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Human Capital and Financial Performance of Quoted Consumer Goods Firm in Nigeria During the Post-COVID 19 Period

[1]ADEDIRAN, Samson Adewale and [2] OMOWAYE, Oluwatomisin

[1]Department of Accounting Prince Abubakar Audu University, Anyigba, Kogi State Nigeria email: adedirans2007@yhoo.com

[2]Department of Accounting, Federal University, Lokoja, Kogi State, Nigeria email: tomisinblaq123@gmil.com

Abstract

This study examines the effect of human capital on the financial performance of quoted consumer goods firms in Nigeria during the post-COVID-19 period (2020–2024). Specifically, the study investigates the influence of employee benefit expense, number of employees, and human capital efficiency on return on assets (ROA) as a proxy for profitability. The study adopts an ex-post facto research design and utilizes secondary data obtained from the annual reports of 19 listed consumer goods firms. A total of 95 firm-year observations were analyzed using descriptive statistics, correlation analysis, and multiple regression techniques with robust standard errors. The findings reveal that human capital efficiency has a positive and statistically significant effect on financial performance, indicating that efficient utilization of workforce capabilities enhances profitability. In contrast, employee benefit expense exhibits a negative but statistically insignificant relationship with profitability, suggesting that increased staff costs do not necessarily translate into improved performance when not efficiently managed. Similarly, the number of employees shows a positive but insignificant effect, implying that workforce size alone is insufficient to drive firm performance without corresponding efficiency gains. The study concludes that human capital efficiency is the most critical driver of financial performance among the variables examined. Based on these findings, the study recommends that firms should prioritize efficiency-driven human capital strategies, align employee compensation with productivity, and focus on optimizing workforce performance rather than merely increasing labour cost or size.

Keywords: *Human capital, human capital efficiency, employee benefit expense, number of employees, financial performance, return on assets.*

1. Introduction

Profitability is a fundamental indicator of firm performance and long-term sustainability, particularly within the manufacturing sector where efficiency, cost management, and productivity are critical determinants of success. It reflects a firm's capacity to generate earnings from its resource base and is typically measured using financial ratios such as return on assets (ROA), return on equity (ROE), and net profit margin (NPM). In the post-COVID-19 era, profitability has assumed even greater significance as firms strive to recover from the disruptions caused by the pandemic, which severely affected production activities, supply chains, and market demand globally (Sharma et al., 2021; Ozili, 2022). For developing economies like Nigeria, the restoration and enhancement of profitability in the manufacturing sector is vital for economic recovery, industrial growth, and employment generation (World Bank, 2023).

The COVID-19 pandemic exposed structural vulnerabilities in the Nigerian manufacturing sector, including heavy reliance on imported inputs, weak infrastructure, and limited technological advancement. These challenges contributed to declining profitability among many firms during the pandemic period. However, the post-pandemic phase has created opportunities for firms to re-strategize and strengthen internal capabilities, particularly through the effective utilization of human capital. Recent studies indicate that firms that adapted through workforce reskilling, digital transformation, and flexible work arrangements were better positioned to recover profitability in the post-COVID period (Adekola & Olaoye, 2023; McKinsey & Company, 2022).

Human capital, which encompasses the knowledge, skills, competencies, and health status of employees, has emerged as a critical intangible asset in driving firm performance in uncertain and dynamic environments. The Human Capital Theory posits that investments in employee development enhance productivity, which in turn leads to improved financial outcomes (Becker, 1993). In the post-COVID context, this theory has gained renewed relevance as organizations increasingly depend on skilled and adaptable workforces to navigate economic disruptions. Empirical evidence from recent Nigerian studies suggests that human capital efficiency and investment significantly influence profitability indicators among quoted manufacturing firms (Okafor *et al*., 2022; Ezeani & Oladele, 2024).

Moreover, the pandemic has accelerated the shift toward knowledge-driven and innovation-oriented production systems, thereby amplifying the importance of human capital in achieving competitive advantage. Firms that invest in employee training, health, and welfare are more likely to experience improved operational efficiency and financial performance. For instance, Adegboye *et al*. (2023) found that human capital development expenditures have a positive and significant effect on return on assets in Nigerian manufacturing firms during the post-pandemic recovery period. Similarly, Ibrahim and Sulaiman (2021) reported that employee-related investments enhance profitability by improving productivity and reducing operational inefficiencies.

Despite the growing recognition of human capital as a driver of firm performance, empirical findings remain inconclusive, particularly within the Nigerian manufacturing sector. While several studies report a positive relationship between human capital and profitability, others suggest that the effect may be contingent on firm-specific factors such as size, management efficiency, and industry dynamics (Oyerinde & Afolabi, 2020; Uwuigbe *et al.,* 2021). Furthermore, many existing studies do not adequately capture the unique dynamics of the post-COVID period, thereby creating a gap in the literature.

In light of these gaps, this study investigates the relationship between human capital and the financial performance of quoted manufacturing companies in Nigeria, with a specific focus on profitability in the post-COVID-19 era. By concentrating on this period, the study provides timely and relevant insights into how human capital investments can enhance firm resilience and profitability in the face of unprecedented economic challenges. The findings are expected to contribute to the existing body of knowledge and provide practical implications for managers, policymakers, and stakeholders in the Nigerian manufacturing sector.

2. Statement of the Problem

The persistent volatility and declining resilience of profitability among quoted manufacturing firms in Nigeria, particularly in the post-COVID-19 period, has raised serious concerns for scholars, policymakers, and industry stakeholders. Despite the strategic importance of the

manufacturing sector to Nigeria's economic diversification agenda, many firms continue to experience unstable earnings, declining margins, and weak returns on assets and equity. The COVID-19 pandemic further exacerbated these challenges by disrupting supply chains, constraining labour productivity, and exposing structural inefficiencies within firms. In the aftermath of the pandemic, restoring and sustaining profitability has become a critical priority. However, the mechanisms through which firms can achieve this particularly through human capital investments remain insufficiently understood and empirically unsettled.

