© JAN 2026 | IRE Journals | Volume 9 Issue 7 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV9I7-1713415

Workforce Productivity and Safety Routines in Selected Freight Logistics Firms in Port Harcourt.

Prof. Silva Opuala-Charles[1], Dr. Jummai Zainab Umar-Ajijola[2], Bredino Samson[3]
[1]*Professor of Economics and Management, Garden City Premier Business School, Plot 13 Herbert Macaulay Street, Old G.R.A, Port Harcourt, Rivers State, Nigeria.*
[2, 3]*Garden City Premier Business School, Plot 13 Herbert Macaulay Street, Old G.R.A, Port Harcourt, Rivers State, Nigeria.*

Abstract- ***This study examines the relationship between workforce productivity and safety in Nigerian logistics operations, with a focus on freight logistics and forwarding firms in Port Harcourt, Rivers State. The research adopts a cross-sectional design and collects quantitative data from 152 employees using a proportionate stratified random sampling technique. The study is grounded in Scientific Management Theory (Taylorism) and Safety Climate Theory, providing a framework to explore how structured work processes and employees' perceptions of safety jointly influence productivity. Data analysis using the Chi-square test reveals a significant association between safety practices—such as regular safety training, proper use of personal protective equipment (PPE), enforcement of safety policies, and provision of hazard-free work environments—and workforce productivity. The findings highlight that effective safety management enhances employee efficiency, reduces operational disruptions, and improves overall performance. The study addresses a gap in Nigerian logistics research by integrating productivity and safety as interconnected constructs, offering evidence-based insights for logistics managers, policymakers, and industry practitioners to optimize operational performance while ensuring employee well-being.***

Key words: Scientific Management Theory (Taylorism), Workforce, Safety Climate, Operational Performance

I. INTRODUCTION

Logistics operations play a critical role in national economic development by facilitating the efficient movement of goods, services, and information across supply chains. In Nigeria, the logistics sector underpins key industries such as oil and gas, manufacturing, agriculture, construction, and international trade. As Africa's largest economy by population, Nigeria's increasing urbanization, expanding e-commerce activities, and growing import–export trade have intensified the demand for effective logistics operations (Bredino et al., 2022). However, the sector continues to face persistent challenges relating to workforce productivity and occupational safety, which undermine operational efficiency and competitiveness (World Bank, 2022).

Workforce productivity in logistics operations is highly dependent on human capital efficiency, technology adoption, work organization, and safety management practices. Nigerian logistics firms rely heavily on manual labor for activities such as loading, unloading, warehousing, and transportation coordination. This labor-intensive nature exposes workers to physical strain, fatigue, and unsafe working conditions, which often result in workplace accidents, injuries, and absenteeism. Poor safety outcomes not only threaten employee well-being but also reduce productivity through lost workdays, increased compensation costs, equipment damage, and service delays (International Labour Organization [ILO], 2021).

Safety challenges in Nigerian logistics operations are further compounded by weak regulatory enforcement, inadequate safety training, aging infrastructure, poor road conditions, and limited investment in modern logistics technologies. Road traffic accidents involving trucks and delivery vehicles remain prevalent, posing risks to drivers, cargo handlers, and the general public. In warehouses and ports, insufficient use of personal protective equipment (PPE), lack of standardized operating procedures, and limited safety awareness contribute to high accident rates. These conditions create an unsafe work environment that negatively affects employee morale, motivation, and overall productivity (Afolayan et al., 2020).

Enhancing workforce productivity and safety is therefore a strategic imperative for Nigerian logistics firms. Empirical evidence suggests that organizations that prioritize occupational health and safety tend to experience improved employee engagement, reduced turnover, higher operational efficiency, and better service quality. Safe working environments enable employees to perform tasks more efficiently, reduce error rates, and sustain consistent performance levels. Conversely, neglect of safety management weakens productivity gains and exposes firms to reputational damage, regulatory sanctions, and financial losses (Zohar, 2014).

Despite the importance of logistics to Nigeria's economic growth, existing studies have largely examined productivity and safety as separate constructs, with limited integrated analysis of how safety practices influence workforce productivity in logistics operations. Moreover, much of the available literature is concentrated on manufacturing and construction sectors, leaving a noticeable gap in logistics-focused empirical research within the Nigerian context. This study seeks to address this gap by examining strategies to enhance workforce productivity and safety in Nigerian logistics operations, thereby providing evidence-based insights for policymakers, industry practitioners, and logistics managers to improve operational performance and employee well-being.

