MODELLING THE MANPOWER PLANNING OF NIGERIAN PORT OPERATIONS

MORAKINYO KEHINDE ONIFADE
Bells University of Technology, Ota, Nigeria
morakinyo.onifade@yahoo.com
OLUWASEYI JOSEPH AFOLABI
Bells University of Technology, Ota, Nigeria
afolabiseyo@yahoo.com
OLUFEMI ADEBAYO OROYE
Bells University of Technology, Ota, Nigeria
olufemioroye@gmail.com

Abstract

Maritime industry has become a veritable and highly technical segment of Nigeria's national economy. It requires highly skilled personnel and professionals. To develop such an industry, therefore requires appropriate planning for the human elements that would make the industry achieve the desired results. Manpower planning links organization's structures/strategies, policies and people together to be able to match and review any organization manpower requirements and its availability. Manpower issue in the maritime sector constituted a problem for urgent attention. This paper investigated the existing manpower data of Nigeria Port Authority (NPA) and carry out quantitative description of its flow with respect to five well defined states; a twenty-year data of staff transition was analysed. A multivariate linear regression was developed to describe the manpower flow of the Nigeria Port Authority. The model developed indicated that the establishment needs a staff stock of at least 13,264 yearly for a steady flow of operation for the period under investigation. The Mean Forecast Error value which is lower than the actual manpower and the sampling tracking signal not exceeding the computed value shows that the developed multivariate linear regression model is appropriate to describe the manpower data obtained.

Keywords: Manpower Planning, Maritime, Port, Human Resource, Transport

JEL Classification: F16, I31, L00, R40

1. INTRODUCTION

Transportation plays a vital role in social and economic development of a nation, particularly in facilitating movement of people, goods and services. The

fundamental functions of transport are simply to move things from one place to another, by employing the logistics of the what, where and how methods (Afolabi, 2012). A good transportation system is very essential in offering better access between producers and consumers, and also a necessity to allow specialization and geographical concentration (McCalla, Robert & Brian, 2011).

Ports are widely recognized as a crucial nodal point alongside a given shorelines in international trade and transport. Their core activity, such as loading and unloading of goods are important to international trade. The maritime sector is very significance to economy of any nation. It is the means for the movement of goods or cargoes across the countries, and many cities of the world rely on their ports as a major means of revenue generation (Adams, 2002). Port authorities have increasingly been under intense pressure from various stakeholders to improve port performance and efficiency by ensuring that port activities and services are provided on an internationally competitive basis to support trade-oriented economic growth and development.

Maritime transport plays an important role of being many nations' major gateway for international trade and is a good instrument for measuring the economic health of a nation (UNCTAD, 2008). The maritime industry is a subsector of the transport sector, which globally accounts for over 70% of transportation requirements of the world. Maritime activities are expanding; bringing benefits to people across the globe. The maritime sector is a major catalyst for socio-economic development and international competitiveness in a changing world. Also, maritime transport amongst other mode has been noted to be very cost-effective where movement of huge tonnages of goods and cargoes over a long distance is concerned (Oyesiku, 2019).

Historically, shipping played significant and positive roles in social and economic lives of people including the development of nations. It could be said that shipping has been very instrumental to the progress so far attained by prosperous nations worldwide. On the other hand, in Africa shipping played a major role in the exploitation and subsequent depletion of its human and natural resources. Nevertheless, it was also the veritable means for the development of trade and commerce (Clark et al, 2001).

Maritime shipping represents the most ancient global transportation, holding an irreplaceable role in geographical discovery, culture communication and economy development in history (Bird, 1970). Maritime transportation plays a major role in the national and international trade and economic growth (Ndikom, 2004). The Nigerian shipping industry is one of the important sectors of the economy that contribute only second to the oil and gas industry, in terms of foreign exchange transaction/earnings and facilitation of Nigeria's international trade (Ugboma, 2004).

In Nigeria, practically all major imports and exports transactions move through the seaports. Hence, the efficiency and inefficiency of the maritime subsector affect profoundly the cause of import as well as the competitiveness of export. Furthermore, the maritime transport subsector is a large employer of labour (both skilled and unskilled) if indirect employment generated through the maritime sector such as insurance, customs, haulage, clearance and logistics, storage, free zones activities, sorting out the incoming and outgoing cargo, industrial and other value added activities are considered (Okeudo, 2013).

