ECONSTOR
Make Your Publications Visible.

A Service of

ZBW Leibniz-Informationszentrum Wirtschaft
Leibniz Information Centre for Economics

Wilmsmeier, Gordon; Martínez-Zarzoso, Inmaculada; Fiess, Norbert

Working Paper

Regional hub port development: The case of Montevideo, Uruguay

IAI Discussion Papers, No. 203

Provided in Cooperation with:
Ibero-America Institute for Economic Research, University of Goettingen

Suggested Citation: Wilmsmeier, Gordon; Martínez-Zarzoso, Inmaculada; Fiess, Norbert (2010) : Regional hub port development: The case of Montevideo, Uruguay, IAI Discussion Papers, No. 203, Georg-August-Universität Göttingen, Ibero-America Institute for Economic Research (IAI), Göttingen

This Version is available at:
https://hdl.handle.net/10419/57320

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

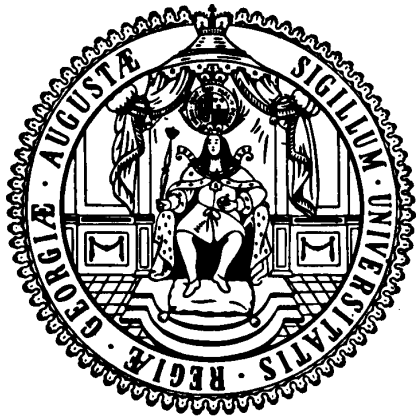
If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

WWW.ECONSTOR.EU

Mitglied der Leibniz-Gemeinschaft

Ibero-Amerika Institut für Wirtschaftsforschung
Instituto Ibero-Americano de Investigaciones Económicas
Ibero-America Institute for Economic Research
(IAI)

Georg-August-Universität Göttingen
(founded in 1737)



Diskussionsbeiträge · Documentos de Trabajo · Discussion Papers

Nr. 203

Regional Hub Port Development – The Case of Montevideo, Uruguay

Gordon Wilmsmeier, Inmaculada Martínez-Zarzoso, Norbert Fiess

June 2010

Platz der Göttinger Sieben 3 · 37073 Goettingen · Germany · Phone: +49-(0)551-398172 · Fax: +49-(0)551-398173
e-mail: uwia@gwdg.de · http://www.iai.wiwi.uni-goettingen.de

REGIONAL HUB PORT DEVELOPMENT – THE CASE OF MONTEVIDEO, URUGUAY

Gordon WILMSMEIER (corresponding author)
Transport Research Institute, Edinburgh Napier University,
Merchiston Campus, Edinburgh EH510DT, UK,
e-mail: g.wilmsmeier@napier.ac.uk
Phone: +44 (0)131 455 2951
Fax: +44 (0)131 455 2953

Inmaculada MARTINEZ-ZARZOSO
Georg-August University Goettingen,
Germany and University Jaume I, Spain
E-mail: martinei@eco.uji.es
Phone: +49 (0) 551 399 770

Norbert FIESS
The World Bank
Bouchard 547 -29th
Buenos Aires - C1106ABG
E-mail: nfiess@worldbank.org

Abstract:

This paper reflects on port development in Uruguay in an environment of trilateral interport competition. The regional characteristics of port development in terms of their geographical, functional and operational characteristics are discussed by analysing the port system's evolution. The case of Montevideo as the success or failure of a regional hub port development strategy is analysed in detail. Particular attention is given to the evolution and impact of the liner shipping service network in defining the role of a port within a regional port system. Further, the evolution of the port of Montevideo in terms of institutional and organisational and the related strategy are described, with focus on the effect on transhipment cargo in the port.
The main findings are twofold. First, port development in Montevideo been driven proactively and under a clear strategy, but still faces a number of challenges. Second, economies of scale in transport, port infrastructure and connectivity are important determinants of port development, of which the latter is principally driven by external actors, the shipping lines.
The paper shows that despite strong efforts Uruguay and its principal port Montevideo are highly dependent on external factors, particularly the level of connectivity, in their strategy to develop Montevideo as a regional hub. Thus the findings are relevant in relation to the discussion of Montevideo's development potentials as a hub on South America's East Coast in particular and the effects of external influences on port development from in general.

Keywords:
Regional port development; transhipment, connectivity; distance; Latin America

REGIONAL HUB PORT DEVELOPMENT – THE CASE OF MONTEVIDEO, URUGUAY

1. INTRODUCTION

States and nations are redefining their place in the world at the present time in the wake of the economic, political and cultural transnationalisation processes that have occurred in recent decades. Each country, each region, is seeking to recast its role and potential in accord with its geographical location, its history and the times. This positioning is, of course, conditioned by multiple factors, which include conditions of production, economic and political interests and transport related issues especially.

Within this global situation, port development based on a hub port strategy in Uruguay and the River Plate Port range in a wider context, is a particularly interesting case. The way the Uruguayan port sector imagines its place within the regional port system has been greatly changing in the last decade, driven by infrastructural development, institutional reforms, trade liberalisation and globalisation. These developments have brought quantitative and qualitative changes to the port environment and the port has been under constant pressure to accommodate changes in the structure of demand.

The current scenario is forcing commercial sea ports to design strategies which allow present and future challenges to be faced in a sector in which deregulation and competition are increasingly present. Taking into account the complexities of port development, this paper reflects on port development in Uruguay in an environment of trilateral interport competition over a congruent hinterland. The regional characteristics of port development in terms of their geographical, functional and operational characteristics are discussed by analysing the port system's evolution. The case of Montevideo as the success or failure of a regional hub port development strategy does not only impact on Uruguay. It also has direct repercussions beyond Uruguay's national borders, particularly in landlocked Paraguay, for which Montevideo is the principal gateway for containerised trade.

The success of a port depends on its ability to integrate itself effectively into the networks of business relationships that shape efficient supply chains, and to not only exploit synergies with other nodes and other players in the hinterland network of the port (Notteboom 2008), but also in its foreland.

The coordination between the land- and seaside actors in being able to form a sustainable intermodal transport system is a key factor, but depends on the behaviour of a large group of actors: shipping lines, terminal operating companies, freight forwarders, hinterland transport companies, inland terminal operators, port authorities, etc. This is particularly true for small and medium size economies that rely on the capture of external trade from third countries to be competitive.

In the case of Uruguay, maritime trade is of high importance with almost 70 percent (2008) of its trade in goods using the country's ports. Uruguay is currently working strongly on its strategy to develop its main port Montevideo as a regional logistics hub. One motivation is the size of Uruguay's economy and population with its growth potential, based on cargoes originating and destined for Uruguay, being limited. Consequently, Uruguay needs to capture cargoes from its neighbouring countries, Argentina, Brazil, Paraguay and Bolivia, to be successful in the strategy. Overcoming interport competition (Sánchez & Wilmsmeier, 2007; Sánchez & Wilmsmeier 2006) on the one hand and providing an efficient gateway to the adjacent landlocked countries (Wilmsmeier 2008) on the other hand are key determinants of reaching these set goals.

However, the Port of Montevideo is situated in an intermediate location on the River Plate in the entrance to the Paraguay-Paraná river system to act as a central gateway to the south-eastern and central (landlocked) markets of South America. The Paraguay-Paraná river

system is the main artery connecting with distant hinterlands, which gives the port of Montevideo a potential strategic advantage against its competitors, if exploited successfully.

The paper is structured as follows. Section 2 describes the theoretical framework of the evolution of port systems particularly in developing countries. The next section evaluates Uruguay's strategic location and evolution within the context of a competitive port environment in the River Plate port range, particularly taking account of the development and strategies in the maritime industry. Section 4 gives insight into Uruguay's port development and assesses the current situation in the Port of Montevideo by describing the port's infrastructure, shipping services, and regulatory framework. Section 5 discuses the findings and Section 6 concludes.