1.1 Scope of the Study

The scope of this research titled *"Enhancing Workforce Productivity and Safety in Nigerian Logistics Operations"* is clearly defined to ensure focused and manageable investigation within specific contexts. This study concentrated on freight logistics and freight forwarding companies operating in the Port Harcourt Metropolis, Rivers State, Nigeria. The choice of location is driven by the strategic role of Port Harcourt as one of the major industrial and commercial hub in the Niger Delta region, with significant freight movement and logistics activities.

In terms of content, the study will explore key factors that influence workforce productivity and safety in the logistics environment. These include organizational policies, workplace practices, technology utilization, training and skill development, safety management systems, and compliance with regulatory standards. The study will examine both internal influences (such as employee engagement, supervision, and operational procedures) and external influences (such as governmental regulations, infrastructure challenges, and industry standards) that affect employee performance and safety outcomes.

The research will focus specifically on freight logistics and freight forwarding operations, excluding other segments of the logistics value chain such as passenger transport logistics, cold-chain logistics, and last-mile delivery services. The study will include various job categories within the selected companies, such as logistics planners, warehouse personnel, drivers, freight handlers, and safety officers, in order to capture a comprehensive view of workforce dynamics.

Data collection will be limited to respondents within the Port Harcourt Metropolis, and findings will be contextualized to reflect the peculiar operational, socio-economic, and infrastructural characteristics of this geographic area. While the results may offer insights applicable to other logistics sectors or regions, the primary focus and generalizability of the findings will be bound to freight logistics and freight forwarding firms in Port Harcourt.

1.2 Research Hypotheses

The study shall be guided by the following hypothesis;

H_o: There is no significant relationship between workforce productivity and safety in selected freight logistics and forwarding firms in Port Harcourt Metropolis.

II. LITERATURE REVIEW

In this section both theoretical and literature reviews bordering on the subject were critically done. The aim of the aforementioned review is to establish the basis for the selection of the variables used in the construction of the econometric model as well as identification of research gaps.

2.1 Theoretical Literature

Literature is replete with theories of workforce productivity for multidimensional perspectives such as management, human resources management, and operations research. In the section we shall carry-out a cursory view these theories.

Scientific Management Theory (Taylorism)

The Scientific Management Theory, developed by Frederick W. Taylor in the early 20th century, focuses on improving organizational efficiency through the systematic study of work processes. Taylor argued that productivity could be maximized by applying scientific methods—such as time and motion studies—to determine the most efficient way to perform tasks. The theory emphasizes the standardization of tools and procedures, careful selection and training of workers, close supervision, and a clear division of labor between management (planning and control) and workers (execution). By aligning workers' performance with scientifically determined standards and incentive-based pay systems, Taylor believed organizations could achieve higher output and reduced inefficiencies (Taylor, 1911).

Scientific Management Theory (Taylorism) is relevant to enhancing workforce productivity and safety in Nigerian logistics operations because the sector involves repetitive and high-risk tasks such as loading, warehousing, and transportation. Taylor's use of time and motion studies can help identify the most efficient and safest ways to perform logistics tasks, reducing fatigue, errors, and accidents. The standardization of work procedures and tools promotes consistency, minimizes unsafe practices, and improves operational efficiency. In addition, scientific selection and training of workers ensure employees are properly equipped with the skills and safety knowledge required for logistics operations. Effective managerial planning and supervision further reduce unsafe shortcuts, while performance-based incentives aligned with both productivity and safety encourage compliance. Overall, Taylorism provides a structured approach for improving efficiency and safety in Nigerian logistics operations

Human Resource Theory

The Human Relations Theory, developed by Elton Mayo, emphasizes the importance of social factors, employee well-being, and interpersonal relationships in the workplace. Emerging from the Hawthorne Studies conducted at the Western Electric Company, the theory demonstrated that workers' productivity is significantly influenced by attention from management, group dynamics, communication, and a sense of belonging, rather than only by physical working conditions or financial incentives. Mayo argued that employees are motivated by social needs and recognition, and that supportive leadership and participative management practices can enhance morale, cooperation, and organizational performance (Mayo, 1933).