Seaports are the major gateways for many countries' international trade and are a good instrument and indicators for measuring the economic development of a nation. Being a sub-system of the total transport network and a meeting place of other modes of transport, the seaport is essentially an economic infrastructure that handles domestic and overseas cargoes. An efficient port raises the productivity and improvement of factors of production (labour and capital) and profitability of the producing units thereby permitting higher levels of output, income and reduces unemployment (Talley, 1998).

Maritime transportation system is an integrated network of both the seaport and internal waterways. It is also a network not limited to Nigeria alone but in the global transportation and logistics network because the seaport is central or a nexus of the global integrated system. The countries port system is overseen by the Nigerian Port Authority (NPA). It coordinates port operations and government business as well as maintenance and improvement of infrastructure relating to the maritime sector. Among this broad range of activities are those involving shipping operations, stevedoring activities, clearing and forwarding business, maritime insurance, warehousing, transport and haulage, customs, immigration and the other informal sector. Of all those activities, shipping stands out as the greatest boost to a nation's economic growth. This is because almost all other maritime activities revolve around shipping activities. The exportation and importation of goods for the most parts take place through the nation's seaport. Apart from shipping trends in the country, there has been a continuous rise in the general cargo throughput handled by the nation's maritime transport.

Table 1 shows the volume of cargo throughput handled at the Nigerian ports from 1995 to 2018. Since 1996 there has been a rapid rise in cargo throughput culminating in an unprecedented volume in 2011. It is worthy of note that average cargo throughput from 1956 to 2005 is 14,467,024 metric tons while the average cargo throughput from 2006 to 2018 is 70,926,939.38 metric tons. The yearly average cargo throughput of 70,926,939.38 metric tons of cargo from 2006 to 2018 over the yearly average of 14,467,024 metric tons from 1956 to 2005 shows a percentage increase of 490.26%. This shows the remarkable progress made in our port developmental efforts since the port concession era. The statistics on Table 1 also shows that the cargo throughput increased from 49,173,324 metric tons in

2006 to 73,175,127 metric tons in 2018. This means that between 2006 and 2018, cargo throughput at the nation's ports increased by over 67 percent.

Table 1. *Cargo throughput at Nigerian Ports 1995 – 2018*

YEAR	INWARD	OUTWARD	TOTAL
1995	9,289,971	3,983,082	**13,273,053**
1996	10,224,300	5,251,001	**15,475,301**
1997	11,213,624	5,369,181	**16,582,805**
1998	14,286,864	5,038,854	**19,325,718**
1999	15,751,331	6,481,605	**22,232,936**
2000	19,230,496	9,702,384	**28,932,880**
2001	24,668,791	11,271,901	**35,940,692**
2002	25,206,380	11,780,861	**36,987,241**
2003	27,839,293	11,926,652	**39,765,945**
2004	26,907,075	13,909,872	**40,816,947**
2005	29,254,766	15,697,312	**44,952,078**
2006	31,937,804	17,235,520	**49,173,324**
2007	35,865,996	21,607,354	**57,473,350**
2008	41,385,973	23,806,946	**65,192,919**
2009	49,962,875	16,945,447	**66,908,322**
2010	50,902,333	24,007,951	**74,910,284**
2011	52,022,105	31,439,592	**83,461,697**
2012	46,222,127	30,870,498	**77,092,625**
2013	50,005,603	28,276,031	**78,281,634**
2014	53,771,183	31,180,744	**77,387,638**
2015	48,111,361	29,276,277	**77,092,625**
2016	43,470,646	26,894,390	**70,365,036**
2017	43,099,088	28,436,548	**71,535,636**
2018	45,198,981	27,976,146	**73,175,127**

Source: Nigerian Ports Authority, 2019

Figure 1 depicts the trend of cargo throughput at the Nigerian ports during the period under review. The figure represents the entirety of growth in port traffic including some fluctuations. The chart shows the interplay between inward and outward cargo throughputs.