2. Theoretical Framework

Ports act primarily as gateways and as nodes within international transport networks (Bird 1980, 1983). The role of a port in the regional and global port system is determined by influencing factors from the foreland as well as from their hinterlands. The development of ports is very closely linked to their hinterlands in terms of functions and challenges (Wilmsmeier & Notteboom 2009). Besides a port's hinterland and foreland, its competitive position is determined by the relation to other ports in the long run. Bichou and Gray (2005) argue that every port is part of a port group, hierarchy and complex which is functionally interrelated at the local, national or international level. They further argue that a port is "*a dynamic phenomenon, changing in its morphology, functions and status over time. In national or regional terms, the character and functions of the various ports in a complex or hierarchy are likely to change as a result of the differential impact of factors affecting port growth.*" Bichou and Gray (2005). Using the dynamics of economic development, Uruguay aims to change its functional and historical position within the container port system (see Taaffe et al, 1963) on the East Coast of South America (ECSA). The ability of a port to develop as a logistics hub depends on both endogenous and exogenous factors. The factors that ports are capable of addressing are to do with infrastructure availability and general port efficiency. Low, Lam and Tang (2009) identify eight factors from the literature that have a potentially significant impact on port connectivity: (1) number of port calls; (2) draught; (3) national trade volume; (4) port cargo traffic; (5) turnaround time; (6) total annual operating hours; (7) average port charge per vessel; and (8) inter-modal transport capabilities. While these factors describe key port performance measures, they do not include institutional and organisational factors such as vertical integration, policy restrictions (e.g. cabotage regulation).

Conceptually, at present the ECSA can be seen as a series of load centres, where large amounts of traffic move through a limited number of facilities. However, with the increased availability of container liner services, shipping lines and shippers find it more economical to load and discharge at a single port with feedering services from numerous neighbouring ports. This process of port concentration has long been recognised in the transport model from Taaffe et al (1963) in different temporal and spatial contexts and been discussed particularly in the African context (see Hoyle & Charlier 1995). From a theoretic standpoint, a regional hub port strategy can only be successful if such a strategy results in a stabilised port system structure. This is particularly crucial in a setting of interport competition and a system where changes in the economic environment such as economic crises in the past have clearly shown port concentration being counterbalanced by port diffusion (Sanchez & Wilmsmeier 2007).

There are fundamentally two kinds of cargo: import/export cargo and transhipment cargo. Handling import/export cargo is critical for a country to develop its domestic economy and industry. Transhipment cargo is different; such cargo is not vital but optional for a country's economic development. Transhipment gives additional revenue and brings other opportunities to develop a country's logistics industry based on the resources of the transhipment cargo industry. By attracting economies of scale, transhipment activity can further benefit local exporters and imports through access to more competitive shipping costs.

From the perspective of the shipping line, the concept of transhipment is usually defined as the movement of cargo through an intermediate port en route from the origin port to the destination port, while from a port's perspective transhipment can be defined as all cargo arriving at a port from another country irrespective of the mode of transport. With the development of land transport networks and the opening of land transport borders between countries, ports compete for cargo from a larger hinterland. The hinterland is an important issue in port ranges that are no longer limited by natural boundaries. UN-ECLAC (1999) and Haralambides (2002) discuss port hinterlands becoming increasingly less captive and their geographical reach often extending beyond national boundaries.

It is neither sufficient to see the limits of a port's hinterland as determined by national boundaries, nor to restrict the hinterland to the reach of road, rail nor inland shipping networks. Sanchez and Wilmsmeier (2006) broaden the concept as they argue for the inclusion of the "maritime hinterland", which they define as areas with ports to which it is economically feasible to provide feeder services, and therefore are a potential market for the port. This definition goes beyond the definition and discussion of Notteboom and Rodrigue (2005) and their concept of the expansion of hinterlands (see illustration below). While these authors are well aware of the landside competition and expansion of hinterlands, they leave out the competition in the "maritime hinterland", which is a key aspect to the development of the hierarchical port network. This development has brought a new level of port competition. Hoyle and Charlier (1995) argue as far as saying that the idea of hinterland is no longer of relevance "*in advanced societies and in a context of intermodalism*".

Sánchez (2003) adds that in economic terms it is clear that the port industry has been able to overcome problems of prices and quality, and capacity has extended the concept of hinterland in accordance with the efficiency of operation of the transport market and ports. Consequently, a hinterland may be "core" or "extended" or "natural" or "distant", but at its heart it is a market. As a result, the hinterland is decisive for port development and success, and making discontinuous and "maritime" hinterlands economically accessible and dependent will determine the port's future.

Figure 1 Expansion and Change of Hinterlands

Hesse (2206) refers to intermediacy in terms of geographical distance or from a network perspective. Haralambides (2002) argues that shipping lines have developed a keen interest in landside operations and in the reconfiguration and synchronisation of liner schedules. He demonstrates that the tendency towards cargo concentration in a limited number of ports has led to the redesign of collection and distribution networks in the hinterland. Further cargo bundling in the foreland-hinterland continuum towards even fewer ports and inland centres is only interesting from a cost perspective if considerable economies of scale and density can be realised in the associated hinterland networks. The more cost-efficient the network becomes, the less convenient that network could be for shippers' needs in terms of frequency and flexibility. As such, the future spatial development of liner schedules and inland service networks will largely depend on the balance of power between carriers and shippers (Notteboom 2002).

According to Rodrigue (2010), the hinterland shapes growth potential by anchoring traffic and offering cargo rotation for inbound and outbound container flows. In the case of Montevideo, this includes corridor development through barge and rail services to inland production and consumption centres.

Trade liberalisation, land infrastructure development, and new logistical concepts in the organisation of international transport of containers have had an equally profound effect on the port industry. An important question is to what extent ports are aware of these macro changes and if these developments are included in their current strategies. Governments are increasingly realising that, from mere interface points between land and sea, "*ports have become the most dynamic link in international transport networks and, as a result, inefficient ports can easily wither gains from trade liberalisation and export performance*" (Haralambides 2002). The authors argue that even if governments are aware of these changes, it might be "*simple*" geographic reasons which impede even a strong port performance based on a good matching framework fit from developing in the anticipated manner. A major reason is the reduced 'loyalty' of a container to any given port and its ability to switch between ports with relative ease. The price elasticity of demand for container handling services has thus become rather high (Haralambides 2002).

Looking beyond traditional spatial concepts of captive port hinterlands, the Uruguayan government is proactively seeking to shift port competition to the cross-border level. The instigation of new logistics strategies and developing the gateway role for South America's landlocked countries raises the expectations of being able to effectively compete for far-reaching cargoes with far-distant counterparts (World Bank 2009). However, the increasing channel control and bargaining power of shippers and ocean carriers in international shipping and logistics significantly influences the potential development of Montevideo as a regional hub port. Recognising the importance of the hierarchical port development, this work focuses on the actual competitive port situation in Montevideo and the influences in the port's foreland. The potential of a port from a foreland perspective critically depends on its embeddedness in the global liner service network. This embeddedness is determined by its geographical location, particularly intermediacy and the level of connectivity. The latter is influenced by the level of demand, port efficiency, logistics performance, and port accessibility.

The authors argue that these factors are reflected in international maritime transport costs and thus after analysing the port situation they analyse these determinants in an econometric model. Since artificial barriers to trade, and, more specifically, tariff barriers, have been falling in the last decades, freight costs have emerged as an important determinant of international trade and competitiveness. Generally, countries are likely to benefit more, in terms of welfare, from reducing shipping costs than from a further reduction in artificial trade barriers (Wilmsmeier & Martinez-Zarzoso 2010).

