NIU Journal of Management Sciences Copyright©2026
Nexus International University ISSN: *3007-1887;* 12(1): 69-74

Supply Chain Disruption and Organisational Performance in Manufacturing Industry

EFOSA ABIODUN OSHODIN, MARGARET E. EHIGIE
University of Benin, Benin City, Nigeria

Abstract. The study explored the key dimensions of supply chain disruptions in the manufacturing industry. In the Nigeria manufacturing industry, especially the Nigeria bottling companies experience disruptions that can result from transportation delays, suppliers' failures, economic instability, or political unrest. Additionally, with the current rising cost of materials, insecurity and changing government policies in Nigeria, there was the need for this study. Supply chain disruption was proxy using these variables: supplier failure, defective products or materials and regulatory changes and then measured against organisational performance of bottling companies in Nigeria. The study further looked at the common causes of supply chain disruptions in bottling companies in Nigeria. The study population and sample size was 208 and 137 respectively. The stratified sampling technique was employed to ensure equal and fair representation of different departments, thereafter, simple random sampling was used to select the respondents. Primary data was collected using copies of structured questionnaire to elicit information from respondents. Data analysis was performed using Pearson correlation and regression analysis and the result showed that supplier failures, defective products or materials and regulatory changes has contributed to a minimal to decline in organizational performance. However, regulatory change was found to be the most significant factor influencing organisational performance.

Keywords: Supply Chain Disruption, Supplier Failure, Defective Products, Regulatory Changes, Organisational Performance.

1. Introduction

Supply chain disruption has become a central concern for organization globally, due to their significant impact on organizational performance. Supply chain which is seen as a network of individuals, organizations, resources, activities and technology involved in the creation and sales of a product, is affected by a variety of factors ranging from pandemic, natural disaster, geopolitical instability, and suppliers' failures interrupt the flow of goods and services. Over the past years events has provided stark of reminders of the destructive impact supply chain can have in organizational performance. For instance, the outbreak of COVID 19 which impacted supply chains around the world, the lockdown that took place to prevent the spread of the virus also prevented the flow of raw materials and impacted manufacturing, leaving shortages and long lead times on goods (Ivanov, 2020). A supply chain disruption is an event that disrupts the flow of goods or services in a supply chain system (Revilla and Saenz, 2017; Truong and Hara, 2018) and it have negative impact on the performance of the firm at different levels such as financial outcomes, customer satisfaction, market share, increased cost, production delay and reputation damage. For instance, a study carried out by PWC (2017) found that supply chain disruption cost companies an average of 30% in operational performance decline and up to 7% in market share loss.

While the literature discusses how disruption affect organizational performance, many organization in Nigeria still struggle to develop effective strategies for managing supply chain disruptions. The reason could include a mix of internal and external factors which includes lack of foresight and planning, inadequate data and analytics, reliance on a single source, global events and geopolitical instability and labour shortages and economic downturns. In Nigeria for example the issue is further exacerbated by factors such as inadequate infrastructure, limited technological capacities, poor coordination among supply chain partners, and lack of management systems and government policies often hinder their ability to response effectively to these disruptions (Niser, 2025).

Therefore, the objectives of the paper are to find the causes of supply chain disruptions in organisations; the impact of supplier failures, defective product or materials and regulatory changes on organizational performance in bottling companies in Nigeria.

2. Literature Review

2.1 Organisational Performance

Organisational performance refers to how well an organisation achieves its objectives, including

profitability, efficiency, customer satisfaction, innovation and adaptability. It involves comparing an organisations actual output or results with the intended ones. Recent research has highlighted how organisational performance is deeply influenced by supply chain disruptions. Disruption challenges the flow of goods, information, and finances, which in turn affects performance dimensions such as cost efficiency, customer satisfaction, and market competitiveness (Ivanov and Dolgui, 2020). In manufacturing industry, particularly for firms like Nigeria bottling companies which relies on extensive supply network for raw material such as sugar, concentrates, packaging materials, and distribution logistics, performance depends heavily on the smooth operation of supply chains. When disruption such as shortages, scarcity of materials, or transportation breakdown occurs, NBCs production and operations are directly affected (Adebiyi, Adediran, Shodiya, and Olusola, 2021). Thus, organisational performance in manufacturing industries cannot be fully understood without examining its relationship with supply chains disruption.