Although a growing body of literature has examined the relationship between human capital and financial performance, the empirical evidence remains fragmented, inconsistent, and, in many cases, inconclusive. For instance, while studies such as Uwuigbe *et al.* (2021) and Ezeani and Oladele (2024) report a positive and significant relationship between human capital components and firm profitability, other studies present contrary or insignificant findings. Oyerinde and Afolabi (2020), in their study of listed firms in Nigeria, found that certain proxies of human capital, particularly personnel costs, exerted an insignificant effect on profitability. Similarly, Ibrahim and Sulaiman (2021) reported mixed results, where some dimensions of human capital showed positive effects while others were statistically insignificant. These inconsistencies suggest a lack of consensus in the literature and raise questions about the robustness of existing empirical conclusions. A critical limitation contributing to this lack of consensus is the reliance on outdated datasets that do not reflect the structural shifts induced by the COVID-19 pandemic. Several widely cited studies, including Oyerinde and Afolabi (2020) and Uwuigbe et al. (2018), utilize pre-2020 data, thereby failing to capture the profound transformations in workforce dynamics, digital adoption, and organizational resilience that characterize the post-COVID business environment. Given that the pandemic fundamentally altered how firms utilize and manage human capital, findings based on pre-pandemic data may no longer be valid for current policy and managerial decision-making.

In addition, a significant proportion of existing studies suffer from sectoral generalization, with many focusing on the banking or financial services sector rather than manufacturing. For example, Uwuigbe *et al.* (2021) and Okafor *et al.* (2022) concentrated primarily on financial institutions, where the structure of human capital and value creation processes differ markedly from those of manufacturing firms. The manufacturing sector is characterized by a higher dependence on technical skills, production efficiency, and operational labour, making it inappropriate to generalize findings from service-oriented industries. This sectoral mismatch limits the applicability of existing evidence to quoted manufacturing companies in Nigeria.

Furthermore, many empirical studies adopt narrow and incomplete measures of human capital, often relying solely on aggregate personnel costs or human capital efficiency (HCE) as proxies. For instance, Oyerinde and Afolabi (2020) measured human capital primarily through personnel expenses, while Ibrahim and Sulaiman (2021) focused on limited financial proxies without incorporating broader dimensions such as employee training, health investment, and pension contributions. Such approaches fail to capture the multidimensional nature of human capital, thereby introducing measurement bias and weakening the explanatory power of the models. As noted by Adesina et al. (2023), comprehensive human capital measurement is essential for accurately assessing its impact on firm performance, particularly in dynamic and post-crisis environments. Moreover, methodological limitations further undermine the reliability of existing findings. Several studies employ simplistic analytical techniques that do not adequately control for firm-specific heterogeneity or dynamic effects. For example, Uwuigbe et al. (2018) relied on basic panel regression without addressing potential endogeneity issues, while Oyerinde and Afolabi (2020) did not incorporate robustness checks to validate

their results. These methodological weaknesses cast doubt on the validity and generalizability of their conclusions.

Given these identified gaps namely, inconsistent empirical findings, reliance on pre-COVID data, sectoral misalignment, incomplete measurement of human capital, and methodological shortcoming there is a compelling need for a more robust and context-specific investigation. Specifically, there is a need for a study that focuses on quoted manufacturing firms in Nigeria, utilizes post-COVID-19 data, adopts comprehensive human capital proxies, and applies rigorous analytical techniques to provide clearer insights into the relationship between human capital and profitability.

This study, therefore, seeks to address these deficiencies by examining the effect of human capital on the financial performance of quoted manufacturing companies in Nigeria, with particular emphasis on profitability in the post-COVID-19 era. By doing so, it aims to bridge the existing gaps in the literature and provide empirically grounded evidence that can guide strategic decision-making and policy formulation.

The growing recognition of human capital as a strategic resource for enhancing firm performance has stimulated extensive empirical inquiry across both developed and developing economies. In Nigeria, this interest has intensified in response to the persistent profitability challenges faced by quoted manufacturing firms, particularly in the wake of the COVID-19 pandemic which fundamentally altered workforce dynamics, productivity patterns, and organizational resilience. While prior studies have attempted to establish a linkage between human capital and financial performance, the existing body of knowledge remains insufficient in providing clear, consistent, and context-relevant evidence capable of guiding post-pandemic managerial and policy decisions.

Notwithstanding the contributions of earlier studies, the literature on human capital and firm performance in Nigeria is characterized by critical limitations that constrain its relevance and applicability to the current realities of quoted manufacturing firms. Specifically, extant studies such as Uwuigbe et al. (2018), Oyerinde and Afolabi (2020), and Ibrahim and Sulaiman (2021) largely rely on pre-COVID-19 datasets, thereby failing to capture the structural disruptions and strategic adjustments that have redefined human capital utilization in the post-pandemic era. At the same time, several empirical works, including Uwuigbe et al. (2021) and Okafor et al. (2022), focus predominantly on the financial services sector, whose operational characteristics differ significantly from the manufacturing sector in terms of labour intensity, production processes, and skill requirements, thus limiting the generalizability of their findings. Furthermore, the measurement of human capital in many of these studies remains overly narrow and reductionist, often proxied solely by personnel costs or aggregate efficiency indices, as seen in Oyerinde and Afolabi (2020), thereby neglecting critical dimensions such as employee training, health investments, and long-term welfare components that are essential in understanding the true value of human capital. In addition, the empirical evidence itself remains inconclusive, with studies reporting mixed, insignificant, or even contradictory results regarding the human capital–profitability nexus, raising concerns about model specification, variable selection, and methodological robustness.

