EUROPEAN ACADEMIC RESEARCH
Vol. XIII, Issue 4/ July 2025

Impact Factor: 3.4546 (UIF)
DRJI Value: 5.9 (B+)

ISSN 2286-4822
www.euacademic.org

Supply Chain Management and Firms Performance of Kano State Oil and Gas Sector

Dr NURA SANI YAHAYA
Dr SUNUSI YAKUBU AHMAD
MUJIBA MUHAMMAD ALHASSAN
Kano State College of Education and Preliminary Studies

Abstract

In recent years, policymakers, managers and firm's owners have given a great concern on supply chain management toward enhancing organizational and firm performance for greater production, profit and increased corporate social responsibilities. Hence, this study examines the influence of supply chain management adoption on Kano State oil and gas firm's performance. The study used a structured questionnaire to obtained data for the study analysis and ordinary least square (OLS) as the method of the analysis. The measurements of the supply chain management adoption found positive in influence firm's performance in Kano state.in addition, age and the level of education of the firm's owners are also positive in determining the level of firm's performance in Kano state. However, family size decrease firms performance. Therefore, policy recommendations to the all stakeholders involve would be toward enhancing these determinants for better firm's performance.

Keywords: Supply chain management, firm performance, OLS, Kano

1 INTRODUCTION

Globally firm's growth have been intensified and accelerates the level of production capacity, profit and employment in the recent years (World Bank, 2020). It is stressed that over 60% of the world's production were generated form the increased firm performance, yielding almost 20% raise in youth employment (World Bank, 2020). Despite the negative effects of COVID-19 pandemic, firm's performance remain positive and expected to increase by 3.4 % in 2025 (IMF, 2019). International Monetary Fund (2020) projected that global output growth in 2023 will reach 5.2% higher than that of 2.8% in 2019. Similarly, in 2021 Apple company reveals the highest net revenue among the companies in the world with profit of 57.4 billion US dollars, Saudi Aramco, Soft Bank group, the industrial and commercial bank of China and Microsoft were among the five most profitable firms (WTO, 2021). It is emphasized that several factors and new dimensions strategies like supply chain management have trigger higher firms performance (Kim & Shin, 2019). Firms in developing economies remain in steady growth performance largely due to transmitted effect of COVID-19 pandemic (De Beer & Tissot, 2021). Nonetheless, considerably firms in developing nations contributes immensely to the growth of output, profit level and employment generation. It is reveals that over 25% youth in Sub-Saharan African were employed in to the various firms in the region, which resulted a drop in poverty, by 0.002% (IMF, 2020).

Nigeria is the most populated nation in Africa with 1.95 billion US dollar growth rate in 2020 and ranked 116th in the global comparison. The nation has a significant number of large companies with over 80-trillion naira market capitalization indicating a strong overall strong economic performance (NBS, 2020). Statistics shows that in 2019, 76, 994, 578 micro firms were recorded in the nation while 108, 167 small firms and 9,670 medium and large companies were also recorded (NBS, 2020). This indicates that a total 77, 112, 415 small and large firms were recorded which are more than what was obtained in the previous decade. Moreover, the sector employed almost 84.02% of Nigerian total labour force. In addition, firms in Nigeria contribute about 48.47% to the nation's gross domestic product and 7.2% of the total volume of exportation in 2020 (CBN, 2020). In spite of this development unemployment rate remains positive. For instance, according to NBS (2020) unemployment rate has been increasing since 2010 amounting to 6.1% in 2019. Similarly, profit and production level have dropped to a significant level due to the restrictions put in place of COVID-19 pandemic. In this regard, the situation may transmit into higher poverty level, low standard of living and higher social problems in the nation.

In another development, the opportunities of supply chain management currently promotes the level of acceptance and awareness in production management (World Bank, 2019). Hence, the facilitation of supply chain accelerates firm's performance especially in the level of employment and economic progress (UNCTAD, 2018).

