Institutional plasticity and path dependence in seaports: interactions between institutions, port governance reforms and port authority routines

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\textbf{ABSTRACT}

This paper deals with path dependence in seaport governance. A central notion in this respect is lock-in. Economic geographers have recently started to reconsider the deterministic perspective on lock-in and developed the concept of institutional plasticity. Such plasticity is the result of actions of actors to purposefully ‘recombine and convert or reinterpret institutions for their new objectives or transfer institutions to different contexts’ (Strambach, 2010). This concept is applied to seaports, where so far, path dependence and lock-in have not been studied in detail. Our main conclusion is that a process of institutional stretching takes place when port authorities see a need to develop new capabilities and activities. In this process new layers are added to existing arrangements, gradually leading to a formalised governance reform but without breaking out of the existing path of development.

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1. Introduction

Transport economists and geographers alike have come to accept the role path dependence plays in shaping local and national differences in port governance structures and port development trajectories (see Pallis et al., 2011 for a complete overview of seaport research). We can broadly define three research streams dealing with the path dependent evolution of port. The first research stream deals with the long term evolution of port systems (Bird, 1973) including the changing relationship between the port and the port city (Hoyle, 1989; Norcliffe et al., 1996). While this approach has evolution at its core, it does not deal with the role of institutions and of path dependence.

Another approach analyses the governance systems of ports (see Brooks and Cullinane, 2007 for a description of port governance systems in around 20 countries). De Langen (2004) regards seaports as agglomerations of related industries (clusters) and discusses governance from this perspective. He identifies areas where collective action is required. Whether collective action emerges or not depends among others on the institutional structures in ports (e.g. the presence of a ‘port cluster association’). However, he does not discuss how such institutions evolve over time. Overall, research on port governance (implicitly) accepts the concepts of lock-in and path dependence to explain the unique development trajectories of ports and the diversity of governance structures, but has not moved beyond fairly general descriptions.

A third research stream applies insights offered by economic geography and institutional economics to seaports. Hall (2003) emphasised that ports resemble ‘local communities of practice’ that are deeply rooted within a particular place. In a similar vein, Jacobs (2007) argued that institutions resemble ‘territorially rooted structures of power’ and that ports are subject to ‘regime politics’ in which a variety of actors and interests from various territorial scales interact, conflict and form coalitions. Because of the place specific nature of these ‘communities of practice’ and ‘regimes’, institutional differences in the way ports are owned, managed and developed persist, even in two proximate and competitive ports such as Los Angeles and Long Beach (for significant regional differences in port governance and institutional arrangements across Europe, see Verhoeven, 2011). Notteboom (2009) addressed the issue of path dependence and contingency in the development of multi-port gateway regions. Path dependence here is largely explained by sunk costs of port infrastructure on the one hand, while contingency is the result of strategic action by different place-bound actors across the multi-port gateway region. Ng and Pallis (2010) analyse the ports of Rotterdam, Piraeus and Busan and conclude that actors are embedded within a country specific ‘political culture’ that partly explains different port governance reform outcomes. Two recent papers apply insights from evolutionary
economic geography to the study of ports. Hall and Jacobs (2010) considered how different ‘proximities’ (social, institutional, organisational and cognitive) have shifted as a result of developments in the global transportation industry. Building on Boschma (2005), they argue that there is a severe risk of too much proximity, leading to lock-in in which actors lose their absorptive capacity and in which institutional frameworks fail to accommodate innovative behaviour or to accommodate new routines. Jacobs and Notteboom (2011) considered how ‘windows of locational opportunity’ for port investments open and close as result of strategic actions by actors. Critical junctures emerge when local actors successfully couple institutional arrangements and organisational routines with the demands that arise from the external institutional environment. The series of failed and successful critical junctures across a port region result in a particular development trajectory.

This literature overview shows that path dependence and lock-in has so far been applied to seaports in various ways. From an ontological perspective, path dependence can be used as explanans (that which explains) rather as explanandum (that which has to be explained) in analysing different development trajectories of ports. When path dependence is being explained in the case of seaports, various sources of it are identified such as sunk costs of infrastructure, place-specific institutions, historically developed routines of actors and forces of agglomeration. While all these approaches have validity, more clarity is needed on how these sources to large extent constitute each other and in doing so create path dependence: the very existence and continuation of a port at a certain location can be considered to be the result of a locked-in development trajectory. In other words, there is more room for an approach that considers ports not simply as abstract spaces where particular types of economic activity just happens to take place, but as ‘real life’ and contextual places in which actors through their interactions shape certain development outcomes (cf. Olivier and Slack, 2006). More particularly, we are interested in providing a perspective on what explains path dependence and lock-in of particular ports and port systems. Such a perspective requires us to acknowledging the transformative capacity of agency in particular institutional settings. Secondly, we need to accept that alternative development trajectories can be developed and de-locking processes do occur as a result of strategic action.

This paper focuses on the role of institutions and institutional change in port governance reforms. We use recent theoretical insights within economic geography. In doing so, we respond to calls from scholars of the maritime ports industry for (re)building the theoretical and empirical connections between transport and economic geography (Hall et al., 2006). Starting from the concepts of path dependence and lock-in, we argue that port authorities, in their attempt to develop new routines to cope with external challenges, are often constrained by their governance structure and/or institutional environment. We apply the theoretical concept of ‘institutional plasticity’ (cf. Strambach, 2010) to highlight how port actors strategically stretch existing institutional arrangements to their purpose, without (necessarily) breaking out the dominant development path. To this end, we discuss two cases, both focusing on publicly owned port authorities, i.e. Rotterdam and Antwerp. The choice for Rotterdam and Antwerp is based on four considerations. First, we assume that institutional plasticity is especially relevant in ports with long histories, as these often lead to strongly developed institutions. Second, we assume that institutional plasticity is especially relevant in public ports, where the institutional and regulatory framework constrains the implementation of commercial and hinterland strategies of port authorities. Both Rotterdam and Antwerp are public landlord ports. Third, the public landlord port authorities of Rotterdam and Antwerp can be considered as European pioneers in developing a more active role in the supply chain in an institutional environment which was not always very conducive for such a strategy. Finally, the authors’ background makes that they are very familiar with the details of the discussed port strategies, a level of detail that is required to provide a correct assessment of the dynamics at play.