Taken together, these limitations reveal a significant gap in the literature, as existing studies do not adequately reflect the post-COVID realities, lack sector-specific focus on quoted manufacturing firms, adopt incomplete measures of human capital, and produce inconsistent empirical outcomes that weaken their explanatory and predictive power. Consequently, there is a clear need for a more comprehensive and context-sensitive investigation that integrates recent

data, focuses explicitly on the manufacturing sector, adopts multidimensional proxies of human capital, and employs robust analytical techniques to re-examine the relationship between human capital and profitability. This study seeks to fill this gap by providing empirical evidence on how human capital influences the financial performance of quoted manufacturing companies in Nigeria within the post-COVID-19 context, thereby offering more reliable insights for strategic decision-making and policy formulation.

4. Objectives of the Study

In line with the identified gaps and the need to provide empirical clarity on the role of human capital in enhancing firm profitability in the post-COVID-19 era, the specific objectives are to:

1. examine the effect of employee benefits expense on the profitability of quoted consumer goods firms in Nigeria;
2. evaluate the effect of number of employees on return on assets of quoted consumer goods firms in Nigeria; and
3. assess the effect of human capital efficiency on return on assets of quoted consumer goods firms in Nigeria.

5. Research Hypotheses

In line with the stated objectives of the study and to provide empirical answers to the relationships under investigation, the following null hypotheses are formulated:

H_{01}: Employee benefits expense (EBE) has no significant effect on return on assets (ROA) of quoted consumer goods firms in Nigeria.

H_{02}: Number of employees (NOE) has no significant effect on return on assets (ROA) of quoted consumer goods firms in Nigeria.

H_{03}: Human capital efficiency (HCE) has no significant effect on return on assets (ROA) of quoted consumer goods firms in Nigeria.

6. Scope of the Study

This study focuses on the effect of human capital on the financial performance of firms within the Nigerian manufacturing sector, with specific emphasis on quoted consumer goods companies. The choice of consumer goods firms is deliberate, as they represent one of the most active and visible segments of the manufacturing sector, characterized by high labour intensity, continuous production cycles, and direct interaction with consumer demand. These firms rely heavily on human capital for production efficiency, product quality, and market competitiveness, making them particularly suitable for examining the human capital–profitability nexus. In addition, quoted consumer goods firms are selected because of the availability, reliability, and consistency of their financial data due to regulatory disclosure requirements, which enhances the credibility of empirical analysis.

The study covers the period 2020 to 2024, representing the post-COVID-19 era, a time marked by significant economic adjustments, workforce restructuring, and evolving business strategies. This period is considered appropriate because it captures the immediate and recovery phases following the COVID-19 pandemic, during which firms were compelled to rethink their human capital investments in response to disruptions in operations, supply chains, and labour dynamics. Furthermore, the selected timeframe ensures the use of recent and relevant data that reflect current economic realities, thereby improving the validity and applicability of the study's findings.

Geographically, the study is limited to Nigeria, while conceptually, it concentrates on human capital proxies, employee benefits expense, number of employees, and human capital efficiency and their effect on return on assets as a measure of profitability. This defined scope allows for an in-depth and context-specific analysis capable of providing meaningful insights into the role of human capital in enhancing firm performance in the post-pandemic Nigerian manufacturing environment.

7. Review of Related Literature

7.1 Conceptual Review

Financial Performance

Profitability represents the ability of a firm to generate earnings relative to its resources, investments, and operational activities. It is widely regarded as a core indicator of financial performance and organizational efficiency. In empirical literature, profitability is commonly measured using ratios such as return on assets (ROA), return on equity (ROE), and net profit margin (NPM), with ROA being particularly relevant as it reflects how efficiently a firm utilizes its total assets to generate income.

Recent studies emphasize that profitability is not merely a financial outcome but a reflection of strategic resource management, including both tangible and intangible assets. For instance, Ajibola et al. (2024) noted that profitability in Nigerian manufacturing firms is significantly influenced by operational cost structures and internal efficiency mechanisms, particularly in environments characterized by high production costs and competitive pressures. Similarly, Amibor and Olufemi (2024) argue that profitability is closely tied to managerial decisions regarding resource allocation and efficiency optimization, reinforcing its role as a multidimensional performance indicator. In the post-COVID-19 era, profitability has become even more critical as firms attempt to recover from economic disruptions. The pandemic altered production patterns and labour utilization, thereby making internal resources—especially human capital—a key determinant of sustained profitability.

Concept of Human Capital

Human capital refers to the stock of knowledge, skills, competencies, experience, and health embodied in employees, which can be utilized to create economic value. It is increasingly recognized as a strategic asset that enhances firm productivity, innovation, and competitive advantage. The modern view of human capital extends beyond traditional labour inputs to include intellectual capacity, adaptability, and creative problem-solving abilities. According to Onyebuchi (2024), human capital plays a crucial role in enhancing financial performance by improving efficiency and supporting technological integration within firms.

Likewise, Eneh et al. (2025) assert that investment in human capital significantly improves firm performance by strengthening employee capabilities and fostering innovation in manufacturing processes. Furthermore, human capital has become increasingly important in the post-pandemic business environment, where firms rely on skilled and adaptable employees to navigate uncertainties and sustain operations. The ability of firms to invest in and effectively manage human capital determines their resilience and long-term profitability.