Supply chain disruption (SCDs) can have a significant long-term and immediate effects on organisational performance outcomes. For instance, the global crises such as the outbreak of COVID 19 pandemic and the Russia- Ukraine conflict which impacted supply chain around world also preventing the flow of raw materials and impacted manufacturing performance and reduced customer trust. According to Katsaliaki, Galetsi, and Kumar, (2022), such disruptions negatively influence key performance indicators such as operational efficiency, inventory turnover, and service levels.

In summary, for bottling companies, understanding and managing supply chain disruptions is essential not just for operational continuity but for sustaining its overall organisational performance. Supply chain stability enables bottling companies to meet its production targets, satisfy customers, and sustain profitability, reinforcing the strategic importance robust supply chain management within the manufacturing industry (Dolgui and Ivanov, 2021).

2.2 Supply Chain Disruptions

Supply chain disruption refers to any unexpected event that interrupts the normal flow of goods and services within a company's supply network. In the manufacturing industry, especially within the bottling companies in Nigeria, such disruptions can result from transportation delays, suppliers' failures, economic instability, or political unrest (Christopher and Holweg, 2017). In the case of bottling companies in Nigeria, supply chain disruptions often lead to production halts and shortages of finished products like soft drinks. Since bottling companies depends on both local and imported raw materials sugar concentrates, and packing materials any disruption in logistics-whether due to port congestion, road blockages, or foreign exchange challenges can slow down production (Moradeyo, Oke, and Muogboh, 2023).

Additionally, these disruption force bottling companies to spend more on emergency sourcing and logistics to compensate for the interruptions. The cost of bringing in materials through alternative, more expensive routes or suppliers impacts profitability (Eze, 2024). These extra operational costs directly reduce the company's margins (Choi, Rogers, and Vakil, 2021). However, Fiksel, Polyviou, Croxton, and Pettit (2015) asserted that these issues can be mitigated through better supply chain management strategies which includes diversifying its supplier base, investing in local sourcing where possible, and using technology for real-time supply chain monitoring.

2.2.1 Components of Supply Chain Disruption

Disruptions do not occur in isolation but often stem from interconnected issues within the supply chain structures (Christopher and Holweg, 2017). Among the components contributing are supplier failures, defectives products or materials, and regulatory changes. Each of these factors can independently or collectively interrupt production and distribution activities, thereby compromising operational efficiency and profitability (Baryannis, Dani, and Antoniou, 2019).

Supplier Failures: This is a critical component of supply disruption, especially in manufacturing industries where production depends heavily on timely delivery of raw materials and components. Supplier failures can arise from financial distress, operational inefficiencies, labour strikes, or even political instability in supplier regions (Ivanov, 2021). For manufacturing firms like the Nigeria Bottling Company (NBC), supplier failure can cause delays in sourcing essential items like packaging materials, concentrates, and sugar, leading to production slowdown or stoppages. According to Baryannis et al. (2019), supplier failure is one of the most unpredictable risks because companies often lack real time visibility into their suppliers' internal operations. Over dependence on a single supplier or limited suppliers base heightens vulnerability, making the supply chain brittle (Ekpudu, Odigie, Rahim, and Okpala, 2025).
Ho_1: Supplier failure do not have association with organisational performance

Defective Products/Materials: Defective product or raw materials constitute another serious form of supply chain disruption, particularly in manufacturing industry, where quality is tightly linked to brand reputation. Defective materials can disrupt production processes, results in product recalls, and incur significant financial losses due to waste and rework (Fiksel et al., 2015). According to Choi et al. (2021), defective inputs compromise operational flow as defective batches must be identified, isolated, and replaced causing time delays and resource wastage. Inconsistent quality from

suppliers or poor internal quality control mechanisms often exacerbates this issue.
Ho_2: There is no significant relationship between defective product or raw materials and organisational performance