We proceed as follows. In the next section we revisit the core concepts of path dependence, lock-in and governance and trace their exact meaning in the disciplines of institutional economics and evolutionary economics. In addition, we address the geographical dimension of institutional change, and consider how institutional dynamics are to a large extent place dependent. In the third section we address the recent calls within economic geography to look beyond the lock-in and discuss the concept of institutional plasticity and apply these to the cases of Rotterdam and Antwerp.

2. Path dependence and lock-in: core insights from institutional and evolutionary economics

The concepts of path dependence and lock-in have their origins within two related sub-disciplines: institutional economics and evolutionary economics. Although this is not the place for an extensive overview of these two concepts within both disciplines, (cf. for an overview: Scott, 2001; Martin and Sunley, 2006; Martin, 2010) we highlight the differences in origins and meaning of these core concepts to clarify the relation between path dependence and lock-in.

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2.1. Path dependence and institutional economics

Institutions are the humanly devised and/or socially constructed sets of rules that constrain and enable human interaction (North, 1990) or 'formal and informal rules guiding actors’ perceptions and activities' (Strambach, 2010, p. 408). Scott (2001) distinguishes three pillars of institutions: the regulative, the normative and the cultural-cognitive (cf. Table 1), each with their own unique sets of logic, mechanisms of enforcement, and bases of compliance and legitimacy. Common to all three pillars is that institutions both constrain and enable human behaviour.

While economic historians have focussed on regulative institutions at the macro-level in the form of constitutions and rule of law governing capitalist societies (cf. North, 1990), transaction cost economists looked at firm-level structures or what is referred to as governance systems (Williamson, 1985). The starting point from this analysis is Ronald Coase (1937) fundamental question why certain activities are internalised by the firm while they also could be purchased at the marketplace. According to transaction cost economists, the intrinsic desire of rational agents to reduce transaction costs (e.g. through vertical and horizontal integration or lobbying for clear rules of engagement between contracting parties), drives the process of institutional change.

An important distinction made within institutional economics is between the ‘institutional environment’ and ‘institutional arrangements’. The institutional environment refers to all kinds of informal conventions, customs, routines and norms on the one hand, and formal sets of legally enforced rules and regulations on the other. The institutional arrangements refer to particular organisational forms (firms, state bureaucracies, cooperative networks, or, more generally: governance systems) whose constitution and operations are governed by the institutional environment (cf. Martin, 2000, p. 80). Both influence each other, and through their interactions institutions are reproduced, strengthened, challenged and changed.1

Institutions develop over time. Neo-classical economists have argued that, under the condition of competition between fully rational agents, institutions (most notably: the allocation of property rights) eventually will converge to an optimal equilibrium in which it is in nobody's interest to change the rules of the game (Alchian, 1950). Institutional economists, on the other hand have insisted that institutional change is less predictable and reject the assumption of fully rational and informed utility-maximising agents. They have argued that institutions can change rather abruptly through revolutions and by ‘external shocks’ or through incremental adaptation and deliberate design in which actors are subject to ‘bounded rationality’ (Boschma and Frenken, 2006). North (1990) convincingly argues that history matters in the process of institutional change as the decisions made in the past shape expectations of actors for the future. This locks institutional change into certain development paths. This however will not necessarily lead to economic efficient outcomes: some institutional arrangements persist despite their lack of efficiency as they continue to suit the interests of those in power (cf. Hodgson, 1993).2

2.2. Path dependence and evolutionary economics

The works of Nelson and Winter (1982), David (1985) and Arthur (1989) are widely regarded as the origins of the evolutionary economic perspective. Whereas the institutional economists viewed path dependence from the perspective of institutional change, evolutionary economists applied it to the inheritance of firm routines, innovation and the application of new technology. The basic assumption is that the routines of firms and organisations are historically rooted and reproduced over time. Nelson and Winter (1982) did not use the term institutions, but organisational routines can be considered as institutionalised behaviour embedded within organisations (cf. Scott, 2001; Boschma and Frenken, 2006). Two other evolutionary economists introduced the notion of path dependence and lock-in into their analysis in two related but slightly different approaches. David (1985) analysed path dependence in terms of technological lock-in3 while Arthur (1989) highlights the role of increasing returns as a source of path dependence. The main point is that evolutionary economists view lock-in and path dependence from the perspective of organisational routines rather than territorially based institutions and regulatory systems. When applied to the (trans-)port industry we can clearly think about how the introduction of the ocean shipping container initially was a ‘routine breaking’ event, which not all ports and transport firms successfully anticipated. After its standardization it locked-in this particular mode of transportation, including the routines for managing containerised flows and the specific types of equipment and skills (e.g. crane drivers) needed for efficient handling, generating increasing returns to scale as a result.