3. HINTERLANDS AND MARITIME CONNECTIVITY

3.1 Setting the scene

The port of Montevideo is located in the River Plate Basin, and is in direct competition with two other ports in the region, Buenos Aires, Argentina and Rio Grande, Brazil. The hinterland of the three ports stretches along the River Plate port range.[1] The River Plate Basin comprises a large geographical region of four countries: Argentina, Brazil, Paraguay and Uruguay. The River Plate estuary consists of the 450 km long basin made up of the mouth of the Parana and Uruguay Rivers and the Rio de la Plata. The approach to refer to the River Plate port range as a single market follows Sánchez & Wilmsmeier (2007) who analysed the port performance of Buenos Aires and Montevideo throughout the economic crisis in 2001/2002 and in a subsequent work included Rio Grande in this concept (Sánchez & Wilmsmeier 2006).

Map 1 South America. The three southern Brazilian states and River Plate estuary

Source: Maruba 2010

Notes: River Sea distances from Rio Grande (RS), to Santos (SP): 606 nautical miles (nm), to Paranagua (PR): 499, to Sao Fco. do Sul (SC): 461, to Buenos Aires: 429, Itajai (SC): 411, to Montevideo: 332. From Montevideo to Buenos Aires: 129 nm

Population is highly concentrated around the capitals in Uruguay and Argentina creating the greatest demand for imports in the River Plate Basin. Currently, around 1.7 million people live in the port-cities of Uruguay (40% of the national population) and 17 million inhabitants on the Argentina side (44% of national population in 2001), adding up to a total of almost 19 million in the area (Bazan-Lopes 2004). In turn, the state of Rio Grande has a total population of 10.6 million people, Sao Francisco do Sul 5.4 million and Paranagua 9.6 million.[2]

In terms of port throughput Buenos Aires was the biggest port of the three in 2009, handling 1.412 million TEU (2009), a reduction of 20.7% in comparison to the previous year.

[1] The word "range" refers to a geographically defined area encompassing a number of ports with a largely overlapping hinterland that thus serve much the same customers. See Van de Voorde and Winkelmann (2002), page 6. Similarly, Notteboom speak about 'port system', defined "*as a group of ports sharing a similar geographic characteristic, e.g. coastline, bay and to some extent serving overlapping hinterland regions*".

[2] According to data from the Year 2000 Census.

Montevideo handled 588 thousand TEU in the respective year, a drop of 12.9% in comparison to 2008. The development of Rio Grande (630 thousand TEUs transferred in 2009) has been notable. In 2009, the port was the third busiest port in Brazil behind Santos (2.256 million TEU, 2009) and Paranagua (630 thousand TEU, 2009) and despite the economic crisis displaying a growth rate of 4.7% in comparison to the previous year (UN-ECLAC 2010).

Rio Grande takes an intermediate position in the global shipping network, since Montevideo and Buenos Aires are, in general, the last ports of call in this region. An additional strength of Rio Grande is the economic development in its natural hinterland. Rio Grande's intermediate geographic location in combination with its productive and likewise protected hinterland makes the port competitive to the ports directly based in the River Plate Basin to establish as a regional hub. During the last decade, Rio Grande has undergone a rapid expansion, leveraging the competitive situation between the Ports of Buenos Aires and Montevideo in the River Plate port range, offering ample conditions to compete for the cargo destined for the River Plate region and the upriver hinterland.

Thus any strategy to develop the port of Montevideo as a regional hub has to this trilateral interport competition take into account.

3.3 Trade development

International trade in Uruguay has grown considerably in recent years. Following the 1999-2002 economic slowdown, both exports and imports experienced high levels of growth. Total exports of goods accelerated between 2002 and 2008, growing at an average rate of 21.8 percent per year. Following the devaluation of the Uruguayan peso in 2002, exports of services grew 188.0 percent between 2002 and 2008. In 2008, exports of goods increased 39.5 percent and reached a record high of US$9.3 billion. This was equal to 21.8 percent of GDP in 2008. Total merchandise imports closely tracked economic activity since 1993. Between 2002 and 2007, imports have grown 23.7 percent per year on average between 2002 and 2007, to reach a value of US$5.6 billion in 2007, increasing from 16.0 percent to 24.2 percent of GDP.

Uruguay’s trade balance, typically negative in the 1990s, registered surpluses averaging 2.4 percent of GDP over 2002-2005 and has been roughly balanced in 2006 and 2007, largely due to strong performance of net exports of services. In 2008, led by strong growth in merchandise imports, the trade balance posted a 2.3 percent of GDP deficit in 2008.

Imports from Argentina and Brazil account for about half of Uruguay’s total imports, while Europe and North America are key export destinations. Uruguay receives 57% of imports from Latin American and the Caribbean, with Argentina (26.0 percent) and Brazil (25.3 percent) accounting for the bulk of them. Exports are more geographically diversified and only 39 percent of total exports remain inside LAC. Brazil receives 15.3 percent of total exports and Argentina 7.9 percent. Europe, Asia and North America are important export destinations outside of LAC, accounting for 26.6 percent, 12.4 percent and 12.3 percent of total exports respectively (World Bank 2008).

In terms of value, 55 percent of external trade is transported by sea, 33 percent by road, 9 percent by air and about 1 percent by rail. Extra-regional trade is dominated by waterborne transport, while regional trade is dominated by road transport. Despite a substantial coastline, about 80% of Uruguay’s trade with Brazil and with Argentina travels by road.

3.2 The shipping market

The East Coast of South America (ECSA) lies outside the triad and of the major global shipping lanes. Multiplication of container trade volumes on the ECSA over the last two decades has lead to changes in shipping services supply and strategies from shipping lines. The ship sizes deployed for services to the region have increased continuously (see UNCTAD 2008, Wilmsmeier 2010) which has driven port infrastructure development efforts in all three countries on the ECSA. Port infrastructure development has lagged behind and draft

restrictions in ports have repeatedly been a concern for trade development and competitiveness in the region (Sanchez & Wilmsmeier 2005). Traditionally, the port system on the ECSA was constructed as a series of load centres, but in recent years shipping companies have been seeking to establish regional hubs for their services. Due to the overlapping hinterlands of the River Plate basin ports, competition in this regard has been significant.

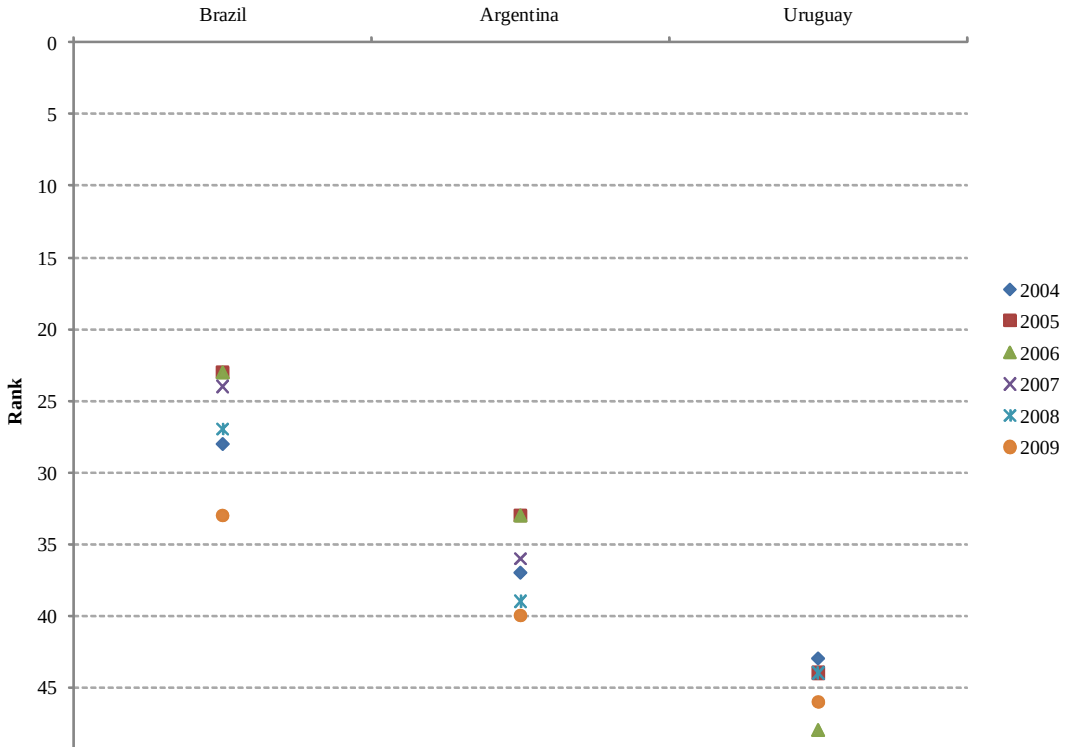
The level of connectivity of a port is one important factor in describing its centrality within the global liner shipping networks. The level of connectivity of a port is a result of a shipping line's port choice and thus gives an indication of the port's competitiveness (Low, Lam & Tang 2009). The authors use UNCTAD's Liner Shipping Connectivity Index (LSCI) which aims at capturing a country's level of integration into the existing liner shipping network by measuring liner shipping connectivity. LSCI is considered a proxy of the direct accessibility to global trade. The higher the index, the easier it is to access a high capacity and frequency global liner shipping network and thus to effectively participate to international trade.