Regulatory Changes: This includes shifts in government policies, tariffs, environmental regulations, and safety standards, can significantly disrupt supply chains (Christopher and Holweg, 2017). For manufacturing firms operating in developing economies like Nigeria, frequent changes in import/export regulations, taxation policies, and quality standards can delay procurement processes and increase compliance costs (Moradeyo, et al, 2023). For instance, bottling companies might face disruptions when sudden bans on certain packaging materials, alterations in excise duties, or stringent food safety laws are introduced without adequate adjustment periods. According to Remko (2020), regulatory changes create uncertainties that ripple through supply networks, affecting sourcing, production, and distribution.
Ho_3: Regulatory changes is independent of organisational performance

2.2.2 Causes of Supply Chain Disruption

Supply chain disruptions in manufacturing industry are caused by a variety of internal and external factors that interfere with the flow of goods, services, and information across supply network. One of the most common causes is supplier related issues, such as late deliveries, financial instability, or complete supplier shutdowns (Ivanov, 2021). Bottling Companies in Nigeria relies heavily on both local and foreign suppliers for raw materials, any delay on or failure on the suppliers' part can halt production and lead to unmet consumer demand. According to Ekpudu, et. al., (2025), suppliers' dependence without proper risk diversification can lead to a systematic breakdown when their suppliers face challenges.

Another major cause is logistics and transportation disruptions: poor infrastructure, fuel scarcity, port congestion, or road insecurity common issues in Nigeria can delay the movement of raw materials or finished products, especially for companies operating in cities like Nigeria (Moradeyo, et al., 2022). These disruptions not only increase transportation cost but also reduce responsiveness and flexibility. Additionally, natural disasters and pandemics, such as COVID-19, have exposed how global events can cause sudden breakdowns in supply chains by restricting movement, limiting workforce availability, or causing border closures (Choi et al., 2021). Technological failures also contribute significantly to supply chain breakdowns. When information systems used to track inventory, monitor supplier performance, or coordinate logistics fail, the entire chain can suffer delays and errors (Baryannis et al., 2019). For instance, delays in digital communication with suppliers or breakdown of inventory systems can results in stockouts or overstocking both of which are costly.

Lastly, regulatory and policy changes play a significant role in causing supply chain disruptions. Changes in import/export laws, tariffs, taxes, or product safety regulations can unexpectedly alter supply routes or restrict access to necessary materials (Remko, 2020). For example, if bottling companies faces new regulations banning a type of plastic used in packaging, they must quickly find alternatives or risk halting production. These types of disruptions require firms to remain agile and maintain strong relationships with both suppliers and regulators to adapt quickly when changes occur.

2.3 Theoretical Framework

This study is anchored on the contingency theory, this theory says there is no single best way to run a business. Instead, the right approach depends on the situation the organisation is facing (Donaldson, 2016). This idea is especially important in supply chain management, where unexpected events like supplier failures, transportation delays, or regulatory changes can suddenly affect how a company operates. When it comes to supply chain disruptions, contingency theory explains that organisations need to be flexible and adaptable in their strategies. This theory also highlights the importance of aligning internal processes with external realities. If an organisation continues to operate as though everything is normal during a disruption, its performance will likely suffer. But if it adjusts its operations such as speeding up decision-making, communicating more frequently with suppliers, or reallocating resources it stands a better chance of maintaining strong performance. In this way, contingency theory supports the idea that organisational success during disruptions depends on how well a company responds to changing conditions.

3. Methodology

To effectively obtain answers to the research objectives, this paper adopted the descriptive survey research design because it enabled the researcher to directly gather information from those involved about issues relating to supply chain interruptions and their effects on organizational success. The survey design also proved useful in exploring the connections between different elements, thus enabling the researcher to draw more general conclusions based on the study's findings. The study population comprised of personnel at the Nigeria Bottling Company Plc. According to company records from the Personnel Department (2024), there were a total of 208 employees, excluding domestic staff. This group was considered significant as its members actively participate in supply chain activities, production processes, and overall organizational operations, therefore making their perspectives valuable to the research. Given the population's size, the Taro

Yamane (1967) formula was employed to determine the suitable sample size which arrived at 137.The study made use of a stratified random sampling technique to ensure a fair representation of different departments, including production, procurement, logistics, sales/marketing, and administration. Within each department, simple random sampling was used to choose the respondents.