2.3. Place dependence: the role of geography and place

Both the institutional and evolutionary perspectives on path dependence have been adopted by economic geographers since the mid-1990s onwards (Amin and Thrift, 1994; Amin, 2001; Martin, 2000; Gertler, 2001; Boschma and Frenken, 2006). The central concern for economic geographers is to study the process of uneven economic development across time and space. Institutions became to be considered as important discriminatory variables in terms of economic development. And while competition and learning effects provide conditions for institutional convergence across territories, some institutions remain specific to certain places: they are embedded within spatially proximate social relations and developed under unique historical trajectories and contingencies, so that there remains ample scope for variation (Gertler, 2001). As Martin put it (2000, p. 80): ‘If institutional path dependence matters, it matters in different ways in different places: institutional-economic path dependence is itself place dependent’. Martin and Sunley (2006) distinguish several sources that may lead to regional path dependence. The simplest source of path dependence is the economic dependency of regions on natural resources such as oil, coal or timber. A second source for path dependence is sunk costs of local assets and infrastructure. A third source of regional path dependence is agglomeration externalities which propel the spatial clustering of industries (Krugman, 1995; Storper, 1997). The forces of agglomeration will lock-in a region into a certain industrial specialisation accompanied with a corresponding technological regime or innovation system (Grabher, 1993). A final

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1 The distinction between both concepts can, for instance, be illustrated by looking at terminal awarding processes in seaports (see e.g. Theys et al., 2010). The legal stipulations and general principles behind a competitive bidding process are part of the institutional environment (the rules of the game). Landlord port authorities acting as the terminal awarding entities shape the institutional arrangements, thereby guided by their own goals (e.g. maximize land productivity or generate a more environment-friendly modal split) and the routines and expectations of agents (i.e. terminal operating companies).

2 For example, international experiences in port reform show that, in a number of cases, much needed institutional changes in inefficient ports were stalled or even abandoned due to dominant vested interests of local agents such as government agencies, local port operators or labour unions (see e.g. Hoffmann, 2001; Baird, 1995; Harambi, 1995).

3 The perspective of David is most famous for its illustration of technological lock-in by means of the QWERTY-keyboard. This particular design was developed in the late 19th century and historical accident gave it an early market lead in the type writer business. In doing so it provided users the incentive to use the system most commonly used by others, creating positive feedback loops. This resulted in a technological lock-in: QWERTY became the standard design for typewriters and, later on, for keyboards and remained so up till this very same day. It did so, despite the introduction of superior designs in terms of efficiency.
source of regional path dependence as distinguished by Martin and Sunley (2006) is region-specific institutions or regulatory frameworks, social conventions and cultural traditions, which can make firms and organisations located in a region become ‘socially embedded’ (Granovetter, 1985). As shown in the introduction, all the sources of path dependence are relevant for ports as particular places, but the extent to which they matter differ across ports.

3. Beyond the lock-in: institutional plasticity, strategy and the evolution of organisational routines

3.1. Institutional plasticity, institutional layering and constrained existing arrangements

Within the emerging domain of evolutionary economic geography, scholars called for a re-interpretation of the concepts of path dependence and lock-in in the evolution of firms, industries and regional economies. Martin and Sunley (2006) for instance criticised the pre-dominantly negative connotation of lock-in, with exogenous influences providing the only escape for locked-in businesses, industries and regions. In other words, one should be more aware of the transformative capacities of agency in the process of institutional change (cf. MacKinnon et al., 2009). They plea for a shift of attention from path dependence to path destruction and path creation and corresponding ‘de-locking’ processes. In this context, Strambach (2010) introduced the term ‘institutional plasticity’ to refer to a situation where a range of alternative development trajectories are possible within the overarching institutional system without necessarily breaking out of the existing path. Plasticity suggests an elastic stretch of existing institutions and institutional arrangements through deliberate action and flexible interpretation of these arrangements by actors. As such, path dependence is not a coherent process in itself but covers a variety of possible directions to take shape. Inspired by the work of Streeck and Thelen (2005), Strambach (2010, p. 414) states: “Plasticity allows institutional variations, the attachment of new elements to existing institutions, the slow rise of peripheral meanings to dominant institutions and their conversion by the redeployment of old institutions to new purposes”.

Plasticity is not itself a driver for change from existing paths; it is a state that explains why it is possible to have both variation within a path, develop lock-in and/or create new paths. It is in fact the interaction of actors that enables to ‘recombine and convert or rein-interpret institutions for their new objectives or transfer institutions to different contexts’ (Strambach, 2010, p. 412). Institutional transformation can take place along different modes such as conversion, layering, stretching and displacement, which are deliberately applied and explored by actors. According to Martin (2010) layering takes place by gradually adding new rules or procedures to existing institutions or by adding new functions or mandates to existing institutional arrangements. Such layering can ultimately lead to formalised institutional transformation: “Each new ‘layer’ constitutes only a small change of the institution as a whole, but this process can be cumulative so that the evolution of the institution is on path, leading to the mutation or even transformation of the institution’s fundamental nature” (Martin, 2010, p. 14). Conversion is the alteration of existing institutions to serve new purposes or functions. In some cases the addition of a new layer might imply abandoning older layers, while in other cases of conversion no new rules or procedures are added but, instead, existing institutions and arrangements are realigned (cf. Martin, 2010). Stretching of institutions occurs when actors cannot change existing arrangements. As such, “institutional plasticity” is a descriptor for flexibility and dynamism within institutions, as they can both enable change by actors and are themselves changed over time by actors’ actions.