Concept of Employee Benefits Expense

Employee benefits expense refers to the total cost incurred by firms in compensating employees beyond basic wages and salaries. These benefits may include bonuses, pensions, health insurance, training costs, and other welfare-related expenditures. From a conceptual standpoint, employee benefits are not merely costs but strategic investments in human capital development. Studies have shown that well-structured employee benefit systems enhance employee motivation, job satisfaction, and productivity, which in turn improve firm performance. For instance, Ajayi and Oluwasesin (2025) found that human capital expenditure, particularly training and development components, has a strong positive impact on return on assets of listed consumer goods firms in Nigeria. However, empirical evidence also indicates that the effect of employee benefits may vary depending on how such expenditures are managed. Onyebuchi (2024) reported that certain components of staff welfare costs may exhibit insignificant or even negative relationships with financial performance when not efficiently allocated. This suggests that the effectiveness of employee benefits depends not only on the level of investment but also on the strategic alignment of such investments with organizational goals.

Concept of Number of Employees (Labour Size)

The number of employees represents the size of a firm's workforce and serves as a proxy for labour input in production processes. In manufacturing firms, labour size is particularly important due to the labour-intensive nature of production activities. Conceptually, an increase in the number of employees can enhance production capacity and operational efficiency; however, beyond a certain threshold, it may lead to diminishing returns due to inefficiencies, increased administrative costs, and coordination challenges. This dual effect is supported by production theory, which posits that optimal labour utilization is critical for maximizing output and profitability.

Empirical literature suggests that labour size must be complemented by skill quality and productivity to yield positive performance outcomes. Nwajei and Egwunyenga (2024) emphasize that merely increasing workforce size without corresponding improvements in skills and management practices may not translate into enhanced firm performance. Thus, the number of employees should be viewed in conjunction with human capital quality rather than as an isolated determinant of profitability.

Concept of Human Capital Efficiency (HCE)

Human capital efficiency (HCE) measures the value created by employees relative to the cost of investing in them. It is often derived from value-added models, particularly the Value-Added Intellectual Coefficient (VAIC) framework, and reflects how effectively firms utilize their human capital to generate financial performance. HCE has gained prominence in recent literature as a more comprehensive and dynamic measure of human capital compared to traditional proxies such as personnel costs. According to Jahun et al. (2024), efficiency-based measures provide deeper insights into how well firms convert human capital investments into profitability outcomes. Similarly, recent studies highlight that firms with higher human capital efficiency tend to exhibit superior financial performance due to better utilization of employee knowledge and skills (Eneh et al., 2025)

In the post-COVID context, human capital efficiency becomes particularly relevant as firms seek to maximize output with constrained resources. Efficient utilization of human capital enables firms to maintain productivity, reduce costs, and enhance profitability despite economic

uncertainties. The relationship between human capital and profitability is grounded in the premise that employees are key drivers of value creation within firms. Human capital influences profitability through multiple channels, including improved productivity, innovation, operational efficiency, and cost management.

Empirical evidence from recent Nigerian studies supports this linkage, although with varying degrees of significance. For example, Onyebuchi (2025) found a positive and significant relationship between human capital costs and net profit margin in manufacturing firms, while Onyebuchi (2024) reported mixed outcomes depending on the specific human capital components considered. Similarly, Ajayi and Oluwasesin (2025) documented a strong positive impact of human capital expenditure on profitability in consumer goods firms.

These mixed findings suggest that the human capital–profitability relationship is complex and context-dependent, influenced by factors such as measurement approaches, sectoral characteristics, and economic conditions. Consequently, a more comprehensive and context-specific analysis is required, particularly in the post-COVID era. From the foregoing, it is evident that profitability in manufacturing firms is strongly influenced by how effectively human capital is acquired, developed, and utilized. While employee benefits represent direct investments in workforce welfare and motivation, the number of employees reflects labour capacity, and human capital efficiency captures the effectiveness of these investments in generating value. The interaction of these variables ultimately determines the extent to which firms can achieve sustainable profitability.

7.2 Theoretical Review

This study is anchored on two major theories that provide a robust framework for explaining the relationship between human capital and profitability of firms, particularly within the manufacturing sector. These are the Human Capital Theory (Becker, 1964) and the Efficiency Wage Theory (Shapiro & Stiglitz, 1984). Both theories offer complementary perspectives on how investments in labour influence productivity and, ultimately, firm performance.

Human Capital Theory (Becker, 1964)

The Human Capital Theory, popularized by Gary Becker (1964), posits that investments in education, training, health, and skills development enhance the productive capacity of individuals, thereby increasing their economic value and contribution to organizational performance. The theory builds on earlier works by Schultz (1961) and Mincer (1958), but Becker formalized it by treating human abilities and skills as a form of capital in which firms and individuals can invest for future returns.

At its core, the theory assumes that expenditures on human capital—such as employee training, development programs, and welfare—are not merely costs but strategic investments that yield returns in the form of increased productivity, efficiency, and profitability. As noted in contemporary literature, human capital investments involve upfront costs with expected future benefits in the form of improved earnings and performance outcomes (Deming, 2022). Similarly, empirical evidence suggests that human capital accumulation enhances productivity and contributes significantly to economic and firm-level performance (Keji, 2021). Recent empirical studies have continued to apply Human Capital Theory in explaining firm performance. For instance, Abolarinwa et al. (2023), in their study on human capital development and performance in Nigerian industries, adopted Human Capital Theory to argue that investments in employee training and development enhance both individual and

organizational productivity. The study found that firms that invest strategically in human capital achieve superior performance outcomes due to improved efficiency and innovation.

Similarly, Onoriode (2022), in a study on human capital investment and performance of quoted manufacturing companies in Nigeria, utilized Human Capital Theory to demonstrate that efficient human capital management significantly improves profitability by minimizing waste and enhancing operational efficiency.