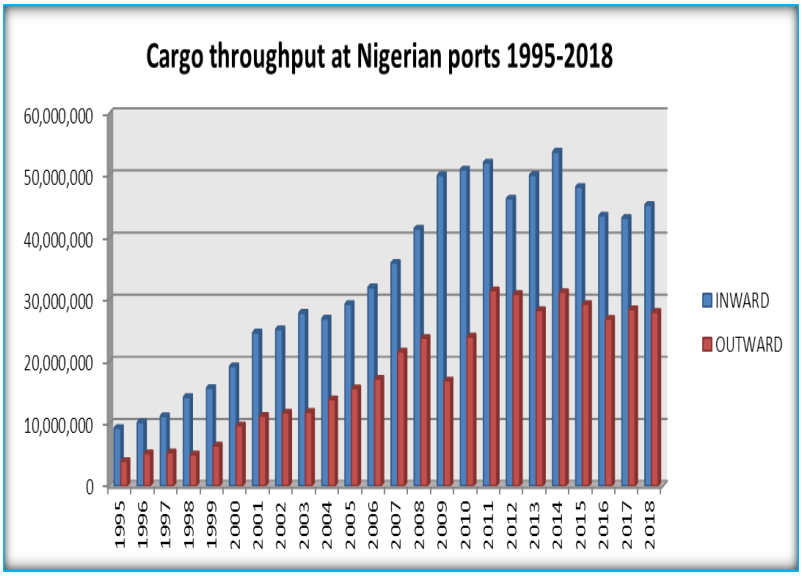

Figure 1. *Cargo throughput at Nigerian Ports (1995 -2018)*
Source: Nigerian Ports Authority, 2019

2. CONCEPT OF MANPOWER DEVELOPMENT

Organization of men for management purpose to actualize an objective or a goal can be traced back to the stone-age. Manpower can be classified as a primary resource in which other resources are dependent on. Hence, it is seen as the number of people available for work or those working. Obi-Anike et al (2017) reported that, manpower definition depicted some enhancing elements in management of organization resources that aid improvements in employees' productivities. For every organization to be effective, manpower is an important asset in which its continuous development will not only improve the knowledge, skills/abilities of employees but also exponentially grow the organization's productivity (Obi-Anike et al., 2017 & Rastogi, 2002). Employees and organizations are the major elements that manpower developments focus on for their respective improvements in competencies and capacity malleability to boost their values that have direct impact on productivity (Collis & Montgometry 1995 & Garavan et al. 2001). In addition, several scholars are with the perception that manpower development is an inherent investment to actualize productivity growth for any organization (Ofobruku, 2012).

Manpower planning modelling has been accomplished by different approaches of which researchers proposed two main models: Interactive and Rational planning models respectively (Anderson, 2004). Masoumeh (2015), differentiates between the two models by their description thus: The Interactive Planning Model (IPM) is less systematic and more participatory through environment integration while, Rational Planning Model (RPM) considered

utilization of analytical tools in planning such as linear, comprehensive, social demand and single institute, human power planning, cost benefit and mathematical models to achieve targeted goals.

Most Nigerian establishments' manpower policies appears to be guided by the traditional method of allocating various jobs in a hierarchical structure of implementing the 3R's of allocating the right number of people in the right place at the right time, a technique that is now noncurrent as it has deficiency in state-of-the-art method that deals with manpower policy in the context of organizational strategy. This method also lacks computational tools that enable managers to determine possible line of action to be taken in managing organization manpower policy in actualization of the expected outputs and does not give room to generate alternative policies and strategies (Igboanugo & Onifade, 2011). According to Garavan et al. (2001) this is so as a result of impact of technological advancement, changes in demands of customers and political factors which have made establishments to continuously operate in ever changing environments leading to new job contents and transformation of services and products. In this study, the existing manpower database of Nigerian Ports Authority was investigated and analysed via multivariate regression analysis. The method advocated is descriptive and through its computational tools, can generate outcomes that will enable normative models to be formulated. In this regard, prescriptive standard that can guide manpower policy to the desired direction can be easily established the extent it has aided economic growth and development can be determined.

3. MATERIALS AND METHODS

3.1 THE STUDY AREA

Port development history in Nigeria can be dated back to the middle of 19thcentury. This was long after the onset of sea borne trade and transactions which followed the early explorations on the African coasts. Initial efforts towards provision of infrastructural facilities for ocean going vessels were the attempts to open up the entrance to the Lagos Lagoon.

The Nigerian Ports Authority commenced operations in April 1955 following the implementation of the Ports Act of 1954. It has the responsibility of providing specific ports and harbour services for the country's maritime industry as well as the provision and operation of cargo handling and quays facilities, pilotage and towage services, supply of water and fuel to vessels at anchorage or mooring buoys, repairs and maintenance of vessels and dredging of water ways. There are basically six (6) major seaports in Nigeria namely Lagos Port, Tin-Can Port, Calabar Port, Delta Port, Port Harcourt Port and Onne Port. These ports are controlled and managed by the Nigerian Ports Authority (NPA). Figure 2 is a political map of Nigeria.