Uruguay displays a lower shipping line connectivity index (LSCI) than its neighbouring competing countries. In 2009, Uruguay scored 22 and was ranked 46 (Figure 1). By comparison, Brazil and Argentina had respective ranks of 33 and 40. This suggests that Uruguay in terms of overall direct connectivity trails behind the other two countries. However, this impression is skewed because: a) the LSCI only measures direct connectivity and does not take transhipment into account; and b) the LSCI measures connectivity at country level and not at port level. Though the country's score improved from 16 in 2004, its rank decreased from 44 to 46 between 2004 and 2009. Other countries therefore experienced a greater increase in their level of direct connectivity relative to Uruguay (UNCTAD 2009).

A further available indicator that also measures the indirect connectivity of a country is the transhipment connectivity index (World Economic Forum, 2009). This index aims at reflecting the geographical aspects of the liner services supply and is based on the type of liner shipping service connections available to shippers from each country/economy on bilateral routes ranging from a first- to a fourth-order connection. In the absence of a direct liner service between two countries, the cargo will have to be transhipped in a port of a third or even fourth country in order to reach the destination country. A first-order connection is a connection without transhipment; a second-order connection is a connection with one transhipment and so on. First-order connections have the most positive impact on cargo movement. Therefore, the type of connections per country has been weighted as follows: first-order connections are multiplied by 1.0, second order connections by 0.5, third-order connections by 0.33 and fourth-order connections by 0.25. The score is the sum of the four connection types. The indicator reflects ship deployment in August 2008. The data were indexed by the maximum value in 2008.

Uruguay ranks in 54th position in 2008, while Argentina is ranked in 44th and Brazil in 24th position. Even taking into account the weakness of the two previously described indices in their use of data at country level, it becomes clear that Uruguay faces strong competition in its strategy of developing as a regional hub.

FIGURE 1: LINER SHIPPING CONNECTIVITY INDEX



Source: UNCTAD (2009)

Considering the given indication of strong competition derived from the level of connectivity at macro level, it is necessary to take a closer look at the underlying reasons and consequences.

One significant indicator is the development of capacity supply and its structure. Capacity supply on the ASIA-ECSA trade was almost stagnant between 2000 and 2003, but then quadrupled until 2008 (Sanchez & Wilmsmeier 2010).

Sanchez and Wilmsmeier (2010) describe the cooperation of global shipping lines with regional partners, like Alianca, Maruba, Libra-Montemar, and rate it as a key to success as only such alliances allow one to overcome Brazilian and Argentinean cabotage restrictions, which is of high importance, considering the extensive coast lines of the two countries. They find that CSAV operates a Brazilian sister company to overcome the challenge of cabotage restrictions in Brazil, while the alliance of CMA CGM and partners cooperate with Maruba, for Argentina, and CSAV, for Brazil. This strategy allowed these groups to expand in the market between 2000 and 2008. A group formed by Maersk and HSDG uses Alianca as the "entry card" to capture intra Brazilian trade, since Buenos Aires is the last and only port of call in the calling pattern of that group and having an Argentinean partner is not decisive. Both strategies aim to overcome restrictions to realising economies of density in the ECSA trades. Observing the expansion of the market share of these groups in the different ECSA trades seems proof of the success of this strategy.

Montevideo is currently benefitting from CSAV's strategy to intensify the use of Montevideo as a transhipment hub for cargo from Southern Argentina. The port in this case is also benefitting from the existing cabotage restrictions that restrict foreign flagged vessels from moving cargo between Argentinean ports.

Sanchez and Wilmsmeier (2010) conclude that the ECSA markets are well defined as the main trades are operated using point-to-point and string network structures. However, they find evidences for concentration in liner shipping trades and argue that "*while concentration might not affect main global trade lanes within the triad more peripheral trades might well be affected*". This carries a potential risk for the economies and port development strategies in these regions as collusive behaviour of liner shipping service providers might significantly

impact on the level of connectivity of a port and make ports vulnerable to the use of negotiating power of shipping lines, particularly in competitive port ranges like the River Plate basin.

Besides the general increase in shipping capacity (Sánchez & Wilmsmeier 2009), the capacity for reefer containers has grown more than threefold between 2000 and 2007 (UNCTAD 2008). The changes in trade composition and the growing importance of food products (e.g. fruits and fish) have also increased the demand for capacity for the transport of refrigerated cargo. Montevideo has significant potential to play a role in the reefer trade, based on Uruguay's tradition as an exporter of food products (i.e. bovine meat) and the related knowledge based in the Uruguayan logistics industry.

Consequences from the development in the liner shipping market are reflected in the relevance of liner shipping network structures for international maritime transport costs.

Wilmsmeier and Martínez-Zarzoso (2010) show in a panel data analysis (2000-2004) the relative importance of geographical distance and liner service network structure on maritime transport costs. The results indicate a significant effect of the liner service network structure (LSNS) on transport costs. The more centrally a trade route is located in the maritime liner service network the lower the average transport costs. This opens the important discussion on the "cost" of being peripheral. The found elasticities show that the impact of being peripheral in the maritime network is higher than the impact of distance. Network peripheral countries pay higher prices for transporting their exports, especially when they trade with other peripheral countries. Countries that are both peripheral in the maritime network and distant from other export markets face higher freight rates. Location is an important issue on the ECSA given that countries are located at the endpoint of the global maritime liner shipping network. Thus the expansion of a hierarchical network, with growing importance of transhipment centres, carries the risk of certain regions becoming even more peripheral.

Wilmsmeier (2009) integrates the impact of centrality in the empirical analysis using a "transhipment connectivity index" which measures the centrality of a country within the global shipping network, taking transhipment requirements into account. His results show that if a country can "double" its centrality in the network, meaning a significant increase in direct and indirect liner services to a wider range of countries, transport costs can decrease up to 15.4 percent. This important finding needs to be seen in the context of the influencing variables of liner network connectivity such as ship size and frequency, which are determined by the overall level of trade, geographic position and last but not least port infrastructure endowment and development options. Port connectivity has a greater impact on transport costs than transit time and port movements. An improvement in port connectivity of 10 percent reduces transport costs by 9.8 percent for Uruguayan imports (8.9% and 9.7% for Brazil and Argentina respectively) (World Bank 2009).

Additionally, the results underline the fact that the position within the maritime network has a more significant impact than the notion of distance which only expresses the geographical distance between the trading partners, but not the quality of the liner shipping network to breach that distance.

The functioning of the network and its structure involve complex interaction patterns that subsequently influence the cost of transport and also the potential of a port to act as a regional hub. Economies of scale matter in relation to the liner service structure. Scale economies are the greatest for Brazil, which is to be expected given the size of Brazil's hinterland. Therefore, hinterland expansion in an effort to increase the scale of demand and supply is crucial for Uruguay to increase international competitiveness in maritime transportation.

