt the new path dependency is lacking.

It is difficult to capture the complex of institutions, mechanisms and processes constituting port governance within a single concept and then determine if a governance reform has succeeded or failed in broad terms. Indeed, the critical moments of institutional transition may be occurring within different sub-systems such as port functions, port ranges and liner networks (cf. Figure 1). Thus, when analysing the role of structure and agency, it is important to recall Peck's (1998) identification of the active constitution of geographies of governance. The cases in this paper have explored the interaction between the institutional landscape and reform processes, and found a lack of institutional agency implicit in a transition of organisational scope from the local to the global level. Using the terminology developed by Hall and Jacobs (2010), this situation can be defined as an increase in organisational proximity (leading to capture by a key sector) and a reduction of institutional proximity (leading to collective action problems in the provision of infrastructure). Such a nuanced view of different kinds of proximity can also relate to different kinds of peripherality (Monios & Wilmsmeier, 2012) and different kinds of mobility (Monios & Wilmsmeier, 2015), all concepts with direct application to the geography of port governance.

An additional question addressed in this paper was whether the new institutional settings created by port reform in developing countries are suitable to support the successful application of port devolution policies imported from developed countries with different

political and institutional histories. Previous analysis (Gong et al., 2012) showed that port devolution works in a context of well-developed institutional infrastructure and capacities, such as integrated transport policy frameworks, investment strategies and plans, transparent disclosure, pricing competition and regulatory policy. These institutional conditions tend to be in place in developed countries; in developing countries, and Latin America is no exception, the institutional capacity to administer change proactively is limited. This lack of institutional capacity becomes even more evident if an existing development path needs to be altered as this inevitably requires agency to effect the necessary change of institutional structure.

The final question to be asked as a result of the preceding analysis is whether the current institutional framework is able to manage deconcentration proactively. It is difficult to draw final conclusions based on a limited sample, but it would appear that the reactive deconcentration as a result of port congestion and hinterland access limitations leads only to the growth of secondary ports which are not necessarily ideal (e.g. Argentina) and may not in fact exist in the right locations (e.g. Chile). What is needed is a proactive port development strategy that can identify capacity needs and locations and harness local agency in order to make a decision within a national framework, including suitable supporting hinterland infrastructure.

Finally, the limitation of this research is that it is focused on the national level. Case studies of individual ports in LAC would be valuable to examine in close detail the interaction between different government scales (national, regional, local), interactions between the public and private sector and investment and planning strategies in individual port locations. The higher-level focus of this paper precluded such close analysis of individual institutional design. Several questions raised in the above analysis could therefore benefit from close analysis of individual port reform trajectories. It is therefore hoped that the findings from this paper regarding lack of national system planning and proactive site development can provide the starting point for much-needed disaggregated research in the LAC region.

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