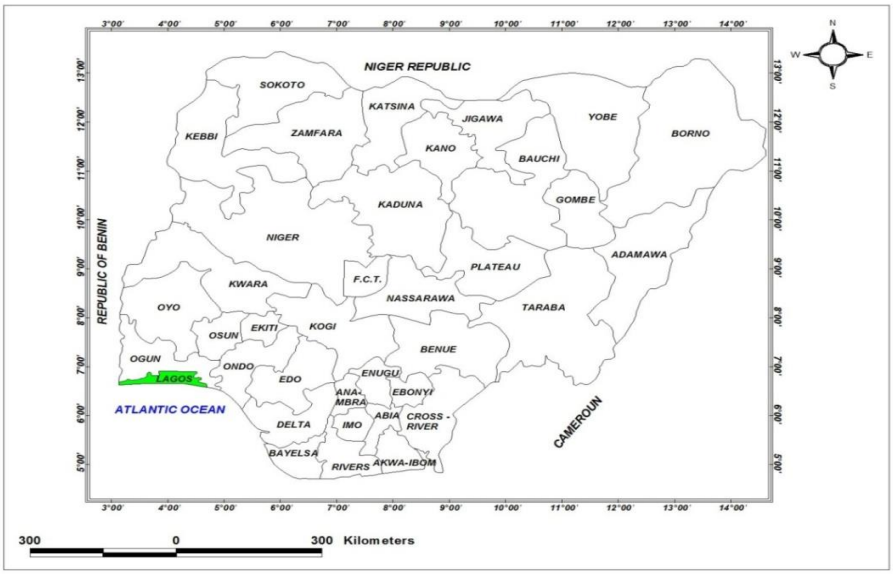

Figure 2: *Map of Nigeria*
Source: Ministry of Physical Planning, Lagos State

Figure 3 is showing the existing ports in Nigeria and the towns they are located.

Figure 3: *Major Nigerian Seaports*
Source: Badejo, and Solaja, (2017)

3.2 DATA ANALYSIS

The structure of this investigation comprises description of the manpower structure of Nigeria Port Authority being studied. For mathematical tractability the states space investigated was made up of five which are as follows: Recruitment, Wastage, Staff Stock, Training and Retirement. A purposive and quota sampling method was used, in which a twenty-year (2000 - 2020) manpower data was analysed. Multivariate analysis was utilized to analyse the data collected. The multivariate analysis applied to the data was used to develop an expression which described the manpower flow of the organization studied.

With the Consideration of equation (1), MATLAB software was used for the computation.

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \varepsilon \quad (1)$$

Using the method of least squares, the following set of normal equations was developed.

$$\sum y = n\beta_0 + \beta_1 \sum x_1 + \beta_2 \sum x_2 + \beta_3 \sum x_3 + \beta_4 \sum x_4 + \beta_5 \sum x_5 + \varepsilon \quad (2)$$

$$\sum x_1 y = \beta_0 \sum x_1 + \beta_1 \sum x_1^2 + \beta_2 \sum x_1 x_2 + \beta_3 \sum x_1 x_3 + \beta_4 \sum x_1 x_4 + \beta_5 \sum x_1 x_5 \quad (3)$$

$$\sum x_2 y = \beta_0 \sum x_2 + \beta_1 \sum x_1 x_2 + \beta_2 \sum x_2^2 + \beta_3 \sum x_2 x_3 + \beta_4 \sum x_2 x_4 + \beta_5 \sum x_2 x_5 \quad (4)$$

$$\sum x_3 y = \beta_0 \sum x_3 + \beta_1 \sum x_1 x_3 + \beta_2 \sum x_2 x_3 + \beta_3 \sum x_3^2 + \beta_4 \sum x_3 x_4 + \beta_5 \sum x_3 x_5 \quad (5)$$

$$\sum x_4 y = \beta_0 \sum x_4 + \beta_1 \sum x_1 x_4 + \beta_2 \sum x_2 x_4 + \beta_3 \sum x_3 x_4 + \beta_4 \sum x_4^2 + \beta_5 \sum x_4 x_5 \quad (6)$$

$$\sum x_5 y = \beta_0 \sum x_5 + \beta_1 \sum x_1 x_5 + \beta_2 \sum x_2 x_5 + \beta_3 \sum x_3 x_5 + \beta_4 \sum x_4 x_5 + \beta_5 \sum x_5^2 \quad (7)$$

Validity test was carried out to guide the utilization of the model developed. The industrial manpower planning data obtained were treated as random variables x_i, which serves as the independent variables and total manpower planning y, represent yearly outcome of various manpower planning for the multivariate analysis carried out. Table 2 shows a description of these variables.

