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Evaluating the Competitive Position of Port of Douala in Central Africa Regional Ports Market Conduct Using the SSA

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Abstract

This paper aims to analyze the competitive position of Port of Douala in Central African ports market structure. In other words, it consists of measuring port market level and competitiveness through an assessment of their growth rate and market share. The purpose of the paper is to provide us with information on periodical changing status of ports competing with each other. It also provides us with an effective managerial tool to port operators in the assessment of ports market share and position. For doing so, the measurement technique as Shift-Share Analysis was applied in the study by using a panel dataset of the 7 selected ports of Central Africa sub-region from 2008 to 2018. The paper used the recent dynamics and characteristics of port market in terms of port throughputs to compare the yearly trend and market share. By conducting the study of the market growth rate model, the findings showed that the Port of Douala was the top leader of the market in 2009, 2015, 2016 and 2018. The findings also revealed the competitive positions of these ports under study have changed over the period of study due to the significant change of their market share with average growth rates. The final results showed that several determinant factors have affected the present hierarchy of competitiveness level in the selected ports market especially with small and medium size ports that are strengthening their positions vis-a-vis larger ones. However, the results could be used for analyzing the relative efficiency and overall performance of the Central African Sub-regional seaports including the Cameroonian ports.

Keywords

Competitive Position, Port of Douala, Central African Seaports, Market Structure, Shift Share Analysis

1. Introduction

1.1. Background of Study

As key nodes in the network of logistics infrastructure and for servicing the seaborne trade needs [1], ports have been developed with continuous improvement at regional and local levels with the objective to achieve efficient movements of cargoes. As such, port competition and enhanced logistics infrastructures might be one of the main determining factors of logistics activities competition [2]. In this process, ports infrastructures are required to be built with efficiency, performance and competitiveness. Since that there are sophisticated infrastructures that would determine the shipping market and logistics competitiveness. They are built with advanced technologies and combined with free-market ideology in a line of comparative advantage to face the unprecedented mobility of goods and services which took place and mostly transported by sea [3]. For this, countries need to acquire adequate and performant logistics and supply chains facilities which could allow access to global exchange. Obviously, ports are major tools that support these exchanges [4] [5] [6] [7] and facilitate regional and international logistics competitiveness. Consequently, in West and Central Africa sub-region, ports authorities are being compelled to enhance port competitiveness to improve comparative advantages that would increase cargo traffic and satisfy all stakeholders' requirements. But they are confronted with fierce competition and to catch their immediate and non-immediate hinterland market from neighbouring countries [3].

However, in order, for ports industry to be highly productive and competitive, good infrastructures and modern sophisticated handling equipment in manipulating cargoes and containers in a short time from and to the ships coasted are necessary. But on the other hand, other modal transportation infrastructure such as road quality, railway networks to ports access are increasing factors in the market integration and trade costs reduction that will have positive effect on economy [8]. In West and Central Africa, especially in Cameroon, the market environment in which ports operate has also changed recent years the configuration of maritime logistics and transportation sector. This phenomenon indicates useful insights for the study of competitiveness of port and effect on the overall performance and competitiveness. As such, it appears therefore, to analyze the competitive position of the Port of Douala in overall Seaports Competitiveness of Central Africa sub-region, which tends to better understand seaports as key tools of such global exchanges and by ricochet, impact logistics competitiveness. It is about to explore deeply the determinants or indicative factors that undermine seaport competition and investigate how the Port of Douala has access to regional market and can influence the sub-regional overall port logistics performance. The overlook of the attributes factors and elements structure including empirical data with market characteristics analysis could be used be expressed into theories and approaches for measuring the relationships between

port competitive position and overall efficiency.

Despite the fact that the overall port throughput and container traffic growth for Central African Sub-region are still low compared to the global traffic market, CASR ports are experiencing significant development in their cargo throughput trend which is reconfiguring the sub-regional market. With such periodical development and changing status of ports in the CASR, assessing the dynamic of market structure and conduct through analysis of market share with the impact of such transformation on the competitive positioning of ports, appears worthy for the overall evaluation of a specific port in becoming a regional leader and transshipment hub.