Elton Mayo's Human Relations Theory emphasizes the importance of social factors, employee well-being, and interpersonal relationships in motivating workers. In the context of Nigerian logistics operations, the theory can be applied to enhance productivity and safety by recognizing that employees are motivated not just by pay, but also by attention, support, and a sense of belonging. Positive workplace relationships, effective communication, and participative management can improve morale, cooperation, and adherence to safety protocols. For instance, involving employees in safety planning, acknowledging their contributions, and fostering team cohesion can reduce unsafe practices and enhance operational efficiency. By prioritizing workers' social and emotional needs, logistics firms can create a safer and more productive workforce.

Maslow's Hierarchy of Needs Theory

Human motivation is explained by Maslow's Hierarchy of requirements Theory as a progression through five levels of requirements, ranked from basic to advanced. Abraham H. Maslow asserts that people are driven to fulfill their physiological needs—such as food, drink, and shelter—first, then their safety needs—such as stability and security. Social needs—love, belonging, and interpersonal relationships—become crucial after these are satisfied. Esteem needs are the next level and include self-respect, accomplishment, and acknowledgment. Self-actualization is the highest level, when people work to reach their greatest potential and pursue personal

development. The theory is widely applicable in understanding employee motivation and management practices since Maslow claimed that lower-level needs must be properly supplied before higher-level demands can successfully motivate action (Maslow, 1943).

Maslow's Hierarchy of Needs Theory can enhance productivity and safety in Nigerian logistics operations by addressing employees' needs systematically. Physiological and safety needs—such as fair wages, protective equipment, and safe working conditions—form the foundation for preventing accidents and sustaining performance. Social and esteem needs are met through teamwork, recognition, and responsibility, motivating employees to follow safety protocols and work efficiently. Finally, self-actualization through training and career growth encourages initiative and continuous improvement, fostering a safer and more productive workforce.

Herzberg's Two-Factor Theory

Herzberg's Two-Factor Theory, also known as the Motivation–Hygiene Theory, explains job satisfaction and motivation by distinguishing between two sets of factors. Hygiene factors—such as salary, company policies, supervision, working conditions, and job security—do not motivate employees when present but can cause dissatisfaction when absent. In contrast, motivators—such as achievement, recognition, responsibility, advancement, and the nature of the work itself—are intrinsic to the job and lead to higher satisfaction, motivation, and improved performance. Herzberg argued that improving hygiene factors alone only prevents dissatisfaction, whereas sustainable motivation and productivity require enriching jobs with motivating factors (Herzberg et al., 1959).

Herzberg's Two-Factor Theory distinguishes between hygiene factors and motivators, both of which are relevant to Nigerian logistics operations. Hygiene factors, such as fair wages, safe working conditions, company policies, and supervision, prevent dissatisfaction and reduce workplace accidents. Motivators, including recognition, achievement, responsibility, and opportunities for advancement, enhance employee engagement and productivity. Applying this theory, logistics firms can improve safety and efficiency by ensuring basic working conditions are met while also providing opportunities for skill development, acknowledgment of good performance, and increased responsibility, thereby motivating employees to perform effectively and adhere to safety protocols

Vroom Expectancy Theory

Vroom's Expectancy Theory explains motivation as a cognitive process in which individuals choose behaviors based on expected outcomes. The theory proposes that motivation is determined by three key components: expectancy, instrumentality, and valence. Expectancy refers to an individual's belief that effort will lead to the desired level of performance; instrumentality is the belief that successful performance will result in specific rewards; and valence represents the value or attractiveness of those rewards to the individual. According to Vroom, employees are motivated when they believe that increased effort will improve performance, that performance will be rewarded, and that the rewards are personally meaningful. This theory highlights the importance of clear goals, fair reward systems, and alignment between individual expectations and organizational outcomes (Vroom, 1964).

Vroom's Expectancy Theory explains that employees are motivated when they believe their effort will lead to effective performance and desirable rewards. In Nigerian logistics operations, this theory can be applied by ensuring that workers understand the link between effort, performance, and outcomes. For example, employees are more likely to adhere to safety protocols and perform efficiently if they see that following safety rules reduces accidents (performance) and results in rewards such as bonuses, recognition, or promotions (valence). Clear communication of expectations, provision of proper training and resources, and fair reward systems can strengthen motivation, leading to higher productivity and a safer work environment.