Table 2: *Manpower planning data*

Variables	
x_1	Recruitment
x_2	Wastages
x_3	Retirement
x_4	Staff Stock
x_5	Training

3.3 RESULTS AND DISCUSSION

The obtained values of the computed variables were substituted into equations (1 to 7) and are represented as equation (8 to 13) respectively.

$$311293 = 20\beta_0 + 5202\beta_1 + 12457\beta_2 + 2194\beta_3 + 290227\beta_4 + 1213\beta_5 \quad (8)$$

$$75339941 = 5202\beta_0 + 3352484\beta_1 + 1667571\beta_2 + 476811\beta_3 + 72668338\beta_4 + 270737\beta_5 \quad (9)$$

$$220466222 = 12457\beta_0 + 1667571\beta_1 + 37776897\beta_2 + + 2202693\beta_3 + 179206777\beta_4 + 674284\beta_5 \quad (10)$$

$$37252461 = 2194\beta_0 + 476811\beta_1 + 2202693\beta_2 + + 488308\beta_3 + 34217847\beta_4 + 29341\beta_5 \quad (11)$$

$$4737260167 = 272227\beta_0 + 69572338\beta_1 + 178144777\beta_2 + + 33947847\beta_3 + 4433145349\beta_4 + 15573856\beta_5 \quad (12)$$

$$16746628 = 1213\beta_0 + 270737\beta_1 + 674284\beta_2 + + 136802\beta_3 + 18021856\beta_4 + 90949\beta_5 \quad (13)$$

These equations (8 - 13) were converted into their matrix forms; with equation (14) representing the solution vector on the left-hand side of the equations.

$$A = \begin{bmatrix} 311293 \\ 75339941 \\ 220466222 \\ 37252461 \\ 4737260167 \\ 16746628 \end{bmatrix} \quad (14)$$

While the variables vector on the right-hand side of the equations is shown in equation (15).

$$B = \begin{bmatrix} \beta_0 \\ \beta_1 \\ \beta_2 \\ \beta_3 \\ \beta_4 \\ \beta_5 \end{bmatrix} \quad (15)$$

And the coefficient matrix of these equations is shown in equation (16).

$$C = \begin{bmatrix} 20 & 5202 & 12457 & 2194 & 290227 & 1213 \\ 5202 & 3352484 & 1667571 & 476811 & 72668338 & 270737 \\ 12457 & 1667571 & 37776897 & 2202693 & 179206777 & 674284 \\ 2194 & 476811 & 2202693 & 488308 & 34217847 & 29341 \\ 2722227 & 69572338 & 178144777 & 33947847 & 4433145349 & 15573856 \\ 1213 & 270737 & 674284 & 136802 & 18021856 & 90949 \end{bmatrix} \quad (16)$$

Hence, the relationship between regression parameter is as represented in equation (17).

$$B = C^{-1} * A \quad (17)$$

The regression parameters were obtained by solving equation (17) using MATLAB software. The obtained regression parameters are as follows:

$$B = \begin{bmatrix} \beta_0 \\ \beta_1 \\ \beta_2 \\ \beta_3 \\ \beta_4 \\ \beta_5 \end{bmatrix} = \begin{bmatrix} 13264 \\ -6 \\ 2 \\ -70 \\ 1 \\ -143 \end{bmatrix}$$

Thus, the multivariate linear regression model developed is:

$$\hat{y} = 13264 - 6x_1 + 2x_2 - 70x_3 + x_4 - 143x_5 \quad (18)$$

The model output $\hat{y}$ is the manpower flow of the organization subject to the five (5) states in the manpower data obtained. Table 3 shows the data and computed statistics.