Recently, Nigeria focuses on promoting the capacity with regards to oil industry. NBS (2020) stressed that the annual growth of the nation has risen to over $ 300 billion in the last decade. Improvements in customer awareness and linkages of firm's production to customers have upsurge as a result of supply chain management (Alladi et al., 2019). Nonetheless, inefficient firms performance, rise in unemployment rate, poverty and social unrest in Nigeria might be linked with poor supply chain management adoption. Therefore, promoting awareness on supply for firm will trigger firm's performance to a higher level in the country.

Moreover, Firms have played remarkable role in promoting global economic growth, development and industrialization of many economies. In Nigeria, statistics shows that the trend in firm's development has been increasing. The firms enrolment into production have reached almost 18% in a decade and the growth value increased to the turn of 48.8% representing about 84.02% of the labour force employed in the country (CBN, 2018). Despite this improvement, the level of unemployment has been accelerating. For instance, (NBS, 2020) reported that from 2015 to 2019 the capacity of firm's production output in the nation has decline by almost 16%, which in turn reduce the level of firm's profit (NBS, 2020). This situation invariably affects employment level and also increased social issues like robbery, kidnapping and other criminal activities (Iyekekpolo, 2020).

In this regard, the above situation may escalate to high poverty rate, low income, low standard of living and high social problems. Several studies have suggested new innovation in supply chain management and technology in promoting firms performance. Hence, the above deteriorating condition might be due to poor supply chain management adoption in Nigeria, Kano State. Therefore, the study examines the effect of supply chain management adoption on firm's performance of the Kano State oil and gas sector.

2. LITERATURE REVIEW

Relationship among supply chain management and firm's performance have been discussed in the literature. For example, study by Liu et al. (2016) examine the influence of supply chain management adoption on firm's performance through the use of effective utilization and delivery performance. The results reveals that supply chain technology upsurges firm's performance. Carter et al. (2017) emphasized on supply chain management adoption in promoting firms performance. Schmidt et al., (2017) documented that supply chain management approach especially with regards to green factors improves firm's performance. Similarly, Namagembe et al., (2019) used 200 managers of manufacturing firm's data set in Uganda to examine the influence of supply chain management approach on firm's performance. The outcome reveals a positive effect of supply chain management on firm's output.

In another development, Delic and Eyers (2020) employed PLS-SME and 124 European automotive firms to analyse the effect of supply chain management adoption. The findings illustrates that supply chain management adoption strongly accelerates firms performance. Agyabeng-Mensah et al. (2020) examine the influence of green supply chain management potentials on firm's sustainability performance using PLS technique. The outcome shows that green supply chain approach increases firm's sustainability performance. Based on the literature-reviewed relationship among supply chain management adoption and firms performance has studied in the empirical literature. However, the basic approach of sustainability mechanism like new innovation and green factors measurement in Nigeria, especially oil and gas sector have not been investigated with respect to supply chain management by previous studies. Moreover, examining the effect of supply chain management practice effect in different dimension of the level of employment, output and firms profit have petite attention in the literature. In addition, the interaction of sustainability measurement on firm performance have not been taken are in the literature.

3. METHODOLOGY

The current study relies on primary data and questionnaires and used as the source of data generation. The target population for the study covers Kano State oil and gas firms with the sample size of 150 firms. The study utilized ordinary least square methods for the data analysis.

3.1 Model of the study

Supply chain management adoption and firm performance (output) model**.** In order to achieve this objective a changed model by Liu et al. (2016) is used as in the following equation:

$$Out_i = \alpha + \beta_1 Sca_i + \beta_2 scw_i + \beta_3 Scu_i + \beta_4 Ed_i + \beta_5 Ag_i + \beta_6 Fs_i + \beta_7 Gn_i + \varepsilon_i \quad (1)$$

Therefore, Out indicates the level of firms output (firms performance), Sca means adoption of supply chain management, Scw, illustrates awareness of supply chain management, Scu shows use of supply chain management, level of education is indicated by Ed, Gn gender, family size Fs, ß, $\mathcal{E}$ shows the errors, t time and $_i$ cross-section

Diagnostic Checking

Test for parallel assumption was applied for the model validation.