4. DEVELOPING A REGIONAL HUB PORT IN MONTEVIDEO

4.1 Current port situation and development

Montevideo, Uruguay's principal port, despite its favourable location, in its development strategy is required to be competitive in terms of commercial and technological evolution (Perez-Labajos & Blanco 2004). Countries in emerging markets, such as the ECSA, have had to modify the structures and strategies of their ports in order to remain competitive. In Uruguay this change has been driven by efficiency and effectiveness objectives.

Services within the Port of Montevideo are provided by both the private and public sectors (Sánchez & Wilmsmeier 2007). Within Uruguay, inter-port competition exists between port terminals in Montevideo and Nueva Palmira. The regulatory framework for private port operations in Uruguay is progressive, but there are still restrictions on the type of cargo that can be handled, mainly to minimize competition with the public ports. Traditionally, Montevideo focused on cross-border inter-port competition, particularly with Buenos Aires, Argentina and to a certain extent with Rio Grande, Brazil, (Sánchez & Wilmsmeier. 2007). A second terminal in the Port of Montevideo is expected to be developed by 2015, potentially with a different operator. This will add a new dimension to the competition within the River Plate Basin.

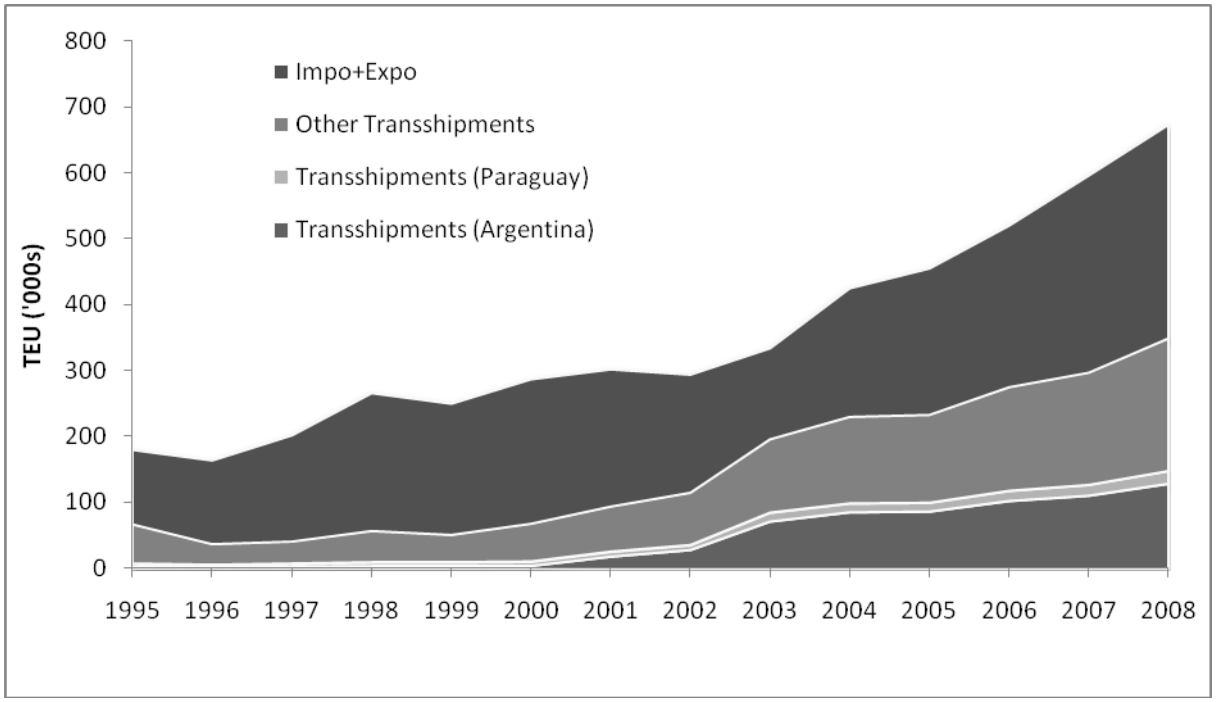
Key aspects of the port's attractiveness from a terminal operator's point of view are its central location in the south-eastern South American market, its free-trade-zone status, more competitive transit times to major destinations than from Buenos Aires, low port costs[3] and the river connection Paraguay-Paraná to the inland production areas. However, key factors determine the competitiveness of a port: physical, functional and administrative intermodality and logistics, the location of the port, its accessibility, and capacity for diverse traffic (Winkelmans 1991).

The Port of Montevideo has an average depth of 10.50m (the approach channel is 11.50) but is prone to siltation. Authorities are currently dredging the approach channel to between 11.50 and 12.50 metres. Already completed work enabled the River Plate Hamburg Sud vessel to operate in Montevideo and Buenos Aires for the first time in early 2009, carrying 5905 TEU.

Port volumes handled at Montevideo have more than doubled over the past 9 years (Figure 2). In 2008, transhipment cargo accounted for 52 percent of the 637,000 TEU handled by the Port of Montevideo. Transhipment increased sharply from about 70,000 TEU in 2000 to 350,000 TEU in 2008, due to a sharp increase in transhipment from Argentina, which increased from 4,000 TEU to 128,000 TEU over the same period of time. Transhipment cargo from Paraguay makes up a small portion of overall transhipment cargo (19,000 TEU). Sgut (2009a) estimates that 71.1 percent of cargo transhipped in the Port of Montevideo is destined for Northern Europe, 21.0 percent for the Mediterranean and 6.1 percent for North America (Figure 3).

[3] Up to three times lower than in Buenos Aires in 2003

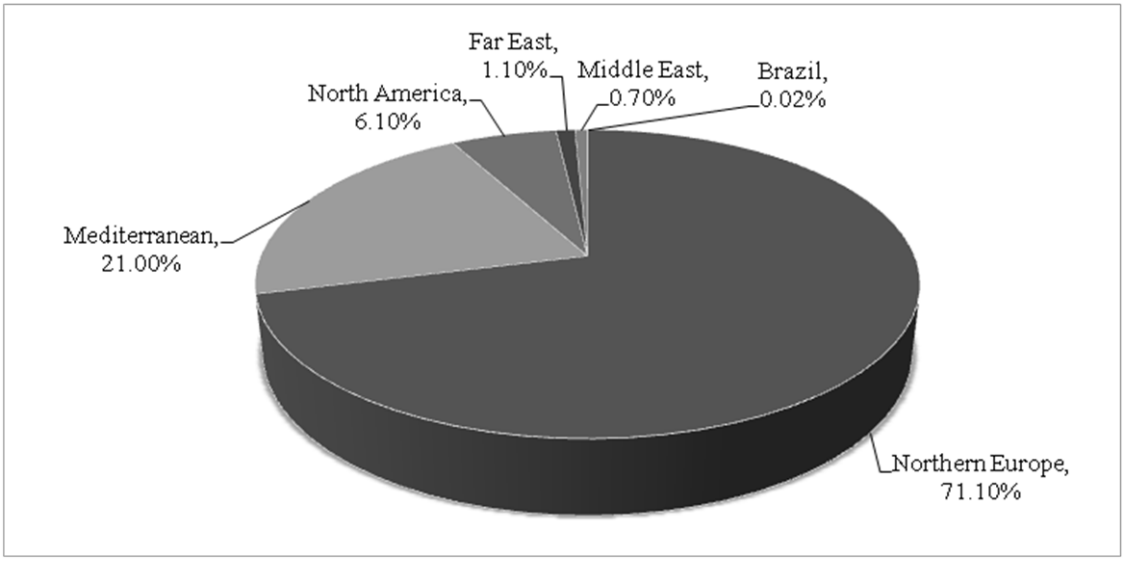
FIGURE 2. CONTAINERIZED CARGO TRAFFIC IN THE PORT OF MONTEVIDEO, IN THOUSANDS OF TEU



Source: Sgut (2009a).