While the actual exploration of institutional plasticity takes place at the micro-level of the individual actor through its flexible interpretation of pre-existing arrangements, its explorative behaviour will always communicate and interact with these formalised pre-existing arrangements. The exploration of institutional modifications is in itself subject to lock-in as the variations and alternatives considered by the actors are both constrained by their past and by the different sets of logic (cf. Jessop, 2001; Giddens, 1984), e.g. orthodoxy or the lack of absorptive capacity for particular alternatives. Therefore, institutional placticity allows for incremental institutional transformations but this will not necessarily result in a break with the existing path of development. As mentioned by Buitelaar et al. (2007), institutional change is both a process of deliberate design and of long term evolution.

This also holds for routines. The institutional environment constrains the development of new routines and as such lock-in development. Actors and organisations also might press for institutional changes, exactly to accommodate the development of new routines, but the feasibility of such efforts depends (amongst others) on the existing institutional environment and prevailing types of logic.

3.2. Institutional plasticity, governance reform and organisational routines

Firms or organisations often have developed certain routines, which become outdated or obsolete due to developments within the firm or within the organisation’s external development (the emergence of new competitors, new legislation, changing economic conditions or shifting political preferences). The firm or organisation needs to develop new routines to cope with these external challenges. However, in many cases the adoption of these new routines is constrained by its governance structure. In other cases the institutional environment (rules and regulations as well as social discourses about the role, function and future of organisations) might act as a barrier to the adoption of new organisational routines. Nonetheless, internal and external pressures force the firm to change its routines (Boschma and Frenken, 2006; Jacobs and Notteboom, 2011). In many cases the adoption of new routines can be accommodated within the organisation, by setting up new divisions, by implementing new technology and by hiring a new type of management. In other cases, changes of the institutional environment are required, e.g. changes of the law or of corporate mandates. In our view, institutional plasticity implies the stretching of certain institutional arrangements in order for the firm or organisation to accommodate new routines that correspond with external pressures. Actors purposefully aim to create support for institutional change and, as such, change requires the support of stakeholders, most notably shareholders or regulatory agencies. The stretching implies creating new layers to existing institutional arrangements by means of continuous interactions and bargaining between the various parties involved, generating in what is referred to as critical moments (cf. Buitelaar et al., 2007; Jacobs and Notteboom, 2011). Each actor mobilises resources to support its case and different, sometimes competing, designs and solutions are put forward in the process. This process will not necessarily lead to formalised change, but can also lead to informal adaptation of routines or a new common understanding of roles and mutual relationships.

The major driver for institutional change in many cases is the logic of instrumentality: existing institutional arrangements do not correspond well with the demands of the external environment and act as a barrier to develop or accommodate new routines. However, while rationally designed reforms can be highly socially appropriate, in many cases they come at a cost and will result in a loss of influence or loss of power for others. The actions of the
agents pressing for change are embedded within broader social relationships, so the selection of strategies is constrained by the logic of appropriateness. The ‘absorptive capacity’ of actors to learn from interaction is a third type of logic for change and is determined by the actors’ environment and past experience (Nottenboom, 2000, p. 71). This implies that regional and local legacies and corresponding institutional environment both help to shape new avenues of exploration, while at the same time they can act as constraints by excluding novel institutional designs that do not correspond well with the existing knowledge base, vested interests and existing institutional structure (see also Hall and Jacobs, 2010).

4. Application of the core concepts to port authorities and port management

In this section, the insights and concepts developed above are applied to the two largest European seaports in terms of total cargo throughput and port surface, i.e. Rotterdam and Antwerp. The increasing globalisation of the maritime and port industry and the consolidation, vertical integration and network formation among market players puts more pressure on port authorities to defend the interests of the port through a more active commercial and ‘deterritorialised’ strategy embedded in appropriate (reformed) governance structures (see e.g. Nottenboom and Winkelmanns, 2001; Verhoeven, 2010). Port economic literature points to the importance of the design of appropriate hinterland strategies and hinterland access regimes (see e.g. Nottenboom, 2001; De Langen and Chouly, 2004; Van der Horst and De Langen, 2008) for the competitiveness and performance of seaports. Port economic literature points to the importance of the design of appropriate hinterland strategies and hinterland access regimes (see e.g. Nottenboom, 2001; De Langen and Chouly, 2004; Van der Horst and De Langen, 2008) for the competitiveness and performance of seaports. Nottenboom and Rodrigue (2005) introduced a regionalization phase in port and port system development. Regionalization expands the hinterland reach of the port through a number of strategies linking it more closely to inland freight distribution centres. The phase of regionalization de-territorializes port strategy by bringing the perspective of port development to a higher geographical scale, i.e. beyond the port area.

Against this background, we highlight how port actors in Rotterdam prior to the port authority’s governance reform in 2004 were stretching existing institutional arrangements in order for the port authority to strategically invest outside its formal jurisdiction. This path was continued after the corporatization of the port authority when the institutional constraints for investment and participation were effectively removed. However, at the same time the traditional ‘Hanseatic focus’ on Rotterdam’s port complex is maintained. This section also provides an analysis of the role of path dependence and institutional plasticity in the routines of the corporatised Antwerp Port Authority to engage in port regionalization strategies. The Antwerp Port Authority is a former municipal port authority with a vested local focus and experiences institutional impact from the Flemish Port Decree. However, the legal framework created by the Flemish Port Decree limited the possibility for the corporatised port authority to develop an effective hinterland investment strategy. This burden could only be overcome by stretching institutional arrangements in close cooperation with market agents.