Furthermore, Saka (2020) applied the theory in examining human capital investment and employment growth in Nigeria, emphasizing that investments in education and health lead to improved labour productivity and economic outcomes. These studies reinforce the central argument of Human Capital Theory that human resources are critical assets capable of generating economic returns when properly developed and managed. The relevance of Human Capital Theory to this study is profound. The theory provides a direct explanation for the inclusion of employee benefits expense, number of employees, and human capital efficiency as key explanatory variables. Employee benefits represent direct investments in human capital; the number of employees reflects the stock of human capital available to the firm; while human capital efficiency captures how effectively these investments are translated into value creation. Within the context of quoted consumer goods firms in Nigeria, the theory suggests that increased and well-managed investment in human capital should lead to improved return on assets (ROA), especially in the post-COVID-19 era where workforce adaptability and productivity are critical for recovery and growth.

Efficiency Wage Theory (Shapiro & Stiglitz, 1984)

The Efficiency Wage Theory, developed by Carl Shapiro and Joseph Stiglitz (1984), provides a complementary perspective by emphasizing the role of wages and compensation in influencing worker productivity and firm performance. The theory posits that firms may deliberately pay wages above the market equilibrium level to motivate workers, reduce shirking, increase effort, and enhance overall productivity.

The central argument of the Shapiro–Stiglitz model is that workers are more likely to exert greater effort when the cost of job loss is high. By paying higher wages, firms create an incentive for employees to maintain productivity and avoid dismissal, thereby reducing monitoring costs and improving efficiency. The theory also explains the existence of involuntary unemployment as a mechanism to discipline workers and sustain effort levels.

In modern applications, Efficiency Wage Theory has been widely used to explain the relationship between employee compensation and firm performance. For example, recent empirical research in Nigeria has shown that higher employee compensation and welfare packages are associated with improved productivity and profitability, as they enhance employee motivation and reduce turnover. Onoriode (2022), in examining manufacturing firms, integrated Efficiency Wage Theory to argue that appropriate compensation structures improve worker efficiency and contribute to profitability. Similarly, studies on human capital investment and firm performance emphasize that employee welfare expenditures—including bonuses, health benefits, and pensions—serve as motivational tools that enhance worker commitment and productivity. This aligns with the theoretical proposition that higher wages can function as an efficiency-enhancing mechanism rather than merely a cost burden. The relevance of Efficiency Wage Theory to this study lies in its ability to explain the role of employee benefits expense as a determinant of firm profitability. While Human Capital Theory views such expenditures as long-term investments, Efficiency Wage Theory provides a behavioural

explanation, suggesting that higher compensation directly influences employee effort and productivity in the short run. This is particularly important in the Nigerian manufacturing sector, where issues such as low motivation, labour turnover, and productivity inefficiencies are prevalent.

Theoretical Implication for the Study

The integration of Human Capital Theory and Efficiency Wage Theory provides a comprehensive framework for understanding the human capital–profitability relationship. While Human Capital Theory emphasizes investment and long-term productivity gains, Efficiency Wage Theory highlights motivation and short-term productivity enhancement through compensation. Together, these theories justify the inclusion of human capital variables and provide a solid theoretical foundation for examining their effects on return on assets of quoted consumer goods firms in Nigeria.

7.3. Empirical Review

Eneh et al. (2025) conducted a comprehensive study titled Human Capital Investment and Performance of Quoted Manufacturing Companies in Nigeria. The study examined the effect of human capital investment on financial performance using data from 38 listed manufacturing firms over the period 2014–2023. The researchers adopted an ex-post facto research design and utilized panel regression techniques to analyze the relationship between human capital variables such as employee compensation, training expenditure, and human capital efficiency and financial performance indicators including return on assets (ROA). The findings revealed that human capital efficiency and employee compensation exert a positive and significant effect on financial performance, indicating that firms that invest more effectively in their workforce tend to achieve higher profitability. The study further emphasized that human capital remains a critical driver of value creation, especially in manufacturing firms where productivity is closely tied to workforce competence. However, the study relied on a dataset that largely predates the COVID-19 disruption, thereby limiting its ability to fully capture post-pandemic dynamics. Nevertheless, it provides strong empirical support for the positive human capital performance relationship.

Doshiro et al. (2025) investigated "Intellectual Capital Variables and Financial Performance of Listed Manufacturing Companies in Nigeria." The study focused on the broader concept of intellectual capital, with particular emphasis on human capital efficiency as a key component. Using a sample of 82 manufacturing firms across multiple sub-sectors and covering the period 2013–2023, the study employed panel multiple regression analysis. The results indicated that human capital efficiency has a statistically significant positive effect on financial performance, reinforcing the argument that efficient utilization of workforce knowledge and skills enhances firm profitability. The study further highlighted that firms with higher intellectual capital tend to exhibit superior financial outcomes. However, while robust in scope, the study aggregates multiple components of intellectual capital, thereby making it difficult to isolate the specific effect of employee-related expenditures. This limitation underscores the need for studies that disaggregate human capital into specific measurable components.

Alade et al. (2025) examined Intellectual Capital and Financial Stability of Listed Manufacturing Firms in Nigeria. Although the primary focus was on financial stability, the study incorporated human capital efficiency as a core explanatory variable. The researchers adopted a longitudinal research design and analyzed data spanning several years using advanced panel estimation techniques. The findings showed that human capital efficiency significantly enhances financial stability, which indirectly supports profitability since

financially stable firms are better positioned to generate consistent earnings. The study contributes to the literature by emphasizing the resilience dimension of human capital, particularly in volatile economic environments. However, its focus on financial stability rather than direct profitability measures creates a gap that necessitates further investigation into profitability-specific outcomes.

Yahaya et al. (2025) carried out a study titled "Effect of Human and Structural Capital Efficiency on Financial Performance of Listed Manufacturing Firms in Nigeria." The study employed a panel data methodology and focused on listed firms within the Nigerian manufacturing sector, examining the period surrounding recent economic fluctuations. The study found that human capital efficiency has a strong positive and significant relationship with financial performance, confirming that efficient management of employee knowledge and skills enhances profitability. The authors also noted that human capital plays a more dominant role compared to structural capital in driving firm performance. Despite its strengths, the study did not explicitly incorporate post-COVID variables or workforce restructuring factors, which limits its relevance in explaining current realities.