The strong growth in transhipment cargo from Argentina since 2002 has been driven in particular by refrigerated containers of fruit and vegetables from Patagonia. This development can be explained by three main factors. Firstly, in 2002, the container port terminal Cuenca del Plata became operational. TCP is operated by the Belgium consortium Katoen Natie which holds 80 percent of the shares; the National Port Authority (ANP) owns 20 percent. The privatisation of the terminal consolidated the modernisation process of the port system which began in 1994 with the Free Port law, and was not restricted by conditions to horizontal mergers as in the case of Buenos Aires. Thus this development allowed Montevideo for the first time to proactively engage in interport competition with Buenos Aires. Secondly, Argentine exporters have increasingly used the Port of Montevideo because transhipment operations in Montevideo save one day of transit time for fruit exports; by way of example, transhipment of fruits and vegetables from San Antonio Este and Bahía Blanca account for 70,000 TEU of total volume handled by the Port of Montevideo. Thirdly, lower port costs made the port of Montevideo more attractive to exporters, particularly during the economic crisis and the years thereafter. The port in Argentina continued to operate free tariffs in USD during the period of devaluation of the Argentinean peso in 2001/2002, which weakened the port's competitiveness in comparison to Montevideo.

FIGURE 3. TOTAL EXPORTS OF CONTAINERIZED CARGO TRANSHIPPED IN MONTEVIDEO, DISTRIBUTION AND DESTINATION



Source: Sgut (2009a).

The number of containers handled is also affected by the quality and quantity of support infrastructure provided, such as the number of container berths and gantry cranes. The number of quay cranes is closely related to the number of TEUs per quay crane hour. Presently available infra- and superstructure is shown in Table 1.

TABLE 1. INFRASTRUCTURE AND SUPERSTRUCTRUE FOR CONTAINER OPERATIONS, PORT OF MONTEVIDEO, 2009 AND PLANNED FOR 2010

	2009		**2010**	
	Terminal Cuenca del Plata (**TCP)**	**Public Berths 3,4,5,8 &9**	**TCP**	**Public Berths 3,4,5,8 &9**
Gantry cranes	4		8	
Mobile cranes		6		6
Berth (m)	288	819	588	819
Area (hectares)	15,2		30	

Source: ANP (2009)

4.2 Institutional development and role of port reform

"We should not forget that our country was born as an independent nation mainly due to the conflict of interests between the Buenos Aires and Montevideo ports. Ultimately, this was the only actual reason why Uruguay came to be, not just the 'Eastern Bank' but a Republic. It was precisely the interests of Buenos Aires, favouring that city, and the comparative advantages of Montevideo which have always been behind the conflict that gave rise to our nation. Also, it shows what Great Britain ultimately pointed out: that the River Plate should not be a port of only one nation." (Senator F. Bouza in the Uruguayan Senate 1991, quoted in Gorosito Zuluaga 1993).

Uruguay's restricted internal market and historic development lead the port to seek success in inter-port competition at the operator and port authority level (for details on the concept of port competition see Van de Voorde & Winkelmans 2002), focussing on capturing transhipments and offering value-added services in addition to its own cargoes. Uruguay's port strategy of increasing its regional influence and, finally, developing as a regional

transhipment and logistics hub has its roots in the 1992 Port Law and its associated decrees - Ley de Puertos (Port Act) No. 16246 and Decretos (decrees) 412/1992 & 413/1992 (Hodara, et al. 2008).

These were landmarks in the process of enhancing the competitiveness of Uruguayan ports. As the legal basis of Uruguayan port policy, they introduced eight main principles: (a) continuity of services, "service started, service completed" principle; (b) provision of safety; (c) provision of regularity; (d) maximum productivity and efficiency; (e) mandatory coordination and collaboration for the best service; (f) free competition; (g) equal rights; and (h) freedom of choice for consumers. The port law also reflects the idea that the efficiency, safety and reliability of a port system are its guiding principles, as well as defining free-port contexts and their operational arena[4], port customs areas, the basic merchandise system and foreign-trade zones. The subsequently clear port policy (section 3 of decree 412/1992) and the defined role of the Administración Nacional de Puertos (ANP)[5] worked towards and delivered a greater efficiency of ports and competitiveness in foreign trade. Consequently, ANP has been proactively pursuing the aims of ensuring free merchandise circulation and competition, as well as advising the government on transportation policies.

The success of Uruguay's port and transport strategy became clear during the economic crisis 2001/2002 (Sánchez & Wilmsmeier, 2007), when Uruguay was able to cope with the negative impacts of the crisis in a better way than Argentina, and even expanded its market shares over Buenos Aires. Since then, Montevideo has maintained the strategy of inter-port competition and peripheral services over time, including transhipment capture goals, value-added services and free merchandise systems, with corporate and historical precedents.

The important institutional aspect of its free-port status has brought advantages in terms of inter-port competition. Montevideo can benefit in several ways form its foreign trade zone. Voss Hall (2002) argues that these benefits can be defined as static and dynamic. He refers to the tax advantage as being a static advantage, while the dynamic benefits arise from the possibility of using the policy as a regulating tool to cope with arising uncertainties in demand levels, product mix, trade regulations etc. Further he adds that it is a tool that allows for the institutionalising of relationships between the port authority and trade firms in regard to trade promotion, real estate development etc. In fact, one of the major reasons behind the sustained growth in traffic over the last eight years in the Port of Montevideo was its development as a free port.

4.3 Current challenges in increasing port competitiveness of Montevideo

Though the port regulatory framework in Uruguay is progressive, it still has several weaknesses. Specifically, there are four main restrictions at all levels, domestically and at regional level:

- There is no one government agency vested with all the necessary structure and resources to execute policies for the Merchant Navy. Currently, control functions are divided between the Ministry of Defence and the division that deals with maritime and river transport within Ministry of Transport.
- The absence of a bilateral cabotage regulation with Argentina provides a competitive advantage to shippers who export from the Argentine river coastline area, where regular services do not exist. The exporters in these ports choose to hire feeder

[4] The Port of Montevideo has operated as a Free Port since 1992. It was the first terminal in the Latin-American Atlantic coast to have merchandise circulating freely without the need for formal authorisation and paperwork. This transformed the port into a logistics centre, where international companies could centralise their merchandise for later distribution in the region. The operations which this law permitted were those referred to as "logistic commodity", which includes loading and unloading, stuffing and un-stuffing of containers. The Free Port provisions act as an umbrella protection for the merchandise in the region.

[5] National Port Administration

services to Montevideo and then use river transport to the destination port. By so doing

  - they can use any ship, e.g. ships running flags of convenience in the stretch from the origin to Montevideo at a lower cost than the freight cost to Buenos Aires, where an Argentine ship would need to be used;
  - Patagonia traffic transhipped in Montevideo saves one day in comparison to Buenos Aires as Montevideo is the entrance and exit through the River Plate.

- The Brazil-Uruguay agreement of water transport does not protect Uruguay from bilateral water traffic with Argentina. Even though Uruguay has entered into a treaty with Brazil according to which bilateral traffic must be made preferably with ships having both flags, in practice there is little bilateral traffic between them and even then it is typically made by road. The agreement therefore does not significantly add much to the available transportation options. In fact, given that Uruguay practically does not have a fleet, the country authorises third parties to operate in both countries almost systematically.
- Restrictions to freedom of navigation through the waterway affect the participation of the vessels registered under the Uruguay flag.

For some time, MERCOSUR's sub group 5, based on a Brazilian-Argentine initiative, has been discussing the possibility of entering into a "MERCOSUR Water Transport Agreement". In particular, Brazil and Argentina have promoted the agreement with the support of Paraguay, Bolivia, and Venezuela. However, Uruguay's stand on this issue differs from the rest, as it seeks to limit the scope of the agreement regarding exchange cargo, while Argentina and Brazil want to include all transit cargo. Uruguay perceives the multilateral water transport agreement between all MERCOSUR countries as a threat to the participation of Uruguay registered vessels (Andean Development Fund 2008).