4.1. The case of Rotterdam

For over 70 years, the public port authority of Rotterdam (PoR) was a municipal department responsible for port development and nautical safety. This public landlord was established in the early 20th century after a fully private port development scheme failed. From this moment on, the public port authority has developed the port with what has been termed a ‘Hanseatic’ approach: actively enabling port development, as this is seen as an engine of regional economic growth. However, during the 1990s this particular model in which the port authority acted as municipal department came under pressure as a result of external developments. In short, supply chain integration in combination with port regionalization implied that the PoR had to develop more commercial activities, such as investments outside the port jurisdiction, more commercial routines and capabilities. The position as a municipal department became increasingly considered as unfit for the port authority to do the job.

These developments gave rise to discussions on the institutional position of PoR. The CEO and other leading executives of PoR, as well as the port business community regularly voiced their opinion that corporatisation would benefit the performance of PoR. Initially municipal politicians resisted these pressures for corporatisation, but instead agreed on a separate institutional position of PoR within the municipal organisation. This allowed the executives more decision making power. Furthermore, PoR was allowed to develop a separate holding, Mainport Holding Rotterdam, for investments outside Rotterdam. In theoretical terms, this process demonstrates ‘institutional plasticity’. The port authority and business community did not opt for corporatisation, constrained as they were by the logic of appropriateness: local politicians did not consider full corporatisation appropriate and argued that financial revenues from the port should be passed onto the city administration. Instead it was agreed to modify the existing institutional structure (i.e. layering), by adding a more independent holding company to the port authority, and by granting the executives more decision making power. These additions were instrumental to achieving objectives of the port authority. Mainport Holding Rotterdam allowed PoR to invest outside the municipal borders, something that had not been done previously.

The combination of two major events ended this status quo and provided the ‘window of opportunity’ for institutional change: first the emergence of a new anti-establishment political party that won the municipal elections in 2002 and formed a city government, for the first time since 1945 without social democrats. Second, all stakeholders (port authority, municipality and port industries) had for years been heavily lobbying for national government permission and financial support for a major port expansion project (the second Maasvlakte). The national government was willing to grant permission for and partially finance this project, under the condition that PoR was corporatised and the State would receive a stake in PoR. The combination of these two political circumstances provided a basis for the decision in 2003, to corporatize PoR (cf. Jacobs, 2007). In theoretical terms: the process of layering had resulted in an independently operating port authority, with very limited municipal involvement in strategic decision making, nor in monitoring the company (see later). The external events both changed the logic of appropriateness (the right wing party had a different, more pro-market, approach to public management) and increased pressure for institutional reform through another public actor with it’s own logic of appropriateness: if the Dutch state invests in the port, it is appropriate to receive a share of PoR.

In January 2004, PoR became a public corporation with the municipality of Rotterdam as the majority shareholder of PoR and the national government as minority shareholder. The state purchase of the minority share of PoR was done through the provision of equity for PoR, which allowed PoR to finance the port expansion project Second Maasvlakte.

In the corporatised structure, the management (Executive Board) of PoR is no longer controlled by the municipality, but by a Supervisory Board. The profile of the supervisory board members is such that the board “must be capable of working...
in the hybrid setting of a private company with public accountability" (Port of Rotterdam, 2006). Supervisory board members have experience in managing public corporations, the transport and energy industries and stakeholder management. The supervisory board is the sole body involved in monitoring the executive board. The shareholders have a formal influence at the annual shareholders’ meeting. In this meeting, they can influence strategies and investments and appoint new members of the supervisory board. The shareholders are regularly updated about relevant issues.

Prior to the corporatization, the management of PoR had successfully claimed more autonomy, arguing that PoR differs fundamentally from other municipal departments. Reasons for this increased autonomy were the need to sign confidential agreements (that cannot be publicly discussed in the city council), and the need to act quickly and settle deals in negotiations. Given these special characteristics, the municipality agreed to give the executive directors autonomy to sign deals of up to 15 million euro. This is a huge difference with other municipal departments. Furthermore, prior to the corporatization, the municipality had agreed to establish a subsidiary of PoR to administer all the participations of PoR (Mainport Holding Rotterdam, MHR). This gave PoR substantial freedom for participating in new ventures. At the end of 2003, just prior to the corporatization, participations of MHR included:

- A participation in ECT, the largest container terminal operator in Rotterdam, in which Hutchinson Port Holdings, a multinational terminal operator from Hong Kong, had acquired a majority share.
- KSD Dirkzwager, a private firm based in Rotterdam that provides all kinds of port-related information services.
- European Inland Terminals, an organisation owning inland terminals.
- Over 10 other participations.

The municipality was hardly involved in investment decisions of MHR. Thus, in practice, PoR was run as an autonomous corporation prior to the formal corporatization, however, without effective monitoring. The limited monitoring and control of PoR is explained partly by the granted autonomy and partly because both the aldermen and city council are politicians that deal with many different issues. As politicians they are, at least partly, driven by making a visible, short-run impact for citizens. They did not have incentives to closely monitor strategic decisions of PoR. Nor did they possess the necessary commercial experience to evaluate investment decisions in what Hall and Jacobs (2010) referred to as a lack of commercial proximities: “Despite presumably good intentions, these elected officials were often not trained, or educated about, the necessary commercial experience to evaluate investments and appoint new members of the supervisory board. The shareholders have a formal influence at the annual shareholders’ meeting. In this meeting, they can influence strategies and investments and appoint new members of the supervisory board. The shareholders are regularly updated about relevant issues.

The corporatisation has had a major impact, but at the same time did not fundamentally change the Hanseatic tradition: PoR is still not-for-profit, focused on long term port development, and has the municipality as majority shareholder. Table 2 shows some performance indicators for PoR, for the period 1997–2003 (before corporatization) and 2005–2010 (after corporatization). These data show an improved performance of PoR.

