



Determinant Factors Influencing Firms to Locate Operations in Port Based Maritime Clusters.

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ABSTRACT

Over the years, many organizations have been clustering around the ports in search of greener pasture and economic adventures without undertaking significant studies to ascertain reasons for such clustering.

The study was therefore carried out to appraise and determine the significant factors that contribute into the decision of firms to locate investments in maritime clusters in Nigeria. Factors such as, Guaranteed security of investment (GS), Favourable Government policy (FG Policy), The ease of administration and coordination of the business divisions of a firm from the cluster location (EAC), Reduced labour cost and access to professionals (RLC) and Access to transport cum optimization of logistics and production cost (TPCO), was analyzed using the statistical method for social science (SPSS) with each having Eigenvalues of 2.992, 2.244, 1.241, 1.145, and 1.039. Recommendation was given base on the results of the analyzes.

1.0 INTRODUCTION

Maritime clusters remain one of the major strategies that companies in the maritime industry work together in close proximity to promote sustainability and also fulfilling the demands of consumers of shipping services in the market. The concept of maritime clusters denotes a group of allied maritime industries and operators located in close proximity to each other in with the intention of enabling each company to develop capacity to performance by leveraging on the advantages of proximity with similar or allied companies. Merk and Notteboom (2015) defines maritime clusters as “naturally-occurring collections of different types of maritime activities” that arise to benefit all parties. Often, firms in a cluster are linked by buyer-supplier relationships, operating closely together as partners (Merk and Notteboom, 2015). It is therefore commonly recognized that clusters are a big part of the future in responding to economic and environmental challenges facing the maritime sector in several regions. Maritime clusters can be at the subnational, national and international level as a way to advance maritime businesses, especially in identifying opportunities, spurring innovations and addressing sustainable development challenges. Typical examples of international maritime cluster is Singapore which has over the years developed as a global hub for ship chartering and engagement of diversified maritime businesses and allied business that services the shipping needs of various countries of the World.

In Nigeria for example, the development of the Onne Oil and Gas Free Zone hosting the Federal Lighter Terminal (FLT), the Federal Ocean Terminal (FOT), and multiple allied maritime companies with the aim of agglomerating such companies into maritime cluster for the purposes acting as a “One Stop Shop” for servicing the logistics needs of the West African Offshore Oil and Gas Sector and the overall shipping market represent one of the deliberate attempt of the Federal Government at developing maritime clusters in Nigeria; even though it was not directly mentioned as a maritime cluster. It was developed as a Free Trade Zone (FTZ) for the offshore oil and Gas, oil shipping and allied maritime services on 29th March, 1996 by Government Decree No. 8, issued in the Official Gazette No. 12 on the 29th March, 1996 declaring an area of some 16 square kilometres in Onne Rivers State as a dedicated “Oil & Gas Free Zone”. Similarly, establishment of the Calabar Free Trade Zone in 1989, situated by willful planning in proximity to the Calabar seaport in Cross River State, with an area of 152 hectares of land represent an indirect attempt at enabling clustering of maritime businesses and allied companies around port. The Calabar cluster or Free Trade Zone allows the investors to produce goods and services for export and also permits them to conduct other business-related activities such as assembly, distribution and transportation, import processing, packaging, warehousing, etc. The latest of what we refer to as attempt at encouraging the development of maritime clusters in Nigeria in the establishment of the Lekki Export Processing Zone in 2006, in Lagos,

Nigeria. The Lekki Free Zone, created in 2006, is a modern free zone managed in accordance with international best practices. The zone’s 16,500 hectares are divided into four quadrants and managed by various operators, benefiting from Lagos State’s position as the premier distribution hub in West Africa. The motivation for the development of maritime clusters derives from the benefits it offers for the economic development of the regions and the State.

Aim and Objectives of the Study

The aim of the research is to analyse the effects of maritime clusters on port-hinterland relationships in Nigeria.