This difference arises from the fact that if the agreement were to be concluded, the cargo being transported today between Argentina and Uruguay t transhipped in the latter would be exclusively carried by vessels holding flags of the region. This would limit the access to this service, and, in practice, freight prices would rise and the Port of Montevideo would have a reduced competitive advantage.

In fact, users are as well generally against the proposed agreement as they fear that limited supply would increase transport costs. The Confederación Nacional de la Industria (CNI) in Brazil, the Unión Industrial Argentina (UIA) in Argentina, and the Unión Uruguaya de Exportación (UEU) in Uruguay have different stands regarding the possible agreement. This is despite the fact that the agreement is not consistent with the general tendency towards global water transport liberalization and that the hypothesis of a cross trade restriction in virtually all the East and North coast of South America would probably imply retaliations if applied.

Within MERCOSUR, the various agreements between countries influence the relative competitiveness of the ports and shipping services in the region. In particular, the agreements affect feeder transit services and ultimately the possibility of growing transhipment services (Table 2):

TABLE 2. CONNECTIVITY CHARACTERISTICS OF THE PORT OF MONTEVIDEO WITH NEIGHBOURING COUNTRIES

Country	Port	Observations
Argentina	Buenos Aires	There is high competitiveness, both in the Ro-Ro land connection through Juan Lacaze and in the direct river connection.
	Bahía Blanca – Puerto Madryn	There is high competitiveness in water transport services, services to Brazil are the most competitive due to the freedom in the flag used.
Bolivia	Santa Cruz de la Sierra	There is great potential to develop river transport but this has not yet been developed due to an infrastructure deficit and an underdeveloped market.
Brazil	Santos-San Paulo	Uruguay has no comparative advantage due to restrictions in the use of flag. Land transport alternative is also not competitive due to distance.
	Rio Grande	Similar to Santos there is no comparative advantage due to restrictions in the use of flag. As for the land transport alternative, it is somewhat competitive. It could be more competitive still if no delays existed at the Chuy border crossing point.
Chile	Santiago	Neither land nor maritime transport are considered competitive.
Paraguay	Asunción	River transport to Montevideo is competitive. However, this is not the case with land transport except for high-value merchandise going to Ciudad del Este. Both options are affected by the Paraguayan import inspection policies of Uruguay customs. As a result 85% of these transits are made from Buenos Aires.

Source: Authors

Generally several problems create inefficiencies in port operations. It is not possible to track cargo through the port, a requirement in certain e markets due to raised international security standards. Currently, there is a lack of a system that connects public and private agents operating in the port. This unnecessarily multiplies transactions. The tendency in the region is to adopt single windows to speed paperwork processing both before and after the import/export authorisation in the port, independently of the need to optimise interactions between those involved in port operations. The estimation is that for every container passing through the port, a minimum of 27 documents are generated at a cost US$ 5 each. The total cost of paperwork is therefore as much as US$135 per container (Sgut 2009).

Traffic in the River Plate Basin is expected to reach 3 million TEU by 2015 and 3.5 million TEU by 2020 (World Bank 2009). This demand in growth can only be absorbed if port access in Montevideo and Buenos Aires are improved in order to overcome congestion and reduce the impact of the ports on these two cities. Further, the currently available infrastructure will not be able to cope with this growth efficiently, which gives room for discussion on introducing a further competitor in the market by developing a new terminal or port.

5. DISCUSSION

The analysis illustrates the role of Montevideo in the River Plate Port range, the current liner shipping strategies to serve the region and the development of interport competition. The case of Montevideo exemplifies the struggle of historic load centres in the current period of restructuring of liner shipping networks. Rio Grande can be seen as a Newcomer port in the region and after a short period of time is challenging traditional structures on the port network (Sanchez & Wilmsmeier 2007). Brazil's economic growth and implied export oriented trade strategy paired with the growing demand of shipping lines through increases in ship size (draught) and cost efficiency all work to convert the traditional competition between Montevideo and Buenos Aires into a tripartite competition.

While the geographic position is crucial, the position in the liner shipping network is decisive in terms of competitiveness and is very likely to be reflected in the maritime transport costs of a specific country. Consequently, Uruguay is in an inferior position to the other two countries at this point in time. Further, the decision to use a port as a port of call in a liner service is made by the shipping line and does not include any direct influence from the port. Rio Grande has recognised its beneficial position of intermediacy for the services on the

ECSA, which in combination with the centrality to the direct hinterland in Southern Brazil and the access to the discontinuous hinterland in Argentina, Uruguay and along the Paraguay-Parana river system, puts it into a favourable position to develop as a regional hub. While the geographic position is crucial, Montevideo suffers from missing economies of scale in its direct hinterland and infrastructure deficits particularly in terms of maritime accessibility. However, institutional uncertainty and inter-terminal competition in Buenos Aires as well as the current cabotage regulations play in favour of Montevideo.

Based on its geographical location, Uruguay can serve as a sub-regional hub for the Southern Cone. In particular, Montevideo is well located to serve Paraguay and other traffic from all its immediate neighbours. For this to happen there is the need to develop seamless interfaces between the sea and land transport systems, which are still a weakness. Competitiveness in maritime transportation costs is essential for Uruguay's position as a logistical hub. Lower shipping costs will not only benefit local exporters and importers, but also strengthen Uruguay's position as a transhipment hub and gateway for regional trade. This is especially true since the country is the smallest economy on the East coast of South America and thus in order to be able to develop as a hub is dependent on the use of its infrastructure by its neighbours. Further, Uruguay in general and Montevideo specifically are the gateway for Paraguayan East bound trade. The more Uruguay can facilitate Paraguay's access to maritime trade services the more it will benefit from increasing trade and the related positive effects. The development of inland shipping as well as a rail link to Southern Brazil would seem imperative.

Montevideo does not at present have a large number of vessel calls. If the Port of Montevideo can strengthen its position as a hub port and consequently increase the number of direct services calling at the port, the resulting lower transport costs would benefit transhipments, transit as well as local trade. Furthermore, economies of scale through a greater scale of port operations are identified. Improved access to the extended port hinterland as well as investment in port infrastructure to attract greater levels of transhipments would be important in increasing the scale of port operations. However, such economies can only be realised, if the investment in infrastructure is matched with the required growth in demand.

Uruguay has a progressive regulatory framework for sea and river transport services. However, the use of bilateral agreements has created an environment of uneven competitive arrangements. It is important that there is harmonisation in the regulatory frameworks, ideally developed under the umbrella of MERCOSUR.

Finally, improvements in customs efficiency would also help to increase Uruguay's competitive advantage as a regional distribution centre and a trade gateway for MERCOSUR.

6. CONCLUSIONS AND FURTHER RESEARCH

The paper shows that despite strong efforts, Uruguay and its principal port Montevideo are highly dependent on external factors, particularly the level of connectivity, in their strategy to develop Montevideo as a regional hub. In terms of its position within the global liner shipping network, Montevideo is in an inferior position to its two competitors Buenos Aires and Rio Grande. Beyond this empirical evidence, it is confirmed that the greater the connectivity of a port or country the lower its international transport costs. This again is a factor that can impact on Montevideo's competitiveness. However, the current evidence is taken from a country level analysis and further analysis at port level should be conducted in the future to overcome these restrictions. The current generalisation gives the analysis a similar weakness as that described for the LSCI and transhipment connectivity index, because it does not account for the differences between individual ports.

The proactive nature of the related Uruguayan institutions and agencies has made important contributions in driving Montevideo's transhipment traffic and success in capturing transhipment in the past has proven the effectiveness of the strategy. However, with the

expected continued traffic growth, infrastructural restriction can become evident soon and the effectiveness of the institutions will then be proven if they manage to prepare port development to cope with the rising demand. Further, the discussion also shows that the current attractiveness of Montevideo as a transhipment port is partly driven by existing cabotage regulations and the strategies developed from shipping companies to overcome these restrictions. Therefore, the current benefit from the situation will last as long as shipping lines' strategies continue in their current form. Finally, future development will significantly depend on the ability to further develop value added and logistics services that attract cargo beyond the reason of the previously mentioned cabotage regulation.