These data compare the average annual growth of some performance indicators in the 6 years prior to corporatisation with the 5 years after corporatisation, starting in 2005. Table 2 shows that the PoR performance improved in different aspects: financial (profit and EBITDA), operational (operational costs), and commercial (market share and throughput growth). This better performance was realised in a period where the market as a whole (i.e. the cargo throughput of all ports in the Hamburg–Le Havre range) grew slower than in the previous period, just as global GDP (World Bank, 2012). Furthermore, the increased profits were not due to higher prices: port dues per ton grew roughly equally in both periods (0.6% vs. 0.7%).

A thorough analysis of this improved performance and its reasons are beyond the scope of this paper. However, the executive board states in the 2008 annual report that following a restructuring of the organisation in 2007, PoR is a more efficient organisation, and a more attractive employer. The hiring of senior managers is an indication of the transformation of PoR following the corporatisation. Whereas prior to corporatisation, new senior managers often came from the public sector, including internal promotions in the municipal administration, in the period 2004–2010, 15 new senior managers were appointed, of which 9 from outside PoR. All nine had a substantial track record in commercial organisations. This change in recruitment of management staff signals the need of the corporatised port authority to acquire different skills and routines in line with a more commercial culture.

The clearest change in the strategy of PoR is the transition towards a more ‘deterioralisated’ approach to port development, with activities both in the hinterland and in emerging economies as important parts of the overall strategy. In 2002, PoR signed a deal with the government of Oman to develop and manage the port of Sohar, a deal further expanded in 2007. In 2009, PoR entered the Brazilian market with a partnership agreement with the port of Suape in the northeast of Brazil. In pursuing this internationalisation strategy, the PoR ‘re-territorialises’ in new places and institutional environments and, as such, not only diffuses certain routines elsewhere but also develops new routines in the process.

At the same time we observe that in the long run the port authority's development path remains 'locked-in' into the Hanseatic tradition: the mission of PoR remains focused on the development of Rotterdam's port complex, the activities outside Rotterdam need to contribute to this mission. Rotterdam’s port complex is termed ‘the homebase and showcase’ in the business plan 2011–2015 and remains centre stage in terms of management attention, new investments and innovative activities (Port of Rotterdam, 2011b). This Hanseatic tradition is deeply rooted in the culture and ‘way of thinking’ in Rotterdam. All involved stakeholders take for granted that PoR will remain focused on the long term development of Rotterdam’s port complex and will not use the port as a ‘cash cow’ for investments in other areas or activities. Thus, the cultural cognitive pillar of institutions provides a broadly defined

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4 Two possible break-outs of the institutional path can be imagined: first a true privatisation (UK style), and second a minimalist public authority (like some US ports and Hong Kong).

5 The year 2004 is excluded because the profit and EBITDA that year were unrealistically low because ‘reservations’ were made for losses related to the guarantees of bank loans described above. Including this year would lead to a better ‘post-corporatisation’ performance of PoR. For a more realistic comparison, 2005 is taken as starting year.
development path. PoR and the business community aim to secure PoR is capable of strengthening Rotterdam’s port complex, first through stretching and later through port reform. In the case of Rotterdam, stretching may have been instrumental for PoR and the port community, but stretching also reduced the quality of corporate governance. The window of opportunity for corporatisation enabled by the normative pillar, e.g. through new political parties that emerge in reply to shifting convictions and beliefs of residents, was grasped. This port reform has contributed to the performance of PoR, while leaving intact the historically and culturally deeply rooted Hanseatic approach to port development.

4.2. The case of Antwerp

The port of Antwerp is Europe’s second largest port in volume terms and together with Rotterdam is one of the leading gateway ports in the Rhine-Scheldt Delta port region. Europe’s most important ‘multi-port gateway region’ (Notteboom, 2010). The port of Antwerp is a landlord port, which implies the port authority leases the land to private port operators on the basis of long-term concession agreements. Concession fees together with port dues are the main revenue sources for the port authority. Given the local nature of revenue sources, the port traditionally has a local focus and strongly promotes activities within the port perimeter that could increase the local revenue base. This intra-port focus is enhanced by the logic of social appropriateness of ensuring that the economic rents of port activities stay in the port region. This normative institutional pillar driving the local focus in the routines of the port authority was also supported by a regulatory framework (regulative pillar) discouraging the port authority to go beyond the port perimeter. Before 1997 the port authority was a city department. The port authority was corporatised in January 1997: the former municipal port authority was transformed into an autonomous municipal port authority with only one shareholder, i.e. the municipality. The competencies were transferred from the City to the port and the new port authority gained financial independence. A more corporate governance structure was put in place consisting of a board of directors of 18 members and an executive committee. The corporatisation in principle created more room for strategic and commercial actions by the port authority, also outside of the port perimeter through inland port developments and the creation of logistics zones along hinterland corridors.

Particularly since the early 2000s the Antwerp Port Authority showed a growing interest in hinterland developments in the belief that an active port regionalization strategy would make it possible to benefit the most from synergies with other transport nodes and other players within the networks of which the port is part. The establishment of formal or informal cooperation with inland nodes is a key aspect in port regionalization processes. The port authority also understood that the corridors towards the inland terminal network could create the necessary margin for further growth of seaborne container traffic in Antwerp. Inland nodes as such could acquire an important satellite function vis-à-vis the port of Antwerp.