4. RESULTS

Table 1 presents the result of the supply chain management adoption. The findings reveal that adoption of supply chain management increased the level of firm's performance in Kano state. This implies that adoption of supply chain management increased the firms output by 3.1 percent. It is clearly indicated that adoption of supply chain management is linked with 3.1 rise in firm's performance. Therefore, government and stakeholders should come up with policies that provide enabling avenue for the firms to adopt supply chain management to enhance firm's performance, through reduced cost of production and the new methods. This outcome is similar to the study by (Kumar and Iyengar, 2017). Likewise, an increase in supply chain management awareness and usage leads to increase in firm's output performance by 1.0 and 2.0. Furthermore, an additional age and educational level increase the level of firm's performance by 0.1, and 1.5, respectively. Nevertheless, an acceleration in family size of the firm owner reduce the level of firm's performance by 0.03. Conversely, gender has no impact on firm's performance in Kano states.

Estimated model of supply chain management adoption and firms performance

Table 1: outcome of the estimated model of supply chain management adoption and firm's performance

Variables	Co-efficient	SD error	T-value	Prob.
SCA	3.170**	0.551	0.629	0.008
SCW	1.031*	0.814	6.433	0.000
SCU	2.004*	0.974	-0.745	0.000
AG	0.182**	0.086	2.743	0.057
GN	2.421	0.473	-5.784	0.491
FS	-0.032**	0.826	1.436	0.040
ED	1.582**	0.094	2.083	0.000
Constant	1.632**	0.652	2.784	0.004
R^2Adjusted = 68.0				

Notes: *, **, *** denote significance at 1, 5 and 10 percent level.

Table 2 shows the model validation tests. The outcome indicates no normality and autocorrelation problems. Hence, the model is valid for policy recommendation.

Table 2. Model validation test

Test	F-statistics	Prob.
Serial correlation	0.784	0.241
Breusch-Pagan	0.612	0.832

5. CONCLUSION

This study empirically examine the influence of supply chain management and firms performance in Kano State using ordinary least squares method. The findings of the study reveals that factors such as adoption of supply chain management, awareness, use, level of education, age, and family size positively influence firm's performance in Kano state. Based on the study findings it necessary for the policymakers to adopt supply chain management as an avenue to promote firms performance since it has proved a positive link in increasing firm's performance. This could be done through

enhancing the level of adoption, awareness and the use of supply chain management in both private and public organizations. Hence, the research is significant to policy makers and stakeholders on the policies aimed at promoting efficiency in supply chain management and firm's performance.