ACKNOWLEDGMENTS

This paper is dedicated to the memory of Captain Martin Sgut a true mariner, dedicated and visionary man, and a good friend.

REFERENCES

Andean Development Fund (2008): Water Transport Subsector Analysis: Future Actions for Improvement. Caracas, Venezuela

Bichou, K. and Gray, R. (2005): A critical review of conventional terminology for classifying seaports. Transportation Research Part A 39, 75–92

Bird, J.H. (1980): Seaports as a subset of gateways for regions. Progress in Human Geography 4(4), 360-370

Bird, J.H. (1983): Gateways: slow recognition, but irresistible rise. Tijdschrift voor Economische en Sociule Geografie 74(3), 196-202

Gorosito Zuluaga, R. (1993). La reforma portuaria. Montevideo, Fundación de Cultura Universitaria, July.

Haralambides, H. (2002): Competition, excess capacity, and the pricing of port infrastructure. International Journal of Maritime Economics 4, 323-347

Hesse, M. (2006): Global chain, local pain: The regional implications of global production and distribution networks in the German North Range. In: Growth and Change 32 (4), 570-596

Hodara, I., Opertti, J., and Puntigliano, F. (2008): Logistic Uruguay. Banco Central de la República Oriental del Uruguay (BROU).

Hoffmann, J. Pérez G. and Wilmsmeier G. (2002): International Trade and Transport Profiles of Latin American Countries, year 2000. CEPAL – Serie Manuales No. 19, Santiago, Chile.

Hoyle, B. and Charlier, J. (1995): Inter-port competition in developing countries: an East African case study. Journal of Transport Geography 3 (2), 87-103

Hummels, D., (2001). Have International Transport Costs declined? Journal of International Economics, 54 (1): 75-96.

Hummels, D., 1999. Toward a Geography of Trade Costs, University of Chicago, Chicago, United States. Mimeo.

Low, J.M.W, Lam, S.W. and Tang, L.C. (2009): Assessment of hub status among Asian ports from a network perspective. Transportation Research Part A, 43, pp. 593-606

Márquez Ramos, L., Martínez Zarzoso, I., Pérez García, E. and Wilmsmeier, G. (2007). Transporte Marítimo: Costes de Transporte y Conectividad en el Comercio Exterior español. In Lecciones de Economía Marítima. La Coruña. Spain.

Martínez-Zarazoso, I. and Wilmsmeier, G. (2009): Uruguay- Evaluation of a country's potential to develop as a regional logistical hub, mimeo.

Notteboom, T.E. (2002): The Interdependence Between Liner Shipping Networks and Intermodal Networks; IAME Panama Conference Proceedings, Panama.

Notteboom, T.E. and Rodrigue J-P. (2005): Port Regionalization: toward a new face in port development; Maritime Policy and Management 32 (3), 297-313.

Perez-Labajos, C. and Blanco, B. (2004): Competitive policies for commercial sea ports in the EU Marine Policy 28, 553–556

Puntiliago, F.; Opperti, J.; Hodara, I. (2008): Visualizacíon del Uruguay como Centro Logístico Regional (Proyecciones, Infraestructura, Sistemas Multimodales y Comunicaciones, mimeo.

Robinson, R., (2002): Ports as elements in value-driven chain systems: the new paradigm. Maritime Policy and Management 29 (3), 241–255.

Rodrigue, J-P. (2010): Maritime Transportation: Drivers for the Shipping and Port Industries. International Transport Forum 2010, Paris, 26 January 2010

Sánchez, R.J. (2003): Infrastructure, transport and production development in an agricultural region: a case in Argentina; FAL Bulletin No. 207, ECLAC/United Nations, November.

Sánchez, R.J. and Wilmsmeier G. (2006): Trilateral Competition in a Single Market – The Case of the River Plate Basin. 14th Annual Congress of the International Association of Maritime Economists (IAME) in Melbourne, July 3–5 2006

Sánchez, R.J. and Wilmsmeier G. (2007). The River Plate Basin. In Brooks, M.R. & Cullinane, K.P.B. [Eds.] (2007) Devolution, Port Governance and Port Performance, Research in Transportation Economics, Vol. XVII, Elsevier, Amsterdam.

Sánchez, R.J. and Wilmsmeier, G. (2005): Provisión de Infraestructura de Transporte en América Latina: Experiencia reciente y Problemas observados. Serie No 94 de Recursos Naturales e Infraestructura. UN-ECLAC, Santiago. Chile. (http://www.eclac.cl/cgi-bin/getProd.asp?xml=/publicaciones/xml/9/22599/P22599.xml&xsl=/drni/tpl/p9f.xsl&base=/transporte/tpl/top-bottom.xslt)

Sánchez, R.J. and Wilmsmeier, G. (2010): Liner shipping networks and market concentration. (forthcoming)

Sgut, M. (2009). Uruguay – Trade and Competitiveness Study, draft report.

Sgut, M. (2009a). Study of containerized traffic demand in the Port of Montevideo. Administración Nacional De Puertos (ANP), Montevideo.

Taaffe, E.J., Merrill, R.L. and Gould, P.R. (1963). Transport development and underdeveloped countries: a comparative analysis' Geographical Review 53, p. 503-529

UNCTAD (2008). UNCTAD Maritime Review, UNCTAD, Geneva, Switzerland.

UNCTAD (2009). UNCTAD Transport Newsletter: No. 43 Second and Third Quarters 2009, UNCTAD. Geneva, Switzerland

UN-ECLAC (1999): Port Modernization: A pyramid of interrelated challenges; LC/G.2031; ECLAC, Santiago, Chile.

UN-ECLAC (2010): Perfil Maritimo.

Van de Voorde, E. and E. Winkelmann (2002), "A general introduction to port competition and management", Port competitiveness: an economic and legal analysis of the factors determining the competitiveness of seaports, Antwerpen, De Boeck.

Voss Hall, P. (2002). The Institutional of Infrastructure and the Development of Port Regions. Berkeley, University of California.

Wilmsmeier, G. (2008): Evaluación del Potencial para el Desarrollo de Servicios multimodales en el Corredor de Transporte Asunción – Montevideo. Project M4. UNCTAD, Geneva. Switzerland and ECLAC, Santiago, Chile

Wilmsmeier, G. (2009): The Role of Transport and Logistics Costs on Food Imports. Policy Guidance Note - Working Paper, The World Bank, Washington.

Wilmsmeier, G. (2010); International Maritime Transport Costs in Latin America – A Multivariate Panel Data Analysis on the role of Liner Shipping Networks and Maritime Industry Structure as Determinants of Maritime Transport Costs. Osnabrueck, Germany

Wilmsmeier, G. and Martínez-Zarzoso, I. (2010) Determinants of Maritime Transport Costs – A panel Data Analysis for Latin American Containerised Trade. Transportation Planning and Technology, 33(1), pp. 105-121

Wilmsmeier, G. and Notteboom, T. (2009): Determinants of Liner Shipping Network Configuration - A two Region Comparison GeoJournal, November 2009

Wilmsmeier, G. and Sánchez, R.J. (2008): Interport Competition in a Single Market under Port Devolution: Lessons from the Southern Cone. In: The Human Element at the Ship/Port Interface Conference. W. Wittig and C. Prieser (eds.). Bremen. Germany

Winkelmans W. Ports, nodal points in a global transport system. Discussion Paper No. 1991/E/2, University of Antwerp, Antwerp, 1991.

World Bank (2008). Uruguay: Trade at-a-glance. Washington, DC, USA: World Bank.

World Economic Forum (2009): Global Trade Enabling Report. World Economic Forum, Geneva Switzerland