The specific research objectives include:

1. To determine the significant factors that contributes into the decision of firms to locate investments in maritime clusters in Nigeria

Research Questions

Based on the specific objective of the study, the following research questions follows:

1. What are the significant factors that contributes into the decision of firms to locate investments in maritime clusters in Nigeria?

Hypotheses

The hypotheses include:

1. **H₀₁:** There is no significant factor that contributes into the decision of firms to locate investments in maritime clusters in Nigeria
2. **H₀₂:** There is no determinant maritime cluster business component that contribute significantly to maritime sector Development in Nigeria.

CONCEPTUAL REVIEW

CONCEPT OF MARITIME CLUSTERS

Maritime clusters are simply a group of companies in the maritime industries located in close proximity. Maritime clusters are “naturally occurring collections of different types of maritime activities” that arise to benefit all parties. Often, firms in a cluster are linked by buyer-supplier relationships, operating closely together as partners. While maritime clusters are found around the world, their structure and goals vary by geography. At the international level, the World Ocean Council the Global Blue Economy Business and Investment Organisation has been bringing together all ocean-related industries in a leadership alliance for Corporate Ocean Responsibility since 2009 and produced a white paper on this topic in February 2018. According to Paul Holthus, WOC’s Founding President and CEO, many European clusters “are often well structured in looking at global competitiveness, really providing a platform that links national maritime-level strategic interests to their governments’ interest in economic development.” “For the smaller, dynamic Asian

economies such as Singapore,” Holthus says, “it was also a very natural evolution of the triple helix between the industry, government, and research communities that was able to quickly develop collaboration, which has been facilitated by national policies.” Holthus notes there are some distinctions in how clusters are developing in larger Asian countries. “For the larger Asian countries, it’s perhaps more challenging to create the commonalities and dynamics at a national level, and so clusters are emerging more at the level of key maritime centers,” Holthus says. Clusters in the Middle East face other challenges, according to Holthus. “The importance of the oil sector has perhaps meant there has been less need to have a multi-sectorial cluster in an area that’s historically been reliant on a single maritime-related industry. This may have reduced the incentives for competitiveness and innovation, however that is changing rapidly as maritime clusters look to be developing in the region.” Holthus says that, regardless of region, there is an understanding that the clusters are important for growth and, increasingly, for sustainable development.

Theoretical Review

Theory of Agglomeration

The term agglomeration describes the phenomenon where businesses tend to cluster close to each other and high population areas. One of the major subfields of urban economics, economies of agglomeration (or agglomeration effects) describes, in broad terms, how urban agglomeration occurs in locations where cost savings can naturally arise. Most often discussed in terms of economic firm productivity, agglomeration effects can also explain the phenomenon where large proportions of the population are clustered in cities and major urban centres. Similar to economies of scale, the costs and benefits of agglomerating increase the larger the agglomerated urban cluster becomes.

Theory of Industrial District

Alfred Marshall and industrial districts the Marshallian industrial district is now recognised as an important part of modern industrial economics (Amin, Brusco, Piore, Pyke, Sabel, Sengenberger) and as a chief element of Marshall's thought (Becattini, Loasby, Martin, Raffaelli), we think it useful to recall its main characteristics in order to better understand its further developments made by the Old Cambridge School. ‘Industrial district’ means an area where a concentration of firms has settled down; but, it is not simply a localised industry, as Marshall clarifies well, especially in his Principles of Economics.

According to Marshall, small and medium firms collected in a district can compete with large vertically integrated firms. The strength of small and medium firms in a district is provided by external economies that ‘depend on the general organisation of the trade, on the growth of the knowledge and appliances common to the trade, on the development of subsidiary industries, and so on’ (Marshall, 1898). External

economies are opposed to internal economies that characterise large firms.

METHODOLOGY

Survey method was used and primary data was obtained using questionnaire as survey instrument, principal components factor analysis was used to analyze the data.