Notwithstanding these advantages, the Antwerp Port Authority proved to be rather slow in engaging in formal forms of strategic partnerships with inland ports. Several reasons can be identified in this respect. First of all, the logic of social appropriateness as mentioned earlier in this section exerted a normative hesitation to engage in developments beyond the port perimeter. Second, there were doubts about the commercial appropriateness of such investments: the port management feared to losing added value and employment by ‘giving away’ activities, to losing captive cargo (i.e. port related companies in the hinterland are less dependent on one port for their maritime import and export) and to losing clients as these might consider the cooperation with one specific hinterland location as a market restriction or distortion. Linked to this concern of commercial appropriateness, the Antwerp port authority suffered from the ‘free rider’ syndrome. Due to Rotterdam’s proximity, investments of Rotterdam-based players in setting up inland terminals have always had also positive cargo impacts on Antwerp. So the port benefited from the new inland terminals without having invested in them. This made the port authority rather passive when it came to setting up partnerships with inland ports. Third, next to the normative institutional setting, the regulatory institutional environment for a long time was not very supportive in allowing the port authority to participate in inland ports. This case study particularly focuses on this last point.

The regulative institutional environment affects the port regionalization strategy of Antwerp. In Flanders, the regional government is responsible for port policy, not the Belgian federal government. The Port Decree (‘Havendecreet’) of 2 March 1999 deals with the role and responsibilities of the port authorities in the Flemish ports of Antwerp, Ghent, Zeebrugge and Ostend. Art. 23. §3 of the Port Decree stipulates that any decision of autonomous public port authorities regarding the start-up of a company or participation in existing private or public companies needs approval of the Port Commissioner of the Flemish Region. The Port Commissioner is a civil servant appointed by the Flemish government to see to it that the port laws and regulations are implemented and applied in a proper way. The Port Commissioner uses a set of criteria to evaluate whether or not the port authority can proceed with an intended participation or investment outside the port perimeter:

- The action of the port authority should not distort the equality among port users. Examples of infringements to this principle include (a) imposing specific rates or contractual conditions that do not correspond to the normal market dynamics (e.g. dumping prices or very high rates); (b) restrictions in service delivery at the expense of port users; (c) applying unequal conditions for similar services and therefore undermining the level playing field among market players.
- The action of the port authority should only involve activities that directly or indirectly support its port-related managerial responsibilities linked to (a) the management and exploitation of the port area; (b) the fixing and collection of port dues; (c) the provision of port-related supporting services to port users; (d) administrative police functions (Art. 1., 2° of Port Decree).

The Port Decree in principle allows the Antwerp Port Authority to participate in specific activities outside the port perimeter.
provided the equality among port users remains guaranteed and that these activities directly or indirectly support its port-related managerial responsibilities. The Port Decree as a regulative institutional arrangement to a large extent supports the normative pillar on the social appropriateness of having port authorities with a strong local focus.

The law on autonomous municipal companies ('Gemeentewet') of 28 March 1995 restricted the possibilities for the Antwerp port authority to financially participate in hinterland activities. Article 263 of the Gemeentewet stipulates that autonomous municipal companies can directly or indirectly participate in public or private companies and associations under the conditions that they acquire a majority shareholding in these companies and adopt the chairmanship of the governance bodies of these companies (Gemeentewet, Art. 263, §2). In practice, the autonomous Antwerp Port Authority can thus only invest in inland terminals, logistics zones or inland transport companies when it becomes majority shareholder and controls all key functions in the management structures of the company concerned. These regulatory conditions as part of the institutional environment do not pose an attractive proposition for possible hinterland partners of the port authority. Despite the corporatization of the Antwerp Port Authority in line with the Port Decree, the legal status as autonomous municipal company thus restricts the room for commercial action in developing hinterland strategies and in shaping port regionalization processes.

Given the above restrictions, the Antwerp Port Authority looked for other institutional arrangements to actively invest in inland ports and thus to support its port regionalization path by going beyond its local port focus. A first approach was to align the routines of intermodal players, terminal operators and other market players with the regionalization strategy of the Antwerp port authority through informal arrangements. The Antwerp Port Authority did so by setting up task forces together with various stakeholders (carriers, shippers, transport operators, labour and government bodies) to address issues related to inland transportation. A successful example of the task force approach was Antwerp Intermodal Solutions (AIS) in the mid 2000s. The main terminal operators and 15 of the 19 largest shipping companies and agents in Antwerp took an active part in the project with the aim to survey and concentrate rail volumes. The project led to new rail links and a closer coordination between market parties. The introduction of task forces, with the port authority acting as facilitator, is an example of 'layering': the task forces added a hinterland-focused layer to existing institutional arrangements between the port authority and market players in and outside of the port, thereby enhancing a port regionalization path. Existing governance structures were stretched towards a more informal layer which allowed the port authority (through adopting a facilitator role) to change its hinterland routines.

A second and complementary approach consisted of a clear engagement in inland ports, not via direct participations, but via alternative arrangements. The majority shareholding requirement as laid down in the Gemeentewet was circumvented by using a formal cooperation type made possible via a Federal law of 7 May 1999. Under this law public companies can participate in other public companies via a so-called ‘economic interest grouping’ (EBG, Economische Belangenopheffing of GIE, Groupement d’Intérêt Economique). In other words, the Antwerp port authority showed institutional plasticity in the port regionalization path by opting for an alternative institutional arrangement towards inland ports. The EBG construct allowed the port authority to (temporarily) abandon the layer of direct participations, given existing restrictions imposed by the Gemeentewet. The EBG proved to be an advantageous solution and a new layer for the port authority as it allows a further development of own economic activities and an increase in financial independence by bringing together activities or means with other partners. Costs and risks are shared, as well as profits. However, the port authority remains liable for the debts and losses of the EBG (art 843, §1 of the Law of 7 May 1999). There are also restrictions to the use of EBG as an institutional arrangement. Article 27 of the Port Decree explicitly states that autonomous port authorities can only set up an EBG with other public bodies. This implies such an arrangement is not possible when private companies are involved.