On this account, many studies have measured the port competitiveness and performance which consist of a process of ports that struggling for customers, market share, hinterland control and some further much more control in the global supply chain [9] [10]. However, in Central West African sub-region, because of the different logistics stakes and economic context, analyzing competitive position of ports remains a core issue from a perspective that affects regional transportation development with trade competitiveness. As consequence, major ports such as Douala, Pointe Noire, Luanda, Libreville, Bata and Matadi, are not left out of this new order, since that, all are experiencing intra and extra competition in infrastructure and technological changes.

1.2. Statement of the Problem

The needs of port users and community with their demand for higher service has led to port authorities to invest in port logistics facilities but also set policies related to the improvement of regional maritime transportation infrastructure that would attract customers and amend their practices. Such improvement would increase their market share and could bring impact and transformation on their competitive positioning for overall evaluation of specific ports in becoming regional leaders and transshipment hubs. Accordingly, to better analyze the statement and to reach the set objective, these relevant 4 questions would be answered to solve the problems: 1) What are the major approaches and concepts that describe port competitive position and How do we measure it in the context of Central Africa Sub-region 2) Which technique among several can be used and applied to measure the competitive of port position based on the changing market? 3) Does the Port of Douala in Central Africa Sub-regional market have known any change of market leadership regarding the increasing demand for cargo throughput and container market? 4) Do the competitive positions of the Central African regional ports under study record subjects of change and improvement over the time period of study? From these investigating questions, technical measurement tool is about to establish a link between the utilization of port infrastructure and facilities and present the data system that can be used to evaluate port competitive position that would contribute to port managerial decision-making and policies improvement.

1.3. Objective of the Study

The objective of this research tends to evaluate the competitive position of the port of Douala over selected ports of the Central Africa sub-region. In this study, the specific objective consists of studying at the same time the CASR port market competitiveness through current change related to market structure and conduct. It puts forward some lights on the current changing situation of the market trends of main ports located in Central African sub-region, which would be used to assess the status of their performance (efficiency) and then, their overall competitiveness. Finally, the research aims to address in anticipation a further study of relationship between port market structure performance, efficiency and overall competitiveness at sub-regional level by taking into account market share and shift analysis.

2. Literature on Competition and Market Structure

2.1. Concept on Competitiveness

Ports competitiveness and competition reveals multiple definitions and concepts that have been explored and proposed by several researchers. Some definitions provided by Notteboom, and Yap [11], Carbone and Martino [12], Marlow and Paixão Casaca [13], Bichou and Gray [14], Song and Panayides [15], which fit well with a supply chain approach of ports in their ability to compete to each other. Wang and Cullinane [16] proposed a framework to better formulate, understand, analyze a port competitiveness which underlying several factors and core criteria. Yeo and Song [17] investigated on their side, several factors founding port competitiveness. Ma S., [18] developed that the major source of competitiveness of the maritime transport comes from low cost and the possibility of achieving economy of scale. And these changing factors at port level, incite the need for public and private entities to redefine their organizational framework in order to face to the competition [2], and to cope with the new environment where trade facilitation factors become determinants for ports market [19]. Obviously, to face these changes occurred in the trade sector which have been developed especially by the growth of the container shipping and ports [20], ports customers and users became demanding in their expedition of goods and cargo transfer.

2.2. Conceptual Approach of Port Competition, Market Structure and Conduct

Market structure is defined in traditional industrial economics as the number of competing firms and their market share [21]. Market conduct is defined as the behaviors that competing firms follow by adjusting themselves to the market in which they operate to attain specific or precise goal. The conduct involves firms strategies to compete with each other through a certain number of factors including pricing and costs; advertising, research and development, merger and acquisition, etc. [22] [23]. As for port competition, its conceptual definitions

give different levels of competition that interact with each other and thus, would not be evaluated in individual manner. However, if Van D. Voorde and Winkelmas [24] defined port competition as the competition between ports undertakings, such a definition does not consider the composition of traffic structure of port undertakings, which is very important as far as port competition is concerned. Looking at in a further analysis, the definition also does not differentiate between different types of traffic involved and in which ports and port undertakings are specialized.

Obviously, competition is considered as a type of struggle that represents a contestability characteristic of a given market in which there is mostly an intense competition. Schumpeter [25] described the competitive struggling process as one that revolved around innovation, technology and economic progress as the ultimate important form of competition creates from the new product, technology, and new source of supply and reform of organization. Armstrong, M. [26] argued on the "two-sided Markets" that characterized a competition, while Wilson, P *et al.* [27], revealed in his studies the dynamic Shift-Share Analysis where export market is crucial for trade growth.