Description of the Study Area

The study area of the research is the port-based maritime clusters in Nigeria with specific concentration on the Onne oil and gas free zone in Rivers state Nigeria, the Calabar free trade zone in Cross-River state Nigeria and the Lekki Free (export processing) zone in Lagos. These constitute the port-based maritime clusters in Nigeria. Therefore the study area of the research is the Nigeria port-based maritime clusters playing host to the maritime, shipping and the allied operating in each of the zones over the years

Sources of Data

This research will rely upon primary sources of data for the study, the shipping companies and allied companies operating in the maritime clusters. Primary data will be sourced from survey of the maritime and allied companies operating in the maritime clusters. The responses of the sampled population of the management staff of the companies will form the primary data sources for purposes of the study.

Population Covered by the Survey and Sample Size

The three port-based maritime clusters and trade free zones in Nigeria used in the study have management authorities and multiple shipping and allied organizations operating in each zone. However, we are unable to determine specifically the population of the management staff of the maritime, shipping and allied companies operating in each maritime cluster for purposes of population sampling. Thus we used the Z score formula for unknown population to determine the sample size while adopting a purposive random sampling method in which the members of staff in the management cadre of the maritime, shipping and the allied organizations operating in each of the maritime clusters are randomly sampled in the survey, interviewed and questionnaires administered.

The determination of sample of unknown population using Z score is given as:

$$N = Z^2(P) (1-P) / C^2 \text{ ----- (3.1)}$$

Where Z = standard normal deviation set at 95% confidence interval =1.96

P = percentage picking a choice or response =50%

C = confidence interval =0.05

$$\text{Therefore } N = (1.96)^2(0.5)(1-0.5)/(0.05)^2 \\ N = 0.9604/0.0025$$

N= 384.16
=384

The sample population will be about 384 staff in the management cadre of the companies and organizations operating in the identified maritime clusters in Nigeria. Questionnaire will be used as survey instrument to obtain data for determining what significant factors influence the decision of the companies to join or invest in the maritime clusters.

Method of Data Analysis

The study will employ the Factor Analysis method to investigate and determine the objective of the study which seeks to determine the significant factors that influence the decision of maritime and shipping companies to invest in maritime clusters.

PRESENTATION, RESULTS AND DISCUSSION

Under this section, the data obtained is presented, analyzed and the result of the study is discussed.

Data Presentation

Table 1: Respondents rating of the Influences of identified Decision Factors on Firms Decision to Locate Operational Offices around Seaport Zones/Maritime Clusters in Nigeria