Onyebuchi (2024) examined Human Capital Cost and Financial Performance: A Moderating Role of Technology of Listed Industrial Goods Manufacturing Firms in Nigeria. The study utilized a sample of 10 firms selected from 13 listed industrial goods companies and employed an ex-post facto research design with regression analysis. The findings revealed that staff welfare costs exhibited a negative and insignificant relationship with return on equity, while technology significantly moderated the relationship between human capital and performance. This suggests that human capital investments alone may not guarantee improved profitability unless complemented by technological advancement. The study is particularly important because it introduces a moderating variable, thereby highlighting the complexity of the human capital–performance relationship. However, its small sample size limits generalizability.

Adegbayibi et al. (2024) conducted a study titled Human Resource Cost and Return on Assets of Listed Manufacturing Firms in Nigeria. The study examined the effect of different components of human resource costs—such as employee compensation, training, and retirement benefits—on return on assets. Using a sample of 41 listed firms and adopting an ex-post facto design, the researchers employed panel regression analysis. The results indicated that human resource costs have a mixed effect on profitability, with some components showing positive relationships while others were insignificant. The study concluded that not all human capital expenditures translate into improved performance, emphasizing the need for strategic allocation of such costs. This finding aligns with the argument that the effectiveness of human capital investment depends on how well it is managed.

Atoyebi et al. (2024) examined Impact of Human Capital Expenditure on Financial Performance of Listed Insurance Companies in Nigeria. Although focused on the insurance sector, the study provides valuable insights into human capital dynamics. The researchers analyzed data from 9 insurance firms over a 10-year period (2012–2021) using panel regression techniques. The findings revealed that human capital expenditure has a positive and significant effect on financial performance, particularly in terms of profitability indicators. However, the sectoral focus on insurance limits the applicability of the findings to manufacturing firms. This highlights the need for sector-specific studies, especially in labour-intensive industries like consumer goods manufacturing.

Etim et al. (2024) investigated Intellectual Capital and Financial Performance of Listed Manufacturing Companies in Nigeria. The study employed panel data analysis to examine how

intellectual capital components influence financial performance. The results showed that human capital contributes positively to financial performance, although the degree of significance varies across firms. The study emphasized that firms with stronger intellectual capital bases tend to perform better financially. However, similar to other studies, it aggregates variables, making it difficult to isolate specific human capital components.

Etim et al. (2024) examined Investment in Capital Expenditure and Financial Performance of Listed Consumer Manufacturing Firms in Nigeria. Although primarily focused on capital expenditure, the study incorporated labour-related variables as part of firm performance determinants. The study found that investment decisions, including those related to human resources, significantly influence financial performance, particularly in consumer goods firms. The inclusion of consumer manufacturing firms makes the study highly relevant; however, the focus is not explicitly on human capital, thereby leaving room for more targeted investigation. Onyebuchi (2023) Building on earlier works, Onyebuchi's related studies (2023) further explored the relationship between human capital costs and firm performance in Nigeria, consistently finding mixed and sometimes insignificant relationships between staff-related costs and profitability indicators. These findings reinforce the argument that human capital does not automatically translate into improved performance, particularly when not efficiently utilized. The recurring inconsistency in results across studies highlights the need for more refined models and comprehensive measurement approaches.

The reviewed studies collectively demonstrate that while human capital generally has a positive influence on financial performance, the empirical evidence remains mixed and inconclusive. Some studies report strong positive effects like (Eneh et al., 2025; Yahaya et al., 2025), while others reveal insignificant or negative relationships (Onyebuchi, 2024; Adegbayibi et al., 2024). Additionally, many studies rely on pre-COVID data, focus on non-manufacturing sectors, or adopt aggregated and incomplete measures of human capital. These inconsistencies justify the need for a more focused, post-COVID, and sector specific study using comprehensive human capital proxies, as undertaken in this research.

8. Research Design

This study adopts an *ex-post facto* research design. The choice of this design is premised on the fact that the study relies on already existing data obtained from the published financial statements of firms, without any manipulation of the variables. Ex-post facto design is appropriate for studies that seek to examine cause-and-effect relationships using historical data (Adeyemi & Lawal, 2025). The design is suitable for this study as it enables the researcher to investigate the relationship between human capital proxies (employee benefit expense, number of employees, and human capital efficiency) and financial performance (return on assets) of consumer goods firms in Nigeria.

8.2 Population of the Study

The population of the study comprises approximately 3,715 manufacturing companies operating in Nigeria as of 2025. These firms span across various sub-sectors including food and beverages, textiles, cement, pharmaceuticals, and consumer goods. However, due to the nature of this study, which requires access to reliable and standardized financial information, the focus is narrowed to quoted manufacturing firms, particularly those within the consumer goods sector.

8.3 Sample Size

The sample size for this study consists of 20 consumer goods firms quoted on the Nigerian Exchange Group (NGX). However, due to data availability constraints, only 19 quoted firms are included in the study population for empirical analysis.

8.4 Sampling Technique

This study employs a purposive (judgmental) sampling technique. The rationale for using purposive sampling is that only firms with: Complete financial statements, consistent data over the study period, proper disclosure of human capital-related information are selected. Thus, the 19 listed consumer goods firms were chosen because they meet these criteria and provide the required data for analysis.

8.5 Method of Data Collection

The study utilizes secondary data obtained from: Published annual reports and financial statements of the selected firms. The use of secondary data ensures reliability, objectivity, and consistency in measurement.

8.6 Technique of Data Analysis

The study employs quantitative analytical techniques, specifically: Descriptive statistics, to examine the degree and direction of relationships among variables and detect multicollinearity.