A first application came in September 2005 when the Antwerp port announced to engage in an EBG with the public inland port authority of Liège, the third largest inland port in Europe after Duisburg and Paris. The cooperation with the port of Liège is aimed at making various sites in and around the latter port ready for development and to actively attract investors. For example, the Antwerp Port Authority is involved in the development of the Trilogiport site in Liège, a new terminal and logistics area located along the Albert Canal. Terminal operator Euroports has developed the new Trilogiport Terminal in a consortium including DP World as a minority partner. The terminal has an initial capacity of 100,000 TEU. A major new logistics park is being developed adjacent to the terminal.

In recent years, some of the restrictions on public and private participations by autonomous municipal companies were relaxed, allowing the port to return to the initial layer of direct participations. At present, the Antwerp Port Authority is allowed to take minority shareholdings in inland ports provided the participations follow the general rules and conditions of the Port Decree as discussed earlier. One concrete result of the changing institutional environment is the minority participation (20%) of the Antwerp Port Authority in the Beverdok Container Terminal, situated about 50 km east of the port along the Albert Canal. The terminal offers a starting capacity of 70,000 TEU (expandable to 300,000 TEU) and is being operated by DP World. The project is supported by the AIS II program which aims at an improved rail connectivity of the port, intense cooperation with the Limburg Logistics Platform and the above-mentioned economic cooperation with the Port of Liège Authority.

The relaxation of rules regarding participations even made the Antwerp Port Authority to consider an active involvement in foreign inland ports. In early 2011, Rotterdam and Antwerp were aiming for a joint shareholding of about one third in the Port of Duisburg when the national German government announced it would dispose of its shareholding in the Duisburger Hafen AG. However, the German government and the State of North Rhine-Westphalia were not very enthusiastic about allowing foreign capital in Europe’s largest inland port and a key turntable for traffic to/from east Europe. While the joint offer of the ports still stands, it is more likely that the other shareholders, the city of Duisburg and the federal state of North Rhine-Westphalia, will extend their interest in case the central government would pull out of Duisburg.

It is likely that the Antwerp port authority will now move towards a more cautious approach in institutional arrangements with German inland ports, for example by first considering joint ventures in the development of new port-related sites. Adding an international dimension to the port regionalization routines of the Antwerp port authority will most probably demand some institutional plasticity through ‘layering’ and ‘conversion’ not only on the side of the port authority but also at the level of the governance structures of the respective foreign inland ports.

5. Conclusions

This paper aims to contribute to the academic discussion on path dependence and lock-in within port-related research. Based upon a review of the concept of path dependence within the field
of economic geography, our goal was to provide conceptual clarity about the concept of path dependence, to identify recent thoughts that exist about path dependence within economic geography and to apply those to the seaport industry. We focused on the interaction between institutional environment, governance structure and the dynamics in supply chain and hinterland strategies of landlord port authorities.

What became clear is that path dependent changes inhibit plasticity, in the sense that existing institutional arrangements are being stretched to accommodate new routines (logic of instrumentality), while alternatives that come to mind among the stakeholders still largely reside within existing frameworks of thought (logic of absorptive capacity) and within hegemonic discourses (logic of social appropriateness). Because of these mechanisms, institutional changes do occur in the form of stretching and layering, but they do not necessarily diverge from the main development path nor do they fundamentally challenge the existing core port development philosophy.

The case studies of Rotterdam and Antwerp served as illustrations. In both cases the port authorities operate within a Hanseatic tradition, but the local political control over the ports daily affairs increasingly started to act as a constraint to respond changes within the port authorities’ external environment. The case studies demonstrate that the institutional environment was not always conducive to a path towards more commercially-oriented and de-territorialised routines of port authorities. In both ports the logic of social appropriateness of ensuring that the economic rents of port activities stay in the port region, combined with a regulatory framework discouraging the port authority to go beyond the port perimeter, initially prevented both port authorities from strategically investing outside their formal jurisdiction. A process of institutional stretching followed, in which alternative institutional arrangements were sought in order to accommodate more structurally the organisational routines necessary for the port authority to cope with new challenges. This process of institutional stretching differs between the two ports. In a first phase, PoR was allowed to develop a separate holding, Maınport Holding Rotterdam, for investments outside Rotterdam. Only later on the corporatization of PoR removed the (in-)normal institutional constraints for investment and participation. In Antwerp, the corporatization process initiated by the Port Decree did not provide the Antwerp Port Authority with enough leverage to effectively engage in port regionalization strategies. This burden could only be overcome by stretching institutional arrangements in close cooperation with market agents and by the search and adoption of an alternative arrangement (the ‘economic interest grouping’) to make strategic investments in the hinterland possible.

The results of the case studies show the dominant path of development remained. This is but one outcome. The ideas developed in this paper can be applied also to other ports/logistics hubs and contexts, especially those with a (perceived) gap between the strategic ambitions of an economic actor and the constraints that result from possibilities offered by the existing institutional setting. However, each application will have its own contextual environment and might thus lead to different results. The cases we described show successful plasticity at work, but we are aware that attempts to reach an institutional change by stretching existing institutional arrangements might also fail. In other cases, institutional change may be disruptive, in the sense that the core port development philosophy may change, resulting in the creation of a new port development path. We argue that a further research challenge lies in the development of more case studies, that use the broad typology of institutional transformation presented in this paper (i.e. the processes of conversion, layering, stretching and displacement) to support the development of a more detailed typology of possible trajectories and modes of ‘institutional plasticity’ in seaports and their expected outcomes.

References