S/No. of Respondents	All scores in %										
	RIC	EII	FGPolicy	TPCO	APS	EAC	EIC	HDC	GS	SIC	RTB
1	10	15	20	10	10	15	10	10	20	10	15
2	15	15	15	10	10	10	10	10	15	10	15
3	15	10	20	15	15	15	5	5	15	5	10
4	20	10	15	15	5	20	10	20	25	10	10
5	10	10	15	20	10	15	10	10	30	10	10
6	10	15	15	10	10	10	10	10	30	10	15
7	10	15	10	10	15	15	10	10	25	10	15
8	15	10	20	10	5	15	5	15	30	5	10
9	20	5	15	15	5	20	10	20	25	10	5
10	15	5	20	20	10	15	10	15	30	10	5
11	10	15	15	15	10	10	10	10	30	10	15
12	10	15	10	10	15	15	10	5	20	10	15
13	15	10	20	10	5	15	5	10	30	5	10
14	20	5	15	15	5	20	10	5	25	10	5
15	15	5	20	20	10	15	10	5	30	10	5
16	10	15	15	15	10	10	10	15	30	10	15
17	10	15	10	10	15	15	10	15	25	10	15
18	15	10	20	10	5	15	5	10	30	5	10
19	20	5	15	15	5	20	10	10	25	10	5
20	15	5	20	20	10	15	10	5	30	10	5
21	10	15	20	15	10	15	10	5	20	10	15
22	15	15	15	10	10	10	10	15	25	10	15
23	15	10	20	15	15	15	5	15	20	5	10
24	20	10	15	15	5	20	10	10	25	10	10
25	10	10	15	20	10	15	10	10	20	10	10
26	10	15	15	10	10	10	10	15	15	10	15
27	10	15	10	10	15	15	10	15	10	10	15
28	15	5	20	10	10	15	10	10	30	10	5
29	10	15	20	15	10	15	10	15	20	10	15
30	15	15	15	10	10	10	10	10	25	10	15
31	15	10	20	15	15	15	5	15	20	5	10
32	20	10	15	15	5	20	10	15	25	10	10
33	10	10	15	20	10	15	10	20	30	10	10
34	10	15	15	10	10	10	10	10	30	10	15
35	10	15	10	10	15	15	10	10	25	10	15
36	15	5	20	10	10	15	10	10	30	10	5
37	10	15	15	15	10	10	10	15	30	10	15
38	10	15	10	10	15	15	10	10	25	10	15
39	15	10	20	10	5	15	5	5	30	5	10
40	20	5	15	15	5	20	10	5	25	10	5
41	15	5	20	20	10	15	10	10	30	10	5
42	10	15	20	15	10	15	10	10	20	10	15
43	15	15	15	10	10	10	10	10	25	10	15
44	15	10	20	15	15	15	5	15	20	5	10
45	20	10	15	15	5	20	10	5	25	10	10
46	10	10	15	20	10	15	10	10	30	10	10

47	10	15	15	10	10	10	10	10	30	10	15
48	10	15	10	10	15	15	10	10	25	10	15
49	15	5	20	10	10	15	10	10	30	10	5
50	10	15	20	15	10	15	10	15	20	10	15
51	15	15	15	10	10	10	10	10	25	10	15
52	10	15	20	15	10	15	10	15	20	10	15
53	15	15	15	10	10	10	10	10	25	10	15
54	15	10	20	15	15	15	5	15	20	5	10
55	20	10	15	15	5	20	10	15	25	10	10
56	10	10	15	20	10	15	10	20	30	10	10
57	10	15	15	10	10	10	10	10	30	10	15
58	10	15	10	10	15	15	10	10	25	10	15
59	15	10	20	10	5	15	5	10	30	5	10
60	20	5	15	15	5	20	10	15	25	10	5
61	10	15	20	10	10	15	10	10	20	10	15
62	15	15	15	10	10	10	10	10	15	10	15
63	15	10	20	15	15	15	5	5	15	5	10
64	20	10	15	15	5	20	10	20	25	10	10
65	10	10	15	20	10	15	10	10	30	10	10
66	10	15	15	10	10	10	10	10	30	10	15
67	10	15	10	10	15	15	10	10	25	10	15
68	15	10	20	10	5	15	5	15	30	5	10
69	20	5	15	15	5	20	10	20	25	10	5
70	15	5	20	20	10	15	10	15	30	10	5
71	10	15	15	15	10	10	10	10	30	10	15
72	10	15	10	10	15	15	10	5	20	10	15
73	15	10	20	10	5	15	5	10	30	5	10
74	20	5	15	15	5	20	10	5	25	10	5
75	15	5	20	20	10	15	10	5	30	10	5
76	10	15	15	15	10	10	10	15	30	10	15
77	10	15	10	10	15	15	10	15	25	10	15
78	15	10	20	10	5	15	5	10	30	5	10
79	20	5	15	15	5	20	10	10	25	10	5
80	15	5	20	20	10	15	10	5	30	10	5
81	10	15	20	15	10	15	10	5	20	10	15
82	15	15	15	10	10	10	10	15	25	10	15
83	15	10	20	15	15	15	5	15	20	5	10
84	20	10	15	15	5	20	10	10	25	10	10
85	10	10	15	20	10	15	10	10	20	10	10
86	10	15	15	10	10	10	10	15	15	10	15
87	10	15	10	10	15	15	10	15	10	10	15
88	15	5	20	10	10	15	10	10	30	10	5
89	10	15	20	15	10	15	10	15	20	10	15
90	15	15	15	10	10	10	10	10	25	10	15
91	15	10	20	15	15	15	5	15	20	5	10
92	20	10	15	15	5	20	10	15	25	10	10
93	10	10	15	20	10	15	10	20	30	10	10
94	10	15	15	10	10	10	10	10	30	10	15
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103	15	15	15	10	10	10	10	10	25	10	15
104	15	10	20	15	15	15	5	15	20	5	10
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106	10	10	15	20	10	15	10	10	30	10	10
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111	15	15	15	10	10	10	10	10	25	10	15