Slack [9] stated that port competition can be regarded as a process of ports that struggling for customers, market share, hinterland control and some further much more control in the global supply chain. Hayek [28] and Kirszner [29] emphasized competition between individual entrepreneurs and typified this tradition. However, despite these basic contributions related to the study of port competition, researchers are not still attempting to provide a uniformed definition of port competition. But rather, on the basis of conceptualization, they put port competition in a framework where competition is taking place on three basic geographical levels. Competition among port ranges, competition among ports areas in a certain port range, and competition among ports in a certain port area.

In the study of Port cooperation, Zhang and Lam [30], Cruz Da *et al.* [31] stated that such co-operation through alliances can increase port competitiveness by defending market share along with demand for schedule reliability and service differentiation. In the port competition approach, Wang *et al.* [32] explained that port competition in relation to cooperation is mainly focused on customer and investor perspectives of port competitiveness. As for Yeo and Song [17] in their empirical study, they have examined that the most competitive port factors concern port location, facility, and service level and are considered as its strongest sources of competitiveness.

2.3. Review on Port Competitive Position

Notteboom and Yap [11] illustrated that the concept of competitive position of port was referred to competitive strength/power of ports. However, with changes in the larger maritime logistics environment due to the globalization influence and electronic commerce, ports have been transformed into regional hubs and

global supply chain networks. These tremendous changes have led emeritus researchers such as De Langen *et al.* [33], Notteboom and Yap [11], to illustrate how that supplementary functions linking to supply chain operations, such as cargo preparation, warehousing, and customs, and other logistics function were introduced in ports areas and zone.

However, several studies illustrate competitive position of a port in regional context and despite the differentiation in the approaches, competitive ports play significant role in regions. Ports are functioning as contributors to the spatial development of countries and regions since that they produce comparative economic impact on localization/sub-regionalization. However, the competitive position of a port is increasingly dependent on the connectivity with its hinterland [34]. Since, intermodal transport plays a crucial role in hinterland connectivity and access with efficiency to port [1] [10] [35]. In this perspective, the study of ports competition including their market structure can be associated to the evaluation of competitiveness of port.

3. Methodology and Techniques Models of Market Analysis

3.1. Techniques Models of Market Analysis

Quantitative research related to market data analysis can be done through several techniques and methods, especially by using three basic techniques of SPA method based on the Strategic Analysis. And SPA has been used in some research studies related to the port industry for which it is widely known as "growth-share matrix". Port Portfolio Analysis (PPA) has been developed by the Boston Consulting Group (BCG) in 1968 for strategic planning in a broad business dimension. As a required stage in the strategic planning process of business, Growth-Share Matrix is employed in order to visualize the dynamics between the selected firms with the objective to present business portfolio analysis. As such, as argued Notteboom [36], the Matrix locates the different strategic business unit based on market growth rate and market share relative to the most significant rival or competitor.

However, for this paper, the technique of Shift-share analysis (SSA) is applied and consists of analyzing market conduct. The objective of the analysis tends to determine the standing of a business unit such as the port traffic category in comparison to its rivals and relevant competitor ports. This means that, its application is useful in providing information on the evolution of the competitive position of ports. For instance, Haezendonck [37] in her study of the competitive positioning of the Port of Antwerp in the Hamburg-Le Havre Range, has used SPA. And according to Haezendonck and Winkelmans [38], the traffic categories of various ports become Strategic Traffic Units. The purpose of such application is to describe quantitatively the performance of ports in terms of market share, growth rates and diversification. As recognized by Basta and Morchio [39], the main advantages of this method are the ease of data collection, as well as the trustworthiness of the sources. As such, this method employs traf-

fic data, which can be found in such databases that are directly provided by reliable sources such as port authorities.

3.2. Shift-Share Analysis (SSA)

Shift-share analysis (SSA) is one of three techniques of SPA method based on the Strategic Analysis. SSA is one way of SPA which consists of analyzing market conduct and to account for the competitiveness of a region's industries and to analyze the local economic base. In principle, market conduct is the real behaviors of firms in a market for which market conduct explains how the firms react to the conditions imposed by the market structure and interacts with rivals or competitors. As has developed Notteboom [40], if conduct is affected by market structure since firm strategies that vary with competition, it also can affect market structure due to the fact that firms can make entry cost endogenous by selecting different levels of advertising, quality and so on, thus influence the potential competitor number.