This study provides us with a model that explained the functional relationship between SCD and organizational performance. The model was regressed and stated functionally as:

Supply Chain Disruption and Organizational Performance

$OP = f(SF, DP, RC)$…….. (1)

Econometrically, the model can be specified as:

$OPi = \alpha 0 + \alpha 1SFi + \alpha 2DPi + \alpha 3RCi + \xi i$ …… (2)

Where:

OP = Organizational Performance; SF = Supplier Failure; DP = Defective Product; RC= Regulatory Changes; ξ = Error term; α0 = Parametric constant; β0= Parametric constant: α1, α2, and α3 = Parametric coefficients of elasticity of supply chain disruption displaying degrees of explanation power about organizational performance.

4. Empirical Analysis and Result

4.1 Data on Causes of Supply Chain Disruptions in the Organization

Below is a table indicating the level of common causes of supply chain disruptions in bottling companies in Nigeria

Table 1: Common Causes of Supply Chain Disruptions in the Organization

Cause of Disruption	Frequency (n)	Percentage (%)
Logistics and Transportation Issues	109	79.6%
Supplier Failure	95	69.3%
Demand Fluctuations	55	40.1%

Source: *Researchers' computation, 2026*

Table 1 presents the most commonly reported causes of supply chain disruptions based on respondents' experiences within the bottling company. The leading cause identified is logistics and transportation issues, reported by 79.6% of respondents, underscoring the criticality of efficient movement of goods and materials in maintaining supply chain continuity. This is followed by supplier failure (69.3%), which suggest environmental factors remain significant sources of instability in the supply chain. Demand fluctuations, though still notable, were reported by 40.1% of respondents, indicating that while market unpredictability is a concern, operational and environmental challenges appear more immediate or impactful in the organizational context surveyed. Overall, these findings suggest a need for robust risk management strategies focusing on logistics resilience, supplier relationships, and contingency planning against environmental shocks.

4.2 Correlation Analysis of Supply Chain Disruptions and Organizational Performance

The results from the correlation analysis provide insights into the character and orientation of the connection between the dependent and independent variables. While the correlation coefficient does not denote a direct functional dependence, it serves as a preliminary indicator of the strength and trend of this relationship. The details of these findings is as follows:

Table 2: Correlation Results of Supply Chain Disruptions and Organizational Performance

Correlations

		OP	SF	DP	RC	SCD
OP	Pearson Correlation	1				
	Sig. (1-tailed)					
	N	137				
SF	Pearson Correlation	.197*	1			
	Sig. (1-tailed)	.011				
	N	137	137			
DP	Pearson Correlation	.293**	.394**	1		
	Sig. (1-tailed)	.000	.000			
	N	137	137	137		
RC	Pearson Correlation	.507**	.389**	.643**	1	
	Sig. (1-tailed)	.000	.000	.000		
	N	137	137	137	137	
SCD	Pearson Correlation	.413**	.362**	.542**	.713**	1
	Sig. (1-tailed)	.000	.000	.000	.000	
	N	137	137	137	137	137

*. Correlation is significant at the 0.05 level (1-tailed).

**. Correlation is significant at the 0.01 level (1-tailed).
Source: *Researchers' computation, 2026*

Table 2 presents the Pearson correlation coefficients between organizational performance (OP) and key supply chain disruption factors: Supplier Failure (SF), Defective Products (DP), Regulatory Changes (RC), and Supply Chain Disruptions (SCD). The results reveal varying degrees of statistically significant positive relationships, indicating that these supply chain-related variables are meaningfully associated with organizational performance.

The correlation between supplier failure and organizational performance is positive and weak ($r = .197$, $p < 0.05$), suggesting that as organizations better manage supplier failures or when such disruptions are acknowledged, performance slightly improves. A moderate and positive correlation exists between defective products and organizational performance ($r = .293$, $p < 0.01$), implying that minimizing defective products contributes meaningfully to enhanced performance. More notably, regulatory changes exhibit a strong and statistically significant relationship with organizational performance ($r = .507$, $p < 0.01$), indicating that effective adaptation to regulatory dynamics considerably enhances operational outcomes. Additionally, supply chain disruptions (SCD) as a broad construct show a moderately strong positive correlation with organizational performance ($r = .413$, $p < 0.01$), reflecting the importance of resilience and adaptability in disrupted supply environments.