112	10	15	20	15	10	15	10	15	20	10	15
113	15	15	15	10	10	10	10	10	25	10	15
114	15	10	20	15	15	15	5	15	20	5	10
115	20	10	15	15	5	20	10	15	25	10	10
116	10	10	15	20	10	15	10	20	30	10	10
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134	20	5	15	15	5	20	10	5	25	10	5
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144	20	10	15	15	5	20	10	10	25	10	10
145	10	10	15	20	10	15	10	10	20	10	10
146	10	15	15	10	10	10	10	15	15	10	15
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148	15	5	20	10	10	15	10	10	30	10	5
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151	15	10	20	15	15	15	5	15	20	5	10
152	20	10	15	15	5	20	10	15	25	10	10
153	10	10	15	20	10	15	10	20	30	10	10
154	10	15	15	10	10	10	10	10	30	10	15
156	10	15	10	10	15	15	10	10	25	10	15
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163	10	15	20	15	10	15	10	10	20	10	15
164	15	15	15	10	10	10	10	10	25	10	15
165	15	10	20	15	15	15	5	15	20	5	10
166	20	10	15	15	5	20	10	5	25	10	10
167	10	10	15	20	10	15	10	10	30	10	10
168	10	15	15	10	10	10	10	10	30	10	15
169	10	15	10	10	15	15	10	10	25	10	15
170	15	5	20	10	10	15	10	10	30	10	5
171	10	15	20	15	10	15	10	15	20	10	15
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173	10	15	20	15	10	15	10	15	20	10	15
174	15	15	15	10	10	10	10	10	25	10	15
175	15	10	20	15	15	15	5	15	20	5	10
176	20	10	15	15	5	20	10	15	25	10	10
177	10	10	15	20	10	15	10	20	30	10	10