Table 3. *Data Analysis to validate the multivariate regression developed*

Actual manpower	Forecast Manpower	Error	Abs Error	Running Sum of Error	Running Mean Absolute Error	Tracking Signal
14571	2253	12318	12318	12318	12318.0000	1.0000
13659	8392	5267	5267	17585	8792.5000	2.0000
13171	4610	8561	8561	26146	8715.3333	3.0000
13204	5125	8079	8079	34225	8556.2500	4.0000
12153	5292	6861	6861	41086	8217.2000	5.0000
12440	8997	3443	3443	44529	7421.5000	6.0000
12482	10905	1577	1577	46106	6586.5714	7.0000
12430	15389	-2959	2959	43147	6133.1250	7.0351
12864	12725	139	139	43286	5467.1111	7.9175
13711	7814	5897	5897	49183	5510.1000	8.9260
14874	8106	6768	6768	55951	5624.4545	9.9478
13368	11033	2335	2335	58286	5350.3333	10.8939
13144	12683	461	461	58747	4974.2308	11.8103
17808	23204	-5396	5396	53351	5004.3571	10.6609
17114	28178	-11064	11064	42287	5408.3333	7.8189
17262	26926	-9664	9664	32623	5674.3125	5.7492
21103	18031	3072	3072	35695	5521.2353	6.4650
20386	11856	8530	8530	44225	5688.3889	7.7746
21766	7798	13968	13968	58193	6124.1579	9.5022
23783	-7147	30930	30930	89123	7364.4500	12.1018

Source: Author's Computation, 2020

Measures of Forecast Accuracy

The Mean Forecast Error was determined by considering equation 19.

$$\text{MFE} = \frac{\sum(e_i)}{n} \quad (19)$$

Where MFE stands for Mean Forecast Error and $\Sigma(e_i)$ is the Running Sum of Error

$$\sum(e_i) = 89123$$

n = 20

$$MFE = \frac{89123}{20} = 4456.15$$

Since the MFE value (4456.15) is positive and lower than all the actual manpower data values, the multivariate regression model development is appropriate for the description of the manpower data obtained from the Nigerian Ports Authority.

The Tracking Signal (*Ts*) is obtained by considering equation (20), where MAD (Mean Absolute Deviation) is obtained via equation (21)

$$Ts = \frac{\sum e_i}{MAD} \qquad (20)$$

$$\text{MAD} = \frac{\Sigma |ei|}{r} \qquad (21)$$

$$\frac{\sum |e_i|}{r} = \frac{147289}{20}$$

$$= 7364.45$$

$$\sum e_i = 89123$$

$$Ts = \frac{89123}{7364.45} = 12.10$$

Since the in-sample tracking signal did not exceed the computed value of 12.10, the multivariate regression developed is appropriate for the description of the manpower data obtained from the Nigerian Ports Authority.

The relationship between the manpower flow and the various states available is shown in Table 4.

Table 4. *Description of Manpower Flow with respect to the various states.*

Manpower Flow with respect to the various states	**Description**
$\beta_o = 13264$	This is the autonomous minimum manpower strength below which the system cannot function properly.
$\frac{\partial Y}{\partial X_1} = \beta_1 = -6$	Manpower flow with respect to recruited staff. The marginal propensity to recruit staff, on the average, progressively decreased to six times its former average level. Put in another way, the yearly incremental addition to staff stock (marginal increase) through recruitment had progressively declined by six times its

	average level of growth rate over time.
$\beta_2 = \frac{f\left(\hat{y}\right)}{g\left(x_2\right)} = 2$	This is the manpower flow with respect to wastage. Over time, it was noticed that staff who abort or have their services aborted had doubled.
$\beta_3 = \frac{f\left(\hat{y}\right)}{g\left(x_3\right)} = -70$	This is the manpower flow with respect to retirement. The stock of staff when it reached maturity started shedding the old stock that had reached retirement age. Out of every 700 staff, 10 were steadily being lost through retirement. The flow is unto absorption (retirement) which connotes negative (loss).
$\beta_4 = \frac{f\left(\hat{y}\right)}{g\left(x_4\right)} = 1$	This is the manpower flow with respect to staff stock. The flow of staff stock was steady (+1). This implies that deliberate attempt was made to maintain a steady and balanced workforce over time.
$\beta_5 = \frac{f\left(\hat{y}\right)}{g\left(x_5\right)} = -143$	This is the manpower flow with respect to staff on training. Flow of staff into training is substantially high. According to the manpower policy, all recruits as well as staff stock undergoes training within and outside the country. During training, these staffs make little contribution to the stock because they exit temporarily thus signifying negative flow. A minimum number of 7 out of every 1000 staff $\left(\frac{1000}{7} = 143\right)$ go on training.