Goal-Setting Theory

Goal-Setting Theory, developed by Edwin A. Locke, explains that specific and challenging goals lead to higher performance than vague or easy goals. The theory posits that goals influence behavior by directing attention, mobilizing effort, increasing persistence, and encouraging the development of task-related

strategies. Effective goals are clear, measurable, and time-bound, and their impact is strengthened when individuals are committed to the goals and receive regular feedback on progress. Locke and Latham further emphasized that employee participation in goal setting and alignment of individual goals with organizational objectives enhance motivation and productivity (Locke & Latham, 1990).

Goal-Setting Theory, developed by Locke and Latham, emphasizes that specific, challenging, and measurable goals enhance motivation and performance. In Nigerian logistics operations, setting clear productivity and safety targets—such as reducing accidents, improving delivery times, or minimizing handling errors—can guide employee behavior and focus effort. Regular feedback and monitoring ensure workers understand progress and areas for improvement, while involving employees in goal setting increases commitment and accountability. By aligning individual and organizational objectives, logistics firms can improve both operational efficiency and workplace safety.

Systems Theory

Systems Theory views an organization as an open system made up of interrelated and interdependent parts that work together to achieve common objectives. The theory emphasizes that changes in one part of the system affect other parts, meaning organizational performance depends on the effective coordination and integration of all subsystems such as human resources, technology, structure, and processes. Systems Theory also highlights the interaction between organizations and their external environment, including economic, social, and technological factors. Feedback mechanisms are essential, as they enable organizations to monitor performance, adapt to environmental changes, and maintain stability and growth. This holistic perspective helps managers understand complexity and improve decision-making by focusing on relationships rather than isolated components (Katz & Kahn, 1966).

Systems Theory views an organization as an interconnected set of subsystems that must work together to achieve overall objectives. In Nigerian logistics operations, this approach can be applied by recognizing that productivity and safety depend on the coordination of people, processes, technology, and management practices. For example, efficient workflow design, clear communication, training programs, and safety protocols must interact cohesively to reduce accidents and improve performance. Feedback mechanisms allow management to monitor operations, identify bottlenecks or unsafe practices, and implement corrective actions. By treating the logistics workforce and operations as an integrated system, organizations can enhance efficiency, safety, and overall effectiveness.

Safety Climate Theory

Safety Climate Theory explains how employees' shared perceptions of organizational safety policies, practices, and management commitment influence safety-related behaviors and outcomes. The theory posits that when workers perceive safety as a core organizational priority—demonstrated through leadership actions, communication, training, and enforcement of safety rules—they are more likely to comply with safety procedures and engage in proactive safety behaviors. A positive safety climate has been consistently linked to reduced workplace accidents, injuries, and unsafe acts. Safety climate is considered a measurable, surface-level manifestation of an organization's deeper safety culture and is widely used as a diagnostic tool for improving occupational health and safety performance (Zohar, 1980).

Safety Climate Theory emphasizes the shared perceptions of employees regarding organizational safety policies, practices, and management commitment. In Nigerian logistics operations, the theory can be applied to enhance both productivity and safety by fostering a positive safety climate. When workers perceive that management prioritizes safety—through clear safety rules, training, supervision, and consistent enforcement—they are more likely to follow safety procedures and engage in proactive safety behaviors. A strong safety climate reduces accidents, minimizes operational disruptions, and boosts workforce morale, which in turn supports higher productivity. By measuring and improving safety climate, logistics firms can create an

environment where safety and efficiency reinforce each other.

This study on "Enhancing Workforce Productivity and Safety in Nigerian Logistics Operations" adopts Scientific Management Theory (Taylorism) and Safety Climate Theory as its theoretical foundation due to their direct relevance to the research objective. Taylorism is appropriate because logistics operations involve repetitive, labor-intensive, and time-sensitive tasks, such as loading, warehousing, and transportation. Its principles of work standardization, time and motion studies, scientific selection and training of workers, and performance-based management provide a structured approach to improving operational efficiency, reducing errors, and enhancing productivity.