4.3 Hypothesis Testing

The research hypotheses were tested utilising regression analysis in order to achieve the current study's objectives.

Table 3: Regression Output of Supply Chain Disruptions and Organizational Performance
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.609	.382		4.215	.000		
	SF	.000	.070	.000	.003	.998	.805	1.242
	DP	-.094	.128	-.073	-.731	.466	.552	1.812
	RC	.479	.121	.470	3.957	.000	.394	2.537
	SCD	.138	.126	.118	1.089	.278	.475	2.105

a. Dependent Variable: OP
Source: *Source: Researchers' computation, 2026*

Table 3 presents the regression coefficients for the model assessing the effect of supply chain disruption variables, including Supplier Failure (SF), Defective Products (DP), Regulatory Changes (RC), and Supply Chain Disruptions (SCD) on Organizational Performance (OP). Both unstandardized and standardized coefficients are reported, along with their significance levels and multicollinearity diagnostics. The regression model's constant (intercept) is 1.609, indicating the baseline value of organizational performance when all predictors are held at zero.

Hypothesis one revealed that supplier failures do not affect organizational performance. The regression result shows a coefficient (B = 0.000) with a p-value of 0.998, which is far greater than 0.05. Hypothesis 2 showed that defective products (B = -0.094) with a p-value of 0.466, which exceeds 0.05 do not impact organisational performance. However, Hypothesis 3 confirms that regulatory changes (B = 0.479) with a p-value of 0.000, which is less than 0.05 have a significant positive effect on organizational performance. The model indicates that there exists no significant relationship between supply chain disruptions and organizational performance, nevertheless, regulatory changes is the most significant variable impacting organisational performance.

The collinearity statistics indicate acceptable levels of multicollinearity. All Variance Inflation Factor (VIF) values are below the critical threshold of 5, with the highest being 2.537 for RC, and Tolerance values are well above 0.1, confirming that the independent variables do not suffer from severe multicollinearity. Thus, the regression output confirms that regulatory changes are the most influential factor in predicting organizational performance. The other variables, although conceptually important, do not show significant statistical contributions in this model. This suggests that strategic focus on regulatory compliance and adaptation is key to enhancing organizational outcomes in the face of supply chain disruptions.

5. Conclusion

This study has looked at how disruptions in the supply chain affect organizational performance, focusing on Bottling Companies in Nigeria. The study established that supply chain disruption factors like supplier failure, defective materials, and mostly changes in regulations have strong impacts on the performance of bottling companies. These disruptions result in a reduction of production efficiency and increased costs, thereby lowering customer satisfaction. Therefore, efficient supply chain management and resilience strategies are

essential in maintaining performance through disruptions. Organizations should diversify suppliers, operate quality assurance systems, and devise adaptive strategies that deal with policy and regulatory changes. This will result in the company ensuring better operation outcomes through proactive risk management, continuous product and process innovations, and strong partnerships across the supply chain. The study recommends that organisations should establish long-term partnerships with reliable suppliers and diversify its supply base to minimize risks of material shortages. There should be continuous monitoring and evaluation of input materials through advanced quality assurance systems to reduce the incidences of defective materials. Organisations should have a compliance group that would ensure constant surveillance regarding changes in regulations and rapid adaptation to changed requirements. Also, management should incorporate formal risk assessment and mitigation strategies into supply chain planning to anticipate and minimize potential disruptions. Lastly, there should be investment in digital supply chain systems, data analytics, and predictive software that will improve the visibility, traceability and responsiveness across the supply chain.

References

Adebiyi, S.O., Adediran, A.S., Shodiya, A.O. and Olusola, T., 2021. Supply chain management practices and manufacturing firms' performance: Professionals' experience in Nigeria. *Economics and Culture*, *18*(2), pp.28-40. https://doi.org/10.2478/jec-2021-0012

Baryannis, G., Dani, S. and Antoniou, G., 2019. Predictive analytics and artificial intelligence in supply chain management: Review and implications for the future. *Computers & Industrial Engineering*, *137*(106024).