Moreover, if the Shift-share analysis has been in regional economics framework, as developed by Notteboom [36], De Lombaerde and Verbeke [41] and Martin [42], it is also being applied to the maritime sector in a perspective to get more insight of port activities such as dynamics of traffic flow. Although the SSA is not expressing changing conditions in the current competitive environment, it enables the process to divide the growth or even decline of a variable known as SHIFT effect and SHARE effect. According to Notteboom [36], the *SHIFT* effect represents the estimated increase of container port traffic in a certain port as if it would simply retain its market share. More, it would develop as the total port market. Looking at this competitive perspective, it is obvious that, based on the estimated traffic share effect (*TEU SHARE EFFECT*), the total *SHIFT* represents the aggregate number of containers (in *TEUs*) that a port *i* has actually lost to or won from rivals/competing ports in the same market. However, it shows that the total sum of the shift-effects of all selected ports of subject of study, equals zero. This, obviously, the shift-share model can be mathematically be represented and computed as follow:

$$ABSGR_i = TEU_{it1} - TEU_{it0} = SHARE_i + SHIFT_i$$

$$SHARE_i = \left(\frac{\sum_{i=1}^{n} TEU_{it1}}{\sum_{i=1}^{n} TEU_{it0}} - 1 \right) \cdot TEU_{it0} \tag{1}$$

$$SHARE_i = TEU_{it1} - \frac{\sum_{i=1}^{n} TEU_{it1}}{\sum_{i=1}^{n} TEU_{it0}} \cdot TEU_{it0} \tag{2}$$

where

$ABSGR_i$ is the absolute growth of throughput (traffic) in port *i* for the period $t_0 - t_1$ explained in *TEU*.

$SHARE_i$ is the share-effect of port *i* for the period $t_n - t_1$ explained in *TEU*.

TEU_{it1} is the traffic (throughput) of port *i* expressed in *TEU*.

n is the number of ports in the Central African (CASR) seaport market.

4. Results Presentation and Discussions

Assessing the competitive market structure consists of analyzing both, relative market share and market growth rate of the CASR ports and measure their position. However, as presented in Table 1 and Table 2, market structure analysis is conducted for the period between 2009 and 2018. Shift-Share Analysis is describing the market conduct based on share effect and shift effect model. The paper used pre-assessment results of CASR seaports competitiveness structure in terms of market growth related to port container traffic and throughput for the period of 2008-2018. As introduced, in the table, the analysis results obtained such as the yearly average net shift figures for the 7 ports, indicate a gain with positive sign (+) or a loss with negative sign (−) of potential port throughput/traffic growth.

4.1. Market Structure Analysis

In 2009, the Ports of Douala and Libreville, both were in top positions by taking over the leadership with respective total absolute market growth of 14.7% and

Table 1. Market Growth Rates (MGR) of CASR Ports (2009-2018).

CASR Ports/Years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Bata	0.08	0	0.025	−0.0125	0.0062	0.10	0	−0.08	0.27	−0.20
Douala	14.7	−13.54	4.5	1.0	−1.0	−0.04	4.0	7.2	−6.2	1.3
Kribi	0	0	0	0	0	0	0	1.2	0.5	−19.2
Libreville-Ow.	5.65	0.65	8.78	7.52	0.03	0.06	0.1	−0.2	−36.2	0
Luanda	−1.35	2.24	9.61	7.6	16.8	14.74	−32.2	−21.94	17.5	−1.83
Matadi	0.32	0.4	0.3	−1.53	0.23	2.82	−2.82	0	0.1	−0.6
Pointe noire	2.9	0.5	−1.9	17.4	7.5	3.48	−4.9	−0.8	3.7	−1.93

Table 2. Shift in CASR Ports Throughput (2009-2018) in 1000 TEUs.