178	10	15	15	10	10	10	10	10	30	10	15
179	10	15	10	10	15	15	10	10	25	10	15
180	15	10	20	10	5	15	5	10	30	5	10
181	20	5	15	15	5	20	10	15	25	10	5
182	10	15	20	10	10	15	10	10	20	10	15
183	15	15	15	10	10	10	10	10	15	10	15
184	15	10	20	15	15	15	5	5	15	5	10
185	20	10	15	15	5	20	10	20	25	10	10
186	10	10	15	20	10	15	10	10	30	10	10
187	10	15	15	10	10	10	10	10	30	10	15
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189	15	10	20	10	5	15	5	15	30	5	10
190	20	5	15	15	5	20	10	20	25	10	5
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197	10	15	15	15	10	10	10	15	30	10	15
198	10	15	10	10	15	15	10	15	25	10	15
199	15	10	20	10	5	15	5	10	30	5	10
200	20	5	15	15	5	20	10	10	25	10	5
201	15	5	20	20	10	15	10	5	30	10	5
202	10	15	20	15	10	15	10	5	20	10	15
203	15	15	15	10	10	10	10	15	25	10	15
204	15	10	20	15	15	15	5	15	20	5	10
205	20	10	15	15	5	20	10	10	25	10	10
206	10	10	15	20	10	15	10	10	20	10	10
207	10	15	15	10	10	10	10	15	15	10	15
208	10	15	10	10	15	15	10	15	10	10	15
209	15	5	20	10	10	15	10	10	30	10	5
210	10	15	20	15	10	15	10	15	20	10	15
211	15	15	15	10	10	10	10	10	25	10	15
212	15	10	20	15	15	15	5	15	20	5	10
213	20	10	15	15	5	20	10	15	25	10	10
214	10	10	15	20	10	15	10	20	30	10	10
215	10	15	15	10	10	10	10	10	30	10	15
216	10	15	10	10	15	15	10	10	25	10	15
217	15	5	20	10	10	15	10	10	30	10	5
218	10	15	15	15	10	10	10	15	30	10	15
219	10	15	10	10	15	15	10	10	25	10	15
220	15	10	20	10	5	15	5	5	30	5	10
221	20	5	15	15	5	20	10	5	25	10	5
222	15	5	20	20	10	15	10	10	30	10	5
223	10	15	20	15	10	15	10	10	20	10	15
224	15	15	15	10	10	10	10	10	25	10	15
225	15	10	20	15	15	15	5	15	20	5	10
226	20	10	15	15	5	20	10	5	25	10	10
227	10	10	15	20	10	15	10	10	30	10	10
228	10	15	15	10	10	10	10	10	30	10	15
229	10	15	10	10	15	15	10	10	25	10	15
230	15	5	20	10	10	15	10	10	30	10	5
231	10	15	20	15	10	15	10	15	20	10	15
232	15	15	15	10	10	10	10	10	25	10	15
233	10	15	20	15	10	15	10	15	20	10	15
234	15	15	15	10	10	10	10	10	25	10	15
235	15	10	20	15	15	15	5	15	20	5	10
236	20	10	15	15	5	20	10	15	25	10	10
237	10	10	15	20	10	15	10	20	30	10	10
238	10	15	15	10	10	10	10	10	30	10	15
239	10	15	10	10	15	15	10	10	25	10	15
240	15	10	20	10	5	15	5	10	30	5	10
241	20	5	15	15	5	20	10	15	25	10	5

Source: Field Survey.

Table above shows the data obtained from field survey indicating each of the respondents rating of the influences of the identified decision factors on Firms decision to locate operational offices in Seaport Zones/Maritime Clusters in Nigeria. This data was used to determine the determinant decision factors that influence most, a firm’s decision to locate offices and operational bases in seaport-based maritime clusters in Nigeria. As already explained in chapter three of this work, about eleven(11) factors were identified from literature sources to influence firms decision to join or locate its base in maritime zone which include: Reduced labour cost and access to professional workers (RLC), Favourable government policy (FGP), Access to Transport and logistics services and production cost optimization (TPCO), availability of adequate port site and operational space (APS), Ease

of administration and coordination of business divisions (EAC), Economies of scale and infrastructure condition (EIC), achieving higher service/product demand conditions (HDC), Guaranteed security (GS), availability of supporting and related industries-cooperation (SIC) and Reduced Tax burden experiences-tax exemption, etc. Table.1 was analyzed using the factor analysis methods and the SPSS software, in order to address the objective of the study.

Results and Discussion of findings

The results from the analysis carried out to actualize the objectives of the research are presented and findings discussed in this section. The results are organized under different sections in line with the objectives and hypotheses of the study as follows:

Table 2: The significant factors that contributes into the decision of firms to locate investments in maritime clusters in Nigeria

	Mean	Std. Deviation	Analysis N
GS	25.1667	4.83767	240
FGPolicy	16.2500	3.37664	240
EAC	14.6667	3.15123	240
RIC	13.5833	3.66958	240
TPCO	13.4167	3.60052	240
HDC	11.4167	3.99704	240
EII	11.3333	3.86668	240
RTB	11.3333	3.86668	240
APS	9.8333	3.41871	240
EIC	9.1667	1.86728	240
SIC	9.1667	1.86728	240

Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.992	36.289	36.289	2.992	36.289	36.289
2	2.244	20.404	56.693	2.244	20.404	56.693
3	1.241	10.479	67.972	1.241	11.279	67.972
4	1.145	10.205	78.377	1.145	10.405	78.377
5	1.039	9.537	86.914	1.03	9.537	
6	.643	5.848	92.763			
7	.419	3.812	96.575			
8	.254	2.313	98.887			
9	.122	1.113	100.000			
10	2.480E-016	2.255E-015	100.000			
11	4.413E-018	4.012E-017	100.000			

SOURCE: Authors calculation. Extraction Method: Principal Component Analysis.^a
 a. 5 components extracted.

Table 2 above shows the results of the principal component factor analysis (PCA) conducted to determine the significant factors that contribute into the decision of firms to locate investments in maritime clusters in Nigeria. The results of the study, as shown in Table 4.20, indicate that Guaranteed security of investment (GS), which involves the safety and security of financial, infrastructure investment as well as investment in human capita that a firm has made in

the location/region of the maritime clusters, , has a mean value of 25.1667% with standard deviation of 4.837. Favourable Government policy (FG Policy) which has to do with the policies such as tax exemptions and tax holidays for firms located in the marine clusters such as the oil and gas free zones, etc.; has a mean score of 16.25% with standard deviation of 3.337. The ease of administration and coordination of the business divisions of a firm from the cluster

location (EAC) has a mean value of 14.6667% with standard deviation of 3.15133. Reduced labour cost and access to professionals (RLC) and Access to transport cum optimization of logistics and production cost (TPCO) each have mean scores of 13.135833% and 13.4167% respectively with respective standard deviations of 3.66958 and 3.60032.

Achieving higher service and product demand (HDC), benefiting from exchange of research information, ideas and innovation (EII) and reduced tax burden experiences (RTB) each has respective mean scores of 11.4167%, 11.3333% and 11.3333% with standard deviations of 3.60052, 3.99704, and 3.86668 respectively. The mean value of availability of adequate port operational sites (APS), economies of scale and infrastructural conditions (EIC), and availability of supporting and related industries is 9.8333%, 9.1667% and 9.1667% respectively with respective standard deviations of 3.41871, 1.86728 and 1.86728.

The results of the PCA further reveal that the significant factors that contributes into the decision of firms to locate investments in maritime clusters in

Nigeria include: Guaranteed security of investment (GS) , Favourable Government policy (FGPolicy), The ease of administration and coordination of the business divisions of a firm from the cluster location (EAC), Reduced labour cost and access to professionals (RLC) and Access to transport cum optimization of logistics and production cost (TPCO), with each having Eigen values of 2.992, 2.244, 1.241, 1.145, and 1.039.

Since each of the identified significant factors in the decision of firms to locate and operate in maritime clusters have Eigen values greater than one (Eigen value > 1), we assert that they (five of them) constitute the determinant decision factors that significantly influence maritime firms decision to operate in the seaport-based maritime clusters in Nigeria. The implementations of the significant factors have implications on the decision of firms to operate in any of the seaport based maritime zones/clusters in Lagos, Onne, Rivers, Warri and Calabar. Note that other factor with their respective Eigen values of less than 1 (Eigen < 1); are not significant factors considered by maritime firms in locating operational units within the maritime clusters in Nigeria.

Table 3 - H_{01} : There is no significant factor that contributes into the decision of firms to locate investments in maritime clusters in Nigeria

Decision factors	Initial Eigen values	Decision
GS	2.992	Reject H_{01}
FGPOLICY	2.244	Significant
AEC	1.241	Significant
RIC	1.145	Significant
TPCO	1.039	Significant
HDC	.643	Not significant
EII	.419	Not significant
RTB	.254	Not significant
APS	.122	Not significant
EIC	2.480E-016	Not significant
SIC	4.413E-018	Not significant

Source: Author's calculation. Reject null hypothesis if Eigen value ≥ 1 ; Accept null hypothesis if Eigen value < 1.