Choi, T.Y., Rogers, D. and Vakil, B., 2020. Coronavirus is a wake-up call for supply chain management. *Harvard Business Review*, *27*(1), pp.364-398. Available at https://hbr.org/2020/03/coronavirus-is-a-wake-up-call-for-supply-chain-management, [accessed 8.01.2026].

Christopher, M. and Holweg, M., 2011. "Supply Chain 2.0": Managing supply chains in the era of turbulence. *International Journal of Physical Distribution & Logistics Management*, *41*(1), pp.63-82. https://doi.org/10.1108/09600031111101439

Dolgui, A. and Ivanov, D., 2021. Ripple effect and supply chain disruption management: new trends and research directions. *International Journal of Production Research*, *59*(1), pp.102-109. https://doi.org/10.1080/00207543.2021.1840148

Ekpudu, J.E., Odigie, M.E., Rahim, A.G. and Okpala, O.P., 2025. Supply chain resilience and sustainable performance of selected listed firms in the food and beverage industry in Lagos State. *Lagos Journal of Banking, Finance and Economic Issues*, *6*(1), pp.134-154.

Eze, S.U., 2024. Supply chain disruption and sustainability of pharmaceutical firms in Anambra State, Nigeria. *Milestone: Journal of Strategic Management*, *4*(2), pp.104-118.

Fiksel, J., Polyviou, M., Croxton, K. L., and Pettit, T. J. 2015. From risk to resilience: Learning to deal with disruption. *MIT Sloan Management Review, 56*(2), 79–86. Available at https://sloanreview.mit.edu/article/from-risk-to-resilience-learning-to-deal-with-disruption/, [accessed 8.01.2026].

Ivanov, D. 2021. Supply chain viability and the COVID-19 pandemic: A conceptual and formal generalization of four major adaptation strategies. *International Journal of Production Research, 59*(12), pp.3535–3552. https://doi.org/10.1080/00207543.2021.1890852

Ivanov, D. and Dolgui, A., 2021. A digital supply chain twin for managing the disruption risks and resilience in the era of Industry 4.0. *Production Planning & Control*, *32*(9), pp.775-788. https://doi.org/10.1080/09537287.2020.1768450

Katsaliaki, K., Galetsi, P. and Kumar, S., 2022. Supply chain disruptions and resilience: a major review and future research agenda. *Annals of operations research*, *319*(1), pp.965-1002. https://doi.org/10.1007/s10479-020-03912-1

Moradeyo, A.A., Oke, A. and Muogboh, O.S., 2023. Linking supply chain disruptions and manufacturing firms' operational performance in a developing country context. *International Journal of Services and Operations Management*, *44*(4), pp.460-491. https://doi.org/10.1353/jda.2025.a957751

NISER, 2025. Nigeria's Web of Crisis: A Brief from NISER's Reflective Session. Available at https://niser.gov.ng/v2/wp-content/uploads/2026/01/Nigerias-Web-of-Crises_final.pdf, [accessed 05.01.26]

Novatiaconsulting, 2024. Supply Chain Risk Analysis in Nigeria. Available at https://novatiaconsulting.com/supply-chain-risk-analysis-in-nigeria/, [accessed 05.01.26]

PWC (2017). Resilience and risk in supply chains: How to limit disruption and drive transformation. Available at https://www.pwc.com/us/en/services/consulting/business-transformation/digital-supply-chain-survey/risk-and-resilience.html, [accessed 08.01.26]

Remko, V. H. 2020. Research opportunities for a more resilient post-COVID-19 supply chain–closing the gap between research findings and industry practice. *International journal of operations and production management*, *40*(4), pp.341-355. https://doi.org/10.1108/IJOPM-03-2020-0165

Revilla, E., Saenz, M.J., 2017. The impact of risk management on the frequency of supply chain disruptions: A configurational approach. *International Journal of Operations and Production Management*, *37*(5), pp.557-576. https://doi.org/10.1108/IJOPM-03-2016-0129.

Truong, H.Q. and Hara, Y., 2018. Supply chain risk management: manufacturing-and service-oriented firms. *Journal of Manufacturing Technology Management*, *29*(2), pp.218-239. https://doi.org/10.1108/JMTM-07-2017-0145