CASR Ports/Years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Luanda	−104.33	**56.63**	12.50	−48.63	**81.11**	**62.45**	−170.32	−199.48	**229.49**	−25.87
Pointe Noire	−15.47	23.56	−63.45	**119.21**	22.30	−14.41	32.50	0.54	85.80	−25.09
Libreville	16.35	24.98	**43.35**	2.99	−53.22	−43.16	69.10	5.97	−316.51	−1.49
Kribi	0	0	0	0	0	0	0	0	5.18	**51.87**
Douala	**108.62**	−112.91	13.68	−45.45	−46.12	−28.70	**84.65**	**77.76**	−22.31	9.40
Matadi	−3.39	6.70	−3.89	−24.77	−2.10	24.47	−18.65	0.67	13.95	−6.53
Bata	−1.78	1.03	−2.19	−3.35	−1.97	−0.65	2.72	−0.47	4.40	−2.29

5.65% (in thousand TEUs), followed by the Port of Pointe Noire absorbing only 2.9%, Matadi (0.32%), Bata (0.08%). Luanda was the loser with a negative shift of −1.35%.

In 2012, Pointe noire took over the leadership by taking the first position with a positive growth of 17.4% followed by Luanda 7.6%, then Libreville with 7.52%. Douala gained a shift share of only 1%. Matadi and Bata were the losers that recorded respectively a negative shift of −1.53% and −0.0125%.

In 2014, Luanda kept its leadership by maintaining again the first position with a positive growth of 14.74. Pointe noire kept again the second position with a positive market growth of 3.48%. The reduction in Pointe noire market share is due to the increase of Port of Matadi market share and Bata market share that increased to 0.1%. The main loser in this period is the Port of Douala with market growth of −0.04%. The leadership of the Port of Luanda from 2011 to 2014 is explained by the involvement of private investment in the port which resulted in increasing facilities, infrastructure and other factors such as the traffic of oil tankers and the national political stability of Angola appear to be the main indicators for the emergence of the Port of Luanda.

In 2015, with a positive market growth of 4%, the Port of Douala took the first position followed by Libreville with a very small positive growth of 0.1%. All the other five competitors had lost. While Luanda was the worse loser with the largest negative market growth of −32.2%, it was followed by Pointe noire with −4.9%, then Matadi with −2.82% as market growth rate. From 2009 to 2015, the Port of Kribi was not in the list since this port was not yet inaugurated for operation.

In 2016, both the Cameroonian Ports (Douala and Kribi) were the major ports that took the leading positions respectively with growth of 7.2% and 1.2%. At the opposite, four ports (Luanda, Pointe noire, Libreville-Owendo and Bata) lost market shares by recording respectively negative growth rate of −21.94%, −0.8%, −0.2% and −0.08%.

In 2018, all the CASR ports achieved negative growth. Among the 7 ports, only Douala was the top leader for having achieved a positive growth of 1.3%. Libreville showed a null result (a 0 growth) which mean that the port had the same growth rate as the total port market. The significant positive growth gained by the Port of Douala is due to its recent acquisition in terminal facilities and infrastructure which attracts more customers from hinterland such Chad and CAR, providing definitely more sustainable competitive advantage of the Cameroonian Port of Douala in the sub-region.

The above analysis of the CASR seaports market growth reveals that there is a potential for some ports to enhance their competitive position in a changing structure.

From the results observation and analysis on the competitive features of the CASR seaports market, we notice that there is an intensified competition between the 7 ports and but also inter-port competition. This also means that a re-structuration of the market in terms of the competitive position of the ports exists, which confirms that the market moves towards pure and perfect competition.

4.2. Analysis of CASR Ports Market Conduct Using SSA

Analyzing the changes in trend of market share in reference to the position of each port, led to study the growth or decline of ports into a method of share effect and shift effect, which SSA method is used to describe the market share in the competitive environment. Accordingly, the share effect indicates how the estimated growth of port traffic in a specific seaport and how that would simply preserve its market share, in other terms as if it would maintain it in reference to the competition. The total shift reveals for example, the total number of throughput (TEUs) a given seaport has actually won from or lost to other competing ports in the same market, in reference to an estimated throughput or traffic (share effect). The shift effect enables a better evaluation of a port's competitiveness as it eliminates the growth of the overall port especially container ports sector. In other words, it means that only the net amount of throughput (TEUs)-Shifts between ports remains. Accordingly, in the application process, a net shift of zero would mean that the port would have the same growth rate as the total port market. The average annual net shift figures for the study ports demonstrate a gain (positive sign) or a loss (negative sign) of potential container traffic.