Simultaneously, Safety Climate Theory is essential for addressing workplace safety, a critical component of logistics operations. The theory emphasizes that employees' perceptions of management's commitment to safety, along with clear safety policies, training, and supervision, strongly influence adherence to safety procedures and proactive safety behaviors. By fostering a positive safety climate, organizations can reduce accidents, improve worker morale, and maintain operational continuity.

Integrating these two theories allows the study to holistically examine the dual objectives of productivity and safety. Taylorism provides strategies for optimizing efficiency, while Safety Climate Theory ensures that productivity gains do not compromise employee safety, thereby offering a balanced framework for enhancing workforce performance in Nigerian logistics operations.

2.2 Empirical Literature

Morgan et al. (2021), empirically examine the relationship between job satisfaction affected staff productivity in the administration of health and safety policies in Nigerian manufacturing companies. A descriptive survey was part of the quantitative analytical approach used for the study. A questionnaire instrument was created and sent to 950 sampled respondents in particular Nigerian manufacturing companies in order to collect data for the study. The data analysis included descriptive statistics, and the study hypotheses were tested at the 0.05 level of significance using multiple regression analysis. With the help of MedGraph, the Sobel test was used to confirm the mediating role of job satisfaction in the relationship between employee productivity and health and safety policy management. The findings demonstrated that staff productivity is significantly increased by hazard prevention and management policies. Employee productivity is significantly increased by risk assessment policies. Additionally, the relationship between employee productivity and the management of health and safety policies is significantly positively mediated by job satisfaction. In order to enhance the administration of health and safety policies, manufacturing companies should take the necessary steps to prevent and control hazards and offer efficient risk assessments.

The relationship between workers' safe behavior and the safety climate on construction sites was investigated by Ayangade & Aina (2021). Research has also considered the safety climate to be the expression of safety precautions in employee behavior and attitude. There are few studies on safety environment and safety culture in Nigeria, which has contributed to a lack of awareness of safety climate and safety culture policies among Nigerian construction workers and organizations. This study looked into Nigerian construction companies' safety climate policies and safety culture. The findings indicated that safety requirements policies, safety training and orientation policies, safety inspection policies, policies on safety materials, and policies on safety officers and supervisors are the most significant policies that contribute to safety culture. Additionally, the findings demonstrated that safety communication, safety plans, safety-related choices, and safety-related cooperation between the primary contractor and various subcontractors are the most significant policies influencing the safety atmosphere. These results emphasize how crucial it is to incorporate safety climate and culture through pertinent and suitable safety regulations.

Adebiyi et al. (2022) looked into the relationship or effect of lean models on safety management in Nigerian logistics companies. Manal Plant Hire Ltd., a logistics company, served as the case study. The 215

employees of the aforementioned company make up the research population. Purposive sampling was used to ascertain that 215 employees made up the study's sample. A systematic questionnaire was used to gather data from respondents. To test the proposed correlations, data were analyzed using structural equation modeling (SEM) techniques. The study's conclusions indicate that process and equipment management, workplace safety, and operational efficiency are positively and significantly correlated; employee empowerment and operational efficiency are positively and statistically significantly correlated; technological innovation has a positive and significant impact on operational efficiency; and continuous improvement has a positive and significant impact on operational efficiency. The study comes to the conclusion that logistics companies' safety management is positively and significantly impacted by the use of lean management. According to the study's conclusions, the manufacturing, logistics, and service sectors should be dedicated to implementing process mapping in order to get rid of non-value-adding operations in both production and logistics and guarantee the efficient and uninterrupted flow of logistics operations.

Fiberesima & Bereiweriso (2025), there study investigated the association between digitalization of maritime logistics and operational safety of Seaports in Nigeria. Adopting a critical realism, they applied causal research design and quantitative methodology to establish the association between the variables. The population of this study comprised the 7 Seaports in Nigeria. 63 respondents from the seaports provided quantitative data for the study through a semi-structured questionnaire designed in Likert 5-point scale. Data were analyzed using inferential statistics particularly regression analyses to assess the association between digitalization of maritime logistics and operational safety of Nigerian seaports, by testing 4 null hypotheses in the study. The analysis revealed that automated demand planning, warehouse automation, automated inventory management, and transport automation have significant and positive association with operational safety. Based on this findings, we concluded that digitalization of maritime logistics has a positive, and significant association with operational safety of Seaports in Nigeria. Therefore, we recommended that, Seaports in Nigeria should improve on digitalizing their logistics operations, leverage resources within and outside the organizations in order to improve operational safety and overall port performance.