The test of hypothesis H_{01} which is reveals that three decision factors with Eigen values greater than 1. Therefore we reject hypothesis H_{01} and accept the alternate that there are significant factor that influence a firms decision to locate operational offices in the maritime clusters in Nigeria. The results of the PCA further reveal that the significant factors that contributes into the decision of firms to locate investments in maritime clusters in Nigeria include: Guaranteed security of investment (GS) , Favourable Government policy (FGPolicy), The ease of administration and coordination of the business divisions of a firm from the cluster location (EAC), Reduced labour cost and access to professionals (RLC) and Access to transport cum optimization of logistics and production cost (TPCO), with each having

Eigen values of 2.992, 2.244, 1p.241, 1.145, and 1.039.

CONCLUSION

In conclusion, the study has been able to achieve the objectives of the study as identified in the previous sections of the study. Given the aforementioned findings of the study which are in line with the aim and objectives We therefore conclude as follows:

The results of the PCA provides indication that the significant factors that contributes into the decision of firms to find and locate investments in maritime clusters in Nigeria include: Guaranteed security of investment (GS) , Favourable Government policy

(FGPolicy), The ease of administration and coordination of the business divisions of a firm from the cluster location (EAC), Reduced labour cost and access to professionals (RLC) and Access to transport cum optimization of logistics and production cost (TPCO), with each having Eigenvalues of 2.992, 2.244, 1.241, 1.145, and 1.039.

Similarly, the findings of the study indicate that the offshore oil and gas business component of the maritime clusters have Eigen value greater than one ($5.904 > 1$), and form the determinant Maritime Business components influencing most, Maritime Clusters Development in Nigeria. The implementation is that there is urgent need for investment in the other sub-sectors of the maritime sector such as marine transportation, marine tourism, marine insurance, fishery, etc business component, in order to get them to produce acceptable higher levels of output that can measure equal to that of the offshore oil and gas business component. The result further indicate the under-development and consequently, poor performance of the other maritime cluster business components, when compared with the offshore oil and gas sub-sector.

Furthermore, the findings of the study reveal the existence of significant relationship between the maritime sector development and shipping import and export trade capacities of the port-hinterland regions in Nigeria. The relationship is such that that a 1% change in aggregate shipping import trade across the port-hinterland will cause the Gross Domestic Product contribution of the maritime sector to grow by 1.276% while a 1% increase in shipping export trade from the hinterlands, will cause the development of the sector in improve by 0.320%..

Lastly, the coefficient of elasticity of port revenue to variations in tonnage of shipping import trade from the ports to the hinterlands is -2.974 while the coefficient of elasticity of port revenue to variations in shipping exports trade from the hinterlands to the ports in 0.374. This implies that a 1% change in aggregate shipping import trade across the port-hinterland will cause the port revenue change by 2.974h% while a 1% increase in shipping export trade from the hinterlands, will cause the port revenue to improve by 0.320%.

RECOMMENDATIONS

It is recommended that:

- (i) Since Guaranteed security of investment (GS), Favourable Government policy (FG Policy), the ease of administration and coordination of the business divisions of a firm from the cluster location (EAC), Reduced labour cost and access to professionals (RLC) and Access to transport cum optimization of logistics and production cost (TPCO), constitute the significant factors influencing maritime firms decision to locate maritime clusters for national development, the Government

should prioritize the security of maritime investment in the port-based maritime clusters in order to attract more firms to locate in the clusters. This suort the development drives of Government in the sector.

- (ii) Secondly, government policies such as policies creating free trade zones in maritime regions and tax exemption for new firms should be used to attract more maritime firms to locate in ort-based maritime clusters in Nigeria

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