However, in order to perform the Shift share analysis (SSA), Table 2 and Figure 1 present the Shift in CASR Ports throughput (2009-2018) in thousand (1000) TEUs, and, the Figure 2 illustrates results of the market share of each port which is also calculated as a percentage of the total throughput (in TEUs) of the selected 7 CASR ports from 2009 to 2018. The results of Shifts process obtained on indicate major winners and losers in terms of total shifts in the CASR Port market in Thousand TEUs (Figure 3, Table 3).

In 2009, the Port of Douala was the leader with total shift of 108.62 (in thousand TEUs), followed by Libreville with 16.35. The other Ports such as Bata, Matadi, Pointe Noire and Luanda were all losers with a respective negative total shift of (−1.78), (−3.39), (−15.45), (−104.33) and Luanda was the worse and the first among them.

In 2010, the Port of Luanda took over the top position by winning the market with a shift of 56.63. It was followed by the Port of Libreville that scored 24.98. With a total shift of 23.56, Pointe noire was behind Libreville followed by Matadi with slight total shift of 6.70. Bata gained the lowest share with a shift of 1.03. The Port of Douala was the biggest loser with a negative shift share of −112.91.

In 2011, three ports such as Libreville, Douala and Luanda recorded each respectively a positive shift of 43.35, 13.68 and 12.50, making Libreville the top winner. The other like Bata, Matadi and Pointe Noire were the losers of the market. Pointe noire was the biggest loser with a negative shift of −63.45, while its competitors Matadi and Bata ranked with respective negative shift of (−3.89) and (−2.19).

In 2012, Pointe noire won the first position with a positive shift of 119.21.

Libreville gained a slight but positive shift share of 2.99 and was behind Pointe Noire. Their other competitors such as Luanda, Douala, Matadi and Bata were the losers that recorded respectively a negative shift of (−48.63), (−45.45), (−24.77) and (−3.35).

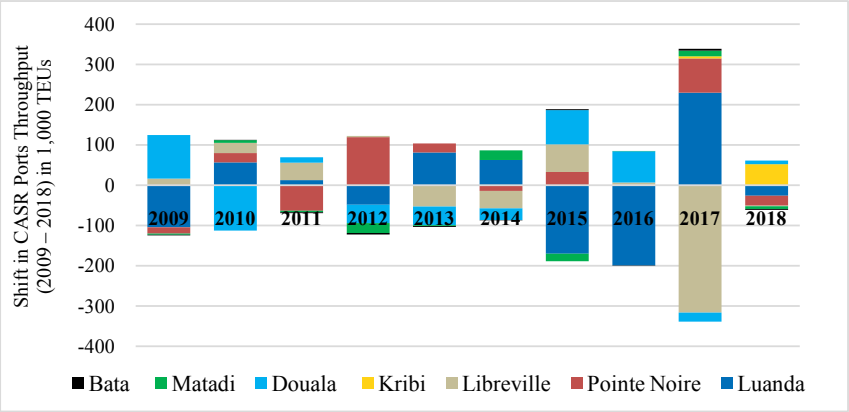

Figure 1. Shift in CASR Ports Throughput (2009-2018) in 1000 TEUs.

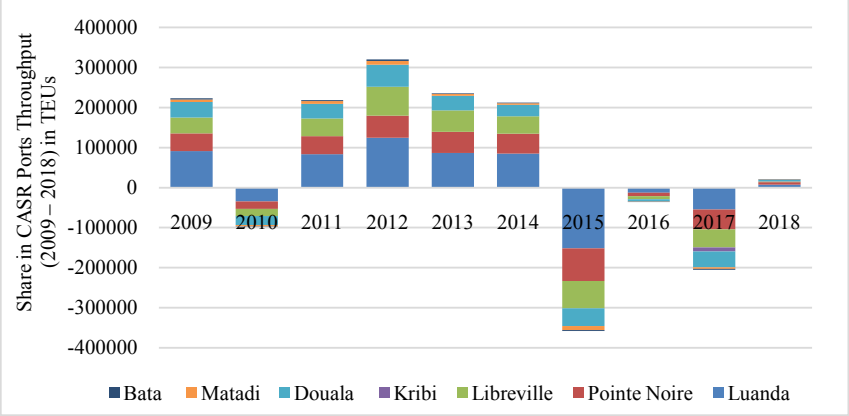

Figure 2. Share in CASR Ports Throughput (in TEUs) for 2009-2018.