2.3 Summary of Literature/ Gap Analysis

Existing literature on workforce productivity and safety in Nigeria shows that logistics performance improves through structured management practices, process optimization, and effective workforce coordination. Studies on logistics and transport operations emphasize efficiency, workflow standardization, and resource management as key drivers of productivity, reflecting principles aligned with Scientific Management Theory. Separately, workplace safety research in Nigeria demonstrates that strong management commitment, clear safety policies, and employee training positively influence safety behavior and reduce workplace accidents, consistent with Safety Climate Theory.

However, the review reveals a significant gap in the literature. Empirical studies in Nigerian logistics operations have largely examined productivity and safety as independent constructs, with limited theoretical grounding. Notably, no empirical study was found that simultaneously applies Scientific Management Theory (Taylorism) and Safety Climate Theory to examine their combined influence on workforce productivity and safety in Nigerian logistics operations. This lack of integrated, theory-driven research limits understanding of how efficiency-oriented management practices can coexist with and support a positive safety climate.

Consequently, this study addresses an important gap by integrating Taylorism and Safety Climate Theory to provide a holistic framework for analyzing how structured work processes and employees' safety perceptions jointly enhance workforce productivity and safety in Nigerian logistics operations.

III. METHODOLOGY

3.1 Research Design

The study adopted a cross-sectional research design, which was deemed appropriate for examining the relationship between workforce productivity and

safety in selected freight logistics and freight forwarding firms in Port Harcourt, Rivers State. As a design that entails data collection at a single point in time, the cross-sectional approach enabled the identification of associations and trends among variables without necessitating prolonged observation (Creswell & Creswell, 2018). A structured, closed-ended questionnaire was employed to generate quantifiable data, thereby reinforcing the suitability of the design for analyzing statistical relationships among the predictor, criterion, and moderating variables

3.2 Population and Sample Size

The population of the study consists of the 12 registered freight logistics and freight loading firms operating in Port Harcourt, Rivers State. A total of 250 personnel across operations and logistics department, support staff, and operational crew and coordinators make-up the population for the study.

The determined sample size for the study is using the Krejcie & Morgan (1970) sample size determination table, is 152. Thus, the aforementioned sample size was adopted for the study. The study adopted a proportionate stratified random sampling technique, ensuring that respondents were selected in proportion to their representation within the population. To distribute the sample size of 152 across the twelve registered freight logistics and loading firms, the Bowley's Proportional Allocation Formula was used, which ensures that firms with a larger population receive a proportionally larger sample.

3.3 Data Collection Instrument & Distribution

In this study, quantitative data were employed to examine the relationship between workforce productivity and safety in selected freight loading firms in Port Harcourt, Rivers State. Primary data were collected specifically for the study through the google form link sent to the respective freight companies.

3.4 Data Analysis Technique

The data collected and used for this study were predominantly quantitative. These data were obtained using social survey (see data collection techniques stated above). The chi-square non-parametric technique was employed in the test of research hypothesis.

The formula for chi-square is given thus;

$$X^2 = \sum \frac{(Fo - Fe)2}{Fe}$$

Where:

F_0= observed events from respondents

Fe= expected event

X^2= chi-square

IV. RESULTS & DISCUSSION

Results and discussion on data analysis are presented in the following section.

As stated earlier, the Chi-square non-parametric test was employed to test the stated hypotheses. A contingency table that incorporates the stated parameters of environmental quality and human wellbeing was collated and the hypothesis will be as rejected or accepted based on outcome of the analysis. The hypothesis of the study has been restatement thus;

H_o: There is no significant relationship between workforce productivity and safety in selected freight logistics and forwarding firms in Port Harcourt Metropolis.

Alternative Hypothesis

H_1: There is significant relationship between workforce productivity and safety in selected freight logistics and forwarding firms in Port Harcourt Metropolis.