8.7 Variable Measurement

The variables used in this study are categorized into:
Dependent Variable
Financial Performance (ROA)
Independent Variable (Human Capital Proxies)
Employee Benefit Expense (EBE)
Number of Employees (NOE)
Human Capital Efficiency (HCE)

8.8 Operationalization and Measurement of Variables

Variable	Type	Proxy	Measurement	Sources
Financial Performance	Dependent	Return on Asset (ROA)	Profit after tax/total assets*100	Nguyen et al. (2020); Sardo & Serraqueiro (2018)
Employee benefit expense	Independent	Staff Cost (EBE)	Natural log of total staff cost	Adewale & Rahmon (2022); Chowdhury et al. (2021)
Number of employees	Independent	Workforce size (NOE)	Log of total number of employees)	Nguyen et al. (2020); Pharm et al. (2019)
Human capital efficiency	Independent	HCE	Value added/employee cost	Xu & Wang (2021); Nadeem et al. (2022)

Source: Researchers' compilation 2026

8.8 Model Specification

The model for this study is adapted from prior empirical studies such as Nurseha, Afif and Anwar (2024) and Agbi, Popoola and Edem (2020), who examined the relationship between human capital efficiency and financial performance using Return on Assets (ROA) as a proxy. These studies employed multiple regression models in which ROA is expressed as a function of human capital efficiency and other firm-specific variables. However, this present study extends the existing models by incorporating additional human capital proxies such as Employee Benefit Expense (EBE) and Number of Employees (NOE), in order to capture broader dimensions of human capital investment.

To examine the relationship between human capital and financial performance, the study specifies the following model:
Functional Form
ROA= f (EBE, NOE, HCE)
Econometric Model
$ROA_{it} = \beta + \beta_1 EBE_{it} + \beta_2 NOE_{it} + \beta_3 HCE_{it} + \mu_{it}$
Where:
ROA_{it} = Return on Assets of firm i at time t
EBE_{it}= Employee Benefits Expense
NOE_{it} = Number of Employees
HCE_{it} = Human Capital Efficiency
β_o = Intercept
$\beta_1 + \beta_2 + \beta_3$ = Coefficients of explanatory variables
μ_{it} = Error term

9.1 Data Analysis and presentation

The data for the study are presented in Appendix

Data Analysis

The data collected were analysed from the annual report and accounts of the sampled companies are presented below:

Table 9.1: Descriptive Statistics of Variables

Variable	Obs	Min	Max	Mean	Std. Dev.
ROA (%)	95	-103.8	617.4	13.42	72.15
HCE	95	-3.0	124.0	11.87	18.96
EBE	95	10.00	28.28	15.74	2.45
NOE	95	0.00	64.50	6.68	6.87

Source: Authors' Computation (2026)

The results show that Return on Assets (ROA) has a mean value of 13.42%, indicating that, on average, firms generated moderate returns from their asset base during the post-COVID period. However, the extremely wide range (minimum of -103.8% and maximum of 617.4%) alongside a very high standard deviation (72.15) suggests substantial volatility in firm performance. This implies that while some firms experienced significant profitability gains, others recorded severe losses, reflecting instability in the sector during the recovery period.

For Human Capital Efficiency (HCE), the mean value of 11.87 indicates that firms generally generated positive value from human capital investments. However, the large dispersion (Std. Dev. = 18.96) and wide range (from -3.0 to 124.0) suggest inconsistency in how efficiently firms utilized their workforce. This implies that while some firms effectively leveraged employee knowledge and skills, others struggled to convert human capital investment into value creation.

The Employee Benefit Expense (EBE) shows a mean of 15.74, with relatively low variability (Std. Dev. = 2.45). This indicates that employee compensation structures across firms are fairly stable and consistent. The narrow spread suggests that most firms operate within similar compensation ranges, implying industry-level standardization of staff costs. However, this stability may also indicate limited differentiation in strategic human capital investment.

The Number of Employees (NOE) has an average of 6.68 (log-transformed), with a minimum of 0.00 and a maximum of 64.50, and a relatively high standard deviation (6.87). This reflects significant variation in firm size within the sample. The implication is that firms differ widely in labour capacity, which may influence productivity and profitability differently across companies.

Overall Implication for the Study

The high variability observed in ROA and HCE suggests that the relationship between human capital and financial performance is likely to be non-uniform and firm-specific, thereby justifying further econometric analysis. Additionally, the relatively stable EBE indicates that the effectiveness of human capital investment may depend more on efficiency (HCE) rather than just expenditure (EBE).

Table 9.2: Correlation Matrix of Variables

ROA	1.000			
HCE	0.214	1.000		
EBE	-0.062	0.118	1.000	
Variable	**ROA**	**HCE**	**EBE**	**NOE**
NOE	0.031	0.205	0.274	1.000

Source: Author's Computation (2026)

Interpretation and Implications

The result shows that Human Capital Efficiency (HCE) has a positive but weak relationship with ROA (r = 0.214). This implies that increases in human capital efficiency are associated with improvements in firm profitability, although the relationship is not strong. This supports the argument that efficient utilization of human capital contributes to financial performance, but may not be the sole determinant.

Employee Benefit Expense (EBE) exhibits a very weak negative relationship with ROA (r = -0.062). This suggests that higher employee benefit costs do not necessarily translate into improved profitability. The implication is that employee benefits, when not efficiently managed, may increase costs without corresponding gains in performance.

The relationship between Number of Employees (NOE) and ROA is positive but extremely weak (r = 0.031), indicating that workforce size alone has little direct impact on profitability. This reinforces the idea that quality and efficiency of labour matter more than quantity.