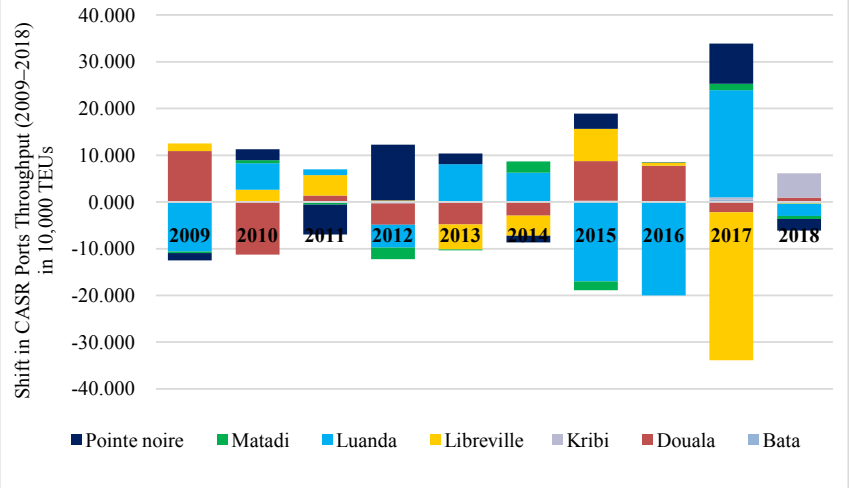

Figure 3. Shift in CASR Ports Throughput (in per ten thousand TEUs) for 2009-2018.

Table 3. Share in CASR Ports Throughput (2009-2018) in TEUs.

CASR Ports /Years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Luanda	90,828.24	−34,231,85	83,628.66	124,596.81	86,792.86	84,950.55	−151,693.55	−12,460.96	−54,566.40	7606.83
Pointe Noire	44,270.15	−18,561.03	44,450.03	54,794.28	52,695.67	49,306.55	−81,393.10	−8538.73	−49,442.48	5725.75
Libreville	40,234.16	−18,481.49	44,450.03	72,211.03	53,522.27	43,684.76	−68,122.14	−7773.09	−45,490.59	1490.28
Kribi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5179.26	51,868.39
Douala	108,615.07	−112,913.09	13,675.96	−45,452.55	−46,122.52	−28,698.01	84,646.41	77,762.74	−22,312.16	9398.52
Matadi	−3388.15	6704.61	−3886.62	−24,768.54	−2100.94	24,472.19	−18,645.15	672.93	13,951.89	−6525.42
Bata	−1777.37	1034.11	−2191.62	−3345.79	−1965.75	−646.31	2717.95	−468.45	4399.54	−2290.63

In 2013, Luanda took over the first position by gaining greatly a positive shift of 81.11. Pointe Noire won the second position with a positive shift of 22.30. The other competitor such as Libreville, Douala, Matadi and Bata were the losers with a respective negative shift share of (−53.22), (−46.12), (−2.10), (−1.97).

In 2014, Luanda maintained its leadership by winning again the first position with a positive shift of 62.45. It was followed by the Port of Matadi market that surprisingly won the second position with a positive shift of 24.47. All the others such as Libreville, Douala, Pointe Noire and Bata lost the market position. The raise of Matadi is due to the loss of major players like Libreville, Douala and Pointe Noire with considerable respective negative shift of (−43.16), (−28.70), (−14.41), (−0.65).

On top of these observations, the result shows that from 2011 to 2014, the Port of Luanda held the leadership by being three times the winner with 2 years consecutive (2013 and 2014). The Port of Luanda leadership is explained by the involvement of private investment in the port which resulted in increasing facilities, infrastructure and superstructure. Other factors such as oil tankers traffic and the political stability of Angola appear to be the main indicators for the emergence of the Port of Luanda.

In 2015, with a positive shift market of 84.65, the Port of Douala was the winner followed by Libreville with a total shift of 69.10. Behind it, Pointe Noire was ranked with a positive shift of 32.50 and then followed by Bata that gained a shift of 2.72. All the other two competitors including Luanda and Matadi had lost market share. While Luanda was the worse loser with the largest negative shift of −170.32, it was followed by Matabi with −18.65 as market share. From 2009 to 2015, the Port of Kribi was not in the list since that this port was not yet inaugurated for operation.