© JAN 2026 | IRE Journals | Volume 9 Issue 7 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV9I7-1713415

Table 1.0: Contingency table of workforce productivity and safety

S/N	ITEM	YES		NO		UNSURE		TOTAL
		Response	%	Responses	%	Responses	%	
1	Regular safety training provided by my organization improves my efficiency and productivity at work.	23	68%	10	29%	1	3%	34
2	The availability and proper use of safety equipment (e.g., PPE) has enable me to perform my job tasks more effectively.	15	58%	8	31%	3	12%	26
3	Clear and enforced safety policies in my organization positively influence my job performance and output.	8	28%	11	38%	10	34%	29
4	A safe and hazard-free working environment reduces work interruptions and enhances my overall productivity	17	31%	32	58%	6	11%	55
	TOTAL	63		61		20		144

Source: Authors Computation form Field Survey (2026)

The table presents respondents' perceptions of selected safety-related factors and their influence on workforce productivity in Nigerian logistics operations. Responses were categorized into Yes, No, and Unsure, with a total of 144 responses recorded across four safety-related items. For the statement *"Regular safety training provided by my organization improves my efficiency and productivity at work,"* a majority of respondents (23 respondents; 68%) answered Yes, indicating strong agreement that safety training enhances their work efficiency and productivity. Conversely, 10 respondents (29%) disagreed, while only 1 respondent (3%) was unsure. This result suggests that safety training is widely perceived as a critical factor for improving employee productivity. The high level of agreement implies that when employees are adequately trained on safety procedures, they are more confident, efficient, and less prone to errors or accidents that could disrupt operations. Regarding the statement *"The availability and proper use of safety equipment (e.g., PPE) has enabled me to perform my job tasks more effectively,"* 15 respondents (58%) agreed, while 8 respondents (31%) disagreed and 3 respondents (12%) were unsure. Although the majority affirmed the positive impact of PPE on productivity, the relatively high proportion of negative and unsure responses suggests inconsistencies in PPE availability, adequacy, or enforcement across organizations. This may indicate operational gaps where safety equipment is either insufficient, uncomfortable, or not consistently used, thereby limiting its productivity-enhancing potential. Responses to the statement *"A safe and hazard-free working environment reduces work interruptions and enhances my overall productivity"* show that 17 respondents (31%) agreed, while a substantial majority of 32 respondents (58%) disagreed, and 6 respondents (11%) were unsure. The dominance of negative responses indicates that many employees do not experience their work environment as sufficiently safe or hazard-free to support uninterrupted productivity. This finding points to persistent safety challenges in logistics operations, such as exposure to accidents, poor infrastructure, or unsafe handling practices, which may undermine workforce performance.

© JAN 2026 | IRE Journals | Volume 9 Issue 7 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV9I7-1713415

Table 2.0: Chi-square Analytical Breakdown

Ob_1	e_1	Ob_1-e_1	$(Ob_1-e_1)^2/e_1$	Ob_2	e_2	Ob_2-e_2	$(Ob_2-e_2)^2/e_2$	Ob_3	e_3	Ob_3-e_3	$(Ob_3-e_3)^2/e_3$
23	23	-0.04	0.00	10	17	-7	3	1	5	-4	3.37
15	28	-13.15	6.15	8	21	-13	8	3	6	-3	1.75
8	38	-30.39	24.06	11	28	-17	10	10	9	1	0.22
17	39	-22.42	12.75	32	29	3	0	6	9	-3	0.92
			42.95				21				6.26
Level of Significance:			0.05				Calculated X^2 Value:				70.27
Degree of Freedom:			6				Critical (table) X^2 Value:				12.6

Source: Authors Computation form Field Survey (2026)

The Chi-square (χ^2) test was conducted to examine the relationship between safety practices and workforce productivity in Nigerian logistics operations, and the result revealed a statistically significant association between the two variables. At a 0.05 level of significance with six degrees of freedom, the calculated Chi-square value of 70.27 was substantially higher than the critical (table) value of 12.60, leading to the rejection of the null hypothesis. This outcome indicates that workforce productivity is not independent of safety conditions in logistics operations; rather, safety-related factors such as regular safety training, availability and use of personal protective equipment, enforcement of safety policies, and the provision of a safe and hazard-free working environment have a significant influence on employees' productivity. The finding implies that organizations with effective and well-implemented safety practices are more likely to experience improved employee efficiency, reduced work disruptions, and enhanced overall output, while poor safety conditions may hinder performance. Consequently, the result underscores the importance of prioritizing workplace safety as a strategic tool for enhancing workforce productivity in Nigerian logistics operations.