REFERENCES

1. Agyabeng-Mensah, Y., Ahenkorah, E., Afum, E., Nana Agyemang, A., Agnikpe, C., & Rogers, F. (2020). Examining the influence of internal green supply chain practices, green human resource management and supply chain environmental cooperation on firm performance. *Supply Chain Management*, *25*(5), 585–599. https://doi.org/10.1108/SCM-11-2019-0405
2. Alladi, T., Chamola, V., Parizi, R. ., & Choo, K.-K. . (2019). Blockchain Applications for Industry 4.0 and Industrial IoT: A Review. *IEEE Access*, *7*(1), 176935– 176951.
3. Anitha, J. (2014). Determinants of employee engagement and their impact on employee performance. *International Journal of Productivity and Performance Management*, *63*(3), 308–323. https://doi.org/10.1108/IJPPM-01-2013-0008
4. Carter, C. R., Kosmol, T., & Kaufmann, L. (2017). Toward a Supply Chain Practice View. *Journal of Supply Chain Management*, *53*(1), 114–122. https://doi.org/10.1111/jscm.12130
5. Central Bank of Nigeria. (2018). *Statistical Bulletin*.
6. Central Bank of Nigeria. (2020). *Statistical Bulletin*.
7. Chaudhry, S. (2016). Role of gender and ethnicity diversity on the performance of employee. *International Journal of Research in IT and Management (IJRIM)*, *6*(11), 112–119.
8. De Beer, B., & Tissot, B. (2021). Official Statistics in the Wake of the Covid-19 Pandemic: A Central Banking Perspective. *Theoretical Economics Letters*, *11*(04),
9. 695–723. https://doi.org/10.4236/tel.2021.114047
10. Delic, M., & Eyers, D. R. (2020). The effect of additive manufacturing adoption on supply chain flexibility and performance: an empirical analysis from the automotive industry. *International Journal of Production Economics*, *2*(1), 26–32.
11. https://doi.org/10.1016/j.ijpe.2020.107689
12. Dillman, D. A. (2011). *Mail and internet surveys: the tailored design method 2007*. John Wiley & Sons.
13. Group World Bank. (2019). *Global economic prospects*.
14. IMF. (2019). *Global Trade Liberalization and the Developing Countries*.
15. IMF. (2020a). *Global economic outlook*.
16. IMF. (2020b). *Regional Economic outlook:Sub-Saharan Africa*.
17. Iyekekpolo, W. O. (2020). Political Elites and the Rise of the Boko Haram Insurgency in Nigeria. *Terrorism and Political Violence*, *32*(4), 749–767. https://doi.org/10.1080/09546553.2017.1400431
18. Kim, J. S., & Shin, N. (2019). The impact of blockchain technology application on supply chain partnership and performance. *Sustainability (Switzerland)*, *11*(21). https://doi.org/10.3390/su11216181
19. Liu, Z., Prajogo, D., & Oke, A. (2016). Supply Chain Technologies: Linking Adoption, Utilization, and Performance. *Journal of Supply Chain Management*, *52*(4), 22–
20. 41. https://doi.org/10.1111/jscm.12117
21. Namagembe, S., Ryan, S., & Sridharan, R. (2019). Green supply chain practice adoption and firm performance: manufacturing SMEs in Uganda. *Management of Environmental Quality: An International Journal*, *30*(1), 5–35. https://doi.org/10.1108/MEQ-10-2017-0119
22. National Bureau of Statistics. (2020). *Statistical Bulletin*.
23. Nlom, J. H., & Karimov, A. A. (2014). *Modeling fuel choice among households in Northern Cameroon*.
24. Ozcan, B. (2013). The nexus between carbon emissions , energy consumption and economic growth in middle east countries : A panel data analysis. *Energy Policy*, 1–10. https://doi.org/10.1016/j.enpol.2013.07.016
25. Peter, M. (1980). Regression Models for Ordinal data. *Journal of the Royal Statitical Society*, *42*(2), 109–142.
26. Quartey, P., Turkson, E., Abor, J. Y., & Iddrisu, A. M. (2017). Financing the growth of
27. SMEs in Africa: What are the contraints to SME financing within ECOWAS?
28. *Review of Development Finance*, *7*(1), 18–28. https://doi.org/10.1016/j.rdf.2017.03.001
29. Sattar, T., Ahmad, K., & Hassan, S. M. (2015). Role of Human resource practice in employee performance in Pakistan. *Pakistan Economic and Social Review*, *53*(1), 81–96.
30. Schmidt, C. G., Foerstl, K., & Schaltenbrand, B. (2017). The Supply Chain Position Paradox: Green Practices and Firm Performance. *Journal of Supply Chain Management*, *53*(1), 3–25. https://doi.org/10.1111/jscm.12113

31. Tarhini, A., Arachchilage, N.A.G Masa'deh, R., & Abbasi, M. S. (2015). A Critical Review of Theories and Models of Technology Adoption and Acceptance in Information System Research. *International Journal of Technology Diffusion*, *6*(4), 58–77.
32. UNCTAD. (2018). *World Investment Report*.
33. Wang, Y. (2016). What are the biggest obstacles to growth of SMEs in developing countries? – An empirical evidence from an enterprise survey. *Borsa Istanbul*
34. *Review*, *16*(3), 167–176. https://doi.org/10.1016/j.bir.2016.06.001 World Bank. (2020). *Global Economic Prospects*.
35. WTO. (2021). *Annual Report*.