In 2016, the Port of Douala was the major winner of the market share with total shift of 77.76, followed by Libreville that accounted a total shift of 5.97. Matadi was behind with a slight positive shift of 0.67 followed by Pointe Noire that gained only a shift of 0.54. On the opposite, two ports such as Luanda and Bata were main losers. They recorded respectively positive net shift of −199.48 and −0.47.

In 2017, the Port of Luanda took over by winner the first position with a net shift of 229.49, while Pointe Noire won the second position with a total shift of 85.80. With a shift of 13.95 Matadi ranked behind Pointe Noire and followed by Kribi (5.18) and then Bata with a shift of 4.40. Libreville and Douala were losers with respectively negative shift of (−316.51) and (−22.31). The loss of Libreville is due to the huge gain of Luanda's largest shift (229.49) but also due to the emergence of Kribi in the market.

In 2018, both the Cameroonian Ports (Kribi and Douala) were the major ports that won the market share respectively with total shift of 51.87 and 9.40. At the opposite, the other five ports such as Luanda, Pointe noire, Matadi and Bata were main losers. They recorded respectively positive net shift of (−25.87), (−25.09), (−6.53), (−2.29) and (−1.49). The significant raise of Kribi is due to the huge loss of major players such as Luanda and Pointe Noire and also by the reduction of its country collaborator Douala with positive but low shift share.

The significant positive shift gained by the Port of Kribi is due to its recent acquisition in terminal facilities and infrastructure, the best depth in the sub-region, the deep-water access. Obviously, the landside access and common monetary system are definitely and indispensable attribute that sustains the competitive advantage of the Cameroonian Port of Kribi that could become a sub-regional hub followed by Douala.

4.3. Synthesis of the Market Structure Study

Application of the shift-share analysis (SSA) technique to the CASR market, has enabled us to demonstrate mostly the position of the small and medium size seaports that are being a strengthening in terms of cargo traffic and evaluate their competitiveness focusing on the development of each one of the 7 ports in CASR. As such, the analysis results obtained such as the yearly average net shift figures for the 7 ports, indicate a gain with positive sign (+) or a loss with negative sign (−) of potential port throughput/traffic growth.

However, several determinant factors have affected the present hierarchy of competitiveness in the CASR port market especially with small and medium size ports that are strengthening their positions vis-a-vis larger ones. Obviously, the recent construction and inauguration of Cameroonian new port such as Kribi, and other factors related to rise of terminal concession and port infrastructure development including involvement of PPP investment policy that enhanced port operations for Luanda, Douala, Pointe Noire, and lately Kribi, constitute major indicative drivers that explain such changing market structure and conduct in the CAS-Regional context.

As regard this above development analysis, the CASR ports market structure and conduct in terms of port hierarchy indicate that this market can be segmented into two main categories: the present transshipment-hub-ports and the potential hubs. The Cameroonian ports such as Douala and Kribi have a competitive advantage in their strategic location close to the main landlocked coun-

tries with their hinterland markets (Chad and CAR). On the other hand, Luanda, Pointe Noire and Libreville are trying to utilize their resources in terms of terminals infra/superstructure in order to enhance their competitive position and increase their market share.

5. Conclusion

The paper consisted of examining the competitive position of the Cameroonian Port based on the level of port market structure in Central Africa Sub-regional context. Obviously, the Shift-Share Analysis (SSA) technique was used to explain Market Conduct of CASR major seaports, which consists of responding to the conditions produced by the port market structure and interaction between the selected competing ports. It used the recent dynamics and characteristics of port market in terms of port throughputs of the period of 2008-2018, to compare the yearly trend and market share. By doing so, the findings showed that the Port of Douala was the top leader of the market in 2009, 2015, 2016 and 2018. The significant positive growth gained by the Port of Douala is due to its recent acquisition in terminal facilities and infrastructure which attracts more customers from hinterland such as Chad and CAR. In addition, in the context of the competitive environment within the CASR case, the shift-share analysis (SSA) technique was used to describe the level of market conduct in terms of decline and growth with a share effect and shift effect method. The results demonstrated that the ability of port to compete in such a dynamic market not only depends on the availability of ports throughput, infrastructure superstructure, geographic location and size but can be also influenced by the optimum utilization of such equipment, and facilities at port level which are related to port efficiency level. Based on these results, it is concluded that the competitiveness level in terms of total throughput and market share of the CASR of the ports understudy has changed over the period of study.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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