V. SUMMARY & CONCLUSION

This study investigated the relationship between workforce productivity and safety in Nigerian logistics operations, specifically focusing on freight logistics and forwarding firms in Port Harcourt, Rivers State. The research highlighted the critical role of workforce productivity and occupational safety in enhancing operational efficiency within logistics operations. Grounded in Scientific Management Theory (Taylorism) and Safety Climate Theory, the study examined how structured work processes, safety training, use of personal protective equipment (PPE), enforcement of safety policies, and provision of hazard-free environments influence employee performance. Data collected from 152 employees using structured questionnaires were analyzed using the Chi-square statistical technique. Findings reveal a statistically significant relationship between safety practices and workforce productivity, indicating that effective safety measures positively impact employee efficiency, reduce disruptions, and improve overall organizational performance. The study also identified operational gaps, such as inconsistent availability of PPE and insufficient hazard-free environments, that hinder optimal productivity.

The study concludes that workplace safety is a critical determinant of workforce productivity in Nigerian logistics operations. Organizations that implement comprehensive safety programs—including regular training, proper safety equipment, clear policies, and safe working environments—experience higher employee efficiency and reduced operational interruptions. Integrating productivity-oriented management practices with a strong safety climate ensures that efficiency gains do not compromise employee well-being. Consequently, logistics firms should prioritize safety as a strategic tool for

enhancing both performance and workforce morale. Policymakers and industry stakeholders are encouraged to support safety initiatives, enforce regulatory compliance, and invest in training and infrastructure improvements to strengthen the overall productivity and competitiveness of the Nigerian logistics sector.

REFERENCES

[1] Adebiyi, S. O., Bassey, Q. E., & Amole, B. B. (2022). *Lean management models application and safety management of logistics firm in Nigeria*. Applied Studies in Agribusiness and Commerce, 16(2), 39–49. https://doi.org/10.19041/APSTRACT/2022/2/6

[2] Afolayan, T., Adeoye, J. O., & Okeke, C. U. (2020). *Workplace safety challenges in Nigerian logistics operations.* International Journal of Logistics & Safety in Transport, *8*(2), 45–60.

[3] Ayangade, J. A., & Aina, O. O. (2021). *Safety climate and workers' safe behaviour within construction site environments in Nigeria.* American Journal of Engineering Research (AJER), 10(2), 82–95. American Journal of Engineering Research

[4] Bredino, S. M., Dikeogu, C., & Fiderikumo, P. (2022). Fiscal Policy and Unemployment in Nigeria: A Structural Analysis. *African Journal of Business and Economics Development*.

[5] Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

[6] Fiberesima, I. E., & Bereiweriso, O. F. (2025). *Digitalization of maritime logistics and operational safety of seaports in Nigeria: A critical realism approach.* BW Academic Journal, 2, Article 3435.

[7] International Labour Organization. (2021). *Occupational safety and health in Nigeria*. https://www.ilo.org

[8] Katz, D., & Kahn, R. L. (1966). *The social psychology of organizations*. Wiley.

[9] Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607–610. https://doi.org/10.1177/001316447003000308

[10] Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Prentice-Hall.

[11] Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370–396. https://doi.org/10.1037/h0054346

[12] Morgan, M. O., Emu, W., Amadi, C., Okon, E. E., & Njama, P. (2021). *The mediating effect of job satisfaction on health and safety policy management and employee productivity in manufacturing firms.* Problems and Perspectives in Management, 19(2), 104–117. https://doi.org/10.21511/ppm.19(2).2021.09

[13] Taylor, F. W. (1911). *The principles of scientific management*. Harper & Brothers.

[14] Ugwuishi, M. O., Obi, E., & Bredino, S. M. (2025). Leadership Openness and Workers Committment of Healthcare Sector in Rivers State . *Diamondbridge Journal of Business & Economics*.

[15] Vroom, V. H. (1964). *Work and motivation*. Wiley.

[16] Zohar, D. (1980). Safety climate in industrial organizations: Theoretical and applied implications. *Journal of Applied Psychology, 65*(1), 96–102. https://doi.org/10.1037/0021-9010.65.1.96

[17] Zohar, D. (2014). *Safety climate and beyond: Linking safety climate to performance and management practices*. [Publisher if available].