Source: Author's Computation, 2020

3. CONCLUSION

The relevance of international trade in socio-economic development and growth of a nation is paramount. Ports management facilitates global trade. Equipment and materials imported for capacity development and industrial use come through the ports.

This paper has demonstrated that the Nigeria's national maritime sector faces great challenges most especially in the area of manpower training and development. Training and retraining of personnel are very necessary in the effective performance of their functions. This is particularly so because development and sustenance of the sector depend on the availability of the right manpower at the right time and place. From the above, it is clear that there is a great need for skilled manpower in the country's maritime industry.

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REFERENCES

Adams, M. (2002). *Cruise ship pollution fine draws criticism.* USA Today.

Afolabi, J.O. (2012). *An Appraisal of Motorcycle Operation: A Case Study of Ikeja LGA.* Unpublished Thesis submitted for the degree of Masters in Transportation Planning and Management, Department of Geography, University of Lagos, Akoka.

Anderson, M. W. (2004). The metrics of workforce planning. *Public Personnel Management Journal*, 33(4), 363-378.

Badejo, B., & Solaja, M.O. (2017). The Nigerian seaports and development (1900-2015): Historical perspectives and dynamics. *International Journal of Development and Sustainability*, 6(9), 1007-1024.

Bird, J. (1970). *Seaports and Terminals.* Department of Transport Geography, University of Southampton, England.

Clark, X., Dollar D., & Micco, A. (2001). *Maritime Transport Costs and Port Efficiency.* World Bank Group Washington DC.

Collis, D. J., & Montgomery, C.A. (1995). Competing on resources: Strategy in the 1990s. Harvard *Business Review*, 8:118-28.

Garavan, T.N., Morley, M., Gunnigle, P., & Collins, E. (2001). Human capital accumulation: The role of human resource development. *Journal of European Industrial Training*, 25:48-68.

Igboanugo, A.C., & Onifade, M.K. (2011). Markov Chain Analysis of Manpower Data of a Nigerian University. *Journal of Innovative Research in Engineering and Science*, 2(2), 107-123.

Lagos State Government (2018). Official Gazette of the Ministry of Physical Planning, Lagos State of Nigeria.

Masoumeh, A. (2015). Manpower planning for demand forecasting of faculty members using trend analysis and regression. *International Journal of Academic Research in Business and Social Sciences*, 5(2), 23-31.

McCalla, Robert J., & Brian Slack. (2011). Global Economic Change: Implications for Ports, Corridors and Value Chains. In Integrating Seaports and Trade Corridors.

Ndikom, O.B. (2004). *The essential of port reforms: The Nigerian Experience.* Lagos: Bumico Publishers.

Nigerian Ports Authority (2012). Nigerian Ports Authority Handbook. Lagos: NPA Corporate Planning Unit.

Obi-Anike, Ozioma, H., Ofobruku, S.A., & Okafor, C.N. (2017). Manpower Development and Employees' Performance: Qualitative Assessment of Small and Medium Scale Business in Abuja Nigeria. *Journal of Economics, Management and Trade,* 18(3), 1-6.

Ofobruku, S.A. (2012). Hospitality and tourism manpower training and education in Nigeria. *Afro Asian Journal of Social Sciences,* 3(3), 1-18.

Okeudo, G.N. (2013). Measurement of Efficiency Level in Nigerian Seaport after Reform Policy Implementation. Case Study of One and Rivers Seaport, Nigeria, *IOSR Journal of Business.*

Oyesiku, O.K. (2019). *Port Innovation and Blue Economy Development.* Seminar Paper Presented at a Seminar Organized by the Nigeria Port Authority in Kigali Rwanda From November 25th – 29th 2019.

Rastogi, P. N. (2002). Sustaining enterprise competitiveness is human capital the answer. *Human System Management Journal, 19 (3), 193-203.*

Talley, W.K. (1998). Optimum throughput and performance evaluation of marine terminals. Maritime Policy and Management.

Ugboma C., Ibe C., & Ogwude I.C. (2004). Service Quality measurements in developing economy: Nigerian Port survey managing service quality.

UNCTAD (2008). Importing Port Performance: Management of General Cargo Operations Drake Educational Associates Ltd., Cardiff. Geneva: UNTAD.