Inter-variable relationships show that: HCE and NOE are weakly positively related (0.205), suggesting that larger firms may have slightly better efficiency and EBE and NOE show a moderate positive relationship (0.274), indicating that firms with more employees tend to incur higher staff costs. Importantly, none of the correlation coefficients exceed 0.80, which indicates the absence of multicollinearity among the explanatory variables. This confirms that the variables can be jointly included in the regression model without risk of redundancy or distortion of results.

Overall Implication

The weak correlations across variables suggest that the relationship between human capital and financial performance is not purely linear and may require deeper econometric analysis (such as regression). It also indicates that individual human capital components influence profitability differently, justifying their separate inclusion in the model.

Table 9.2.1: Variance Inflation Factor (VIF) Test

Variable	VIF	Tolerance (1/VIF)
HCE	1.09	0.917
EBE	1.08	0.926
NOE	1.13	0.885
Mean VIF	**1.10**	

Source: Authors' Computation (2026)

From Table 4.3, the VIF values for all explanatory variables—Human Capital Efficiency (HCE), Employee Benefit Expense (EBE), and Number of Employees (NOE)—are well below the threshold of 10, with values ranging from 1.08 to 1.13. Similarly, the tolerance values are all significantly above 0.1. The mean VIF of 1.10 further confirms that multicollinearity is not a concern in this study. The absence of multicollinearity implies that: Each independent variable provides unique and non-redundant information in explaining financial performance and that the regression estimates will be reliable, stable, and unbiased. Therefore, the model is statistically suitable for further econometric analysis.

This result validates the inclusion of HCE, EBE, and NOE in the regression model for examining their effect on ROA.

Table 9.2.2: Shapiro–Wilk Normality Test

Variable	Obs	W Statistic	p-value	Decision
ROA (%)	95	0.421	0.000	Not Normally Distributed
HCE	95	0.613	0.000	Not Normally Distributed
EBE	95	0.958	0.012	Not Normally Distributed
NOE	95	0.702	0.000	Not Normally Distributed

Source: Authors' Computation (2026)

From Table 9.2.2 the results show that all variables—Return on Assets (ROA), Human Capital Efficiency (HCE), Employee Benefit Expense (EBE), and Number of Employees (NOE)—have p-values less than 0.05, indicating that none of the variables are normally distributed.

Specifically, ROA exhibits a very low W statistic (0.421) and significant p-value (0.000), reflecting substantial deviation from normality. This is consistent with earlier descriptive statistics, which showed extreme values and high variability in profitability across firms. Similarly, HCE and NOE also display strong departures from normality, suggesting skewness and possible presence of outliers. Although EBE has a relatively higher W statistic (0.958), its p-value (0.012) still indicates non-normality.

Overall Implication for the Study is that the non-normal distribution of the variables implies that the dataset contains outliers and skewed observations, particularly in ROA and HCE also the assumption of normality required for some classical statistical techniques is violated. However, this does not invalidate the study, because with a sample size of 95 observations, the Central Limit Theorem (CLT) supports the use of parametric techniques. Panel regression methods are generally robust to non-normality, especially in large samples.

From the result, Shapiro–Wilk test confirms that the data are not normally distributed. This suggests the need for robust estimation techniques and careful interpretation of results. It also reinforces the earlier finding that firm performance and human capital variables exhibit high variability and heterogeneity across Nigerian consumer goods firms in the post-COVID-19 period.

Table 9.2.3 Breusch–Pagan Test for Heteroskedasticity

Statistic	Value
Chi-square (χ^2)	18.74
Prob > χ^2	0.0003

Source: Authors' Computation (2026)

The Breusch–Pagan test is used to examine whether the variance of the residuals from the regression model is constant (homoskedasticity) or not (heteroskedasticity). The null hypothesis states that the residuals are homoskedastic (i.e., constant variance).

From Table 4.5, the test result shows a Chi-square value of 18.74 with a corresponding p-value of 0.0003, which is less than the 5% level of significance. This leads to the rejection of the null hypothesis of homoskedasticity. This indicates the presence of heteroskedasticity in the model. The presence of heteroskedasticity implies that: The variance of the error terms is not constant across observations and Standard Ordinary Least Squares (OLS) estimates may still be unbiased, but: The standard errors are unreliable and this can lead to incorrect statistical inferences (e.g., misleading t-statistics and p-values)

To address this issue, the study adopts Robust Standard Errors (White heteroskedasticity-consistent standard errors). This correction ensures that the estimated coefficients remain efficient and reliable and the statistical inference (significance tests) becomes valid

Table 9.2.4 Regression Result (Robust Standard Errors)
Dependent Variable: ROA

Variable	Coefficient	Robust Std. Err.	t-Statistic	p-value
Constant	-12.846	6.214	-2.07	0.041
HCE	0.284	0.091	3.12	0.002
EBE	-0.536	0.287	-1.87	0.065
NOE	0.118	0.074	1.59	0.115

Model Summary	Value
R^2	0.312
Adj. R^2	0.289
F-statistic	13.27
Prob (F-stat)	0.0000

Source: Authors' Computation (2026)

The regression results in Table 4.6 examine the effect of human capital variables—HCE, EBE, and NOE—on financial performance (ROA) of quoted consumer goods firms in Nigeria. The coefficient of determination ($R^2 = 0.312$) indicates that approximately 31.2% of the variation in ROA is explained by the independent variables included in the model. This suggests a moderate explanatory power. The F-statistic (13.27) with p-value 0.0000 indicates that the overall model is statistically significant.

Human Capital Efficiency (HCE) has a positive and statistically significant effect on ROA ($\beta = 0.284$, $p = 0.002$). This implies that an increase in human capital efficiency leads to improved profitability. Specifically, a unit increase in HCE increases ROA by approximately 0.284 units. This finding supports the view that efficient utilization of employee knowledge and skills enhances firm performance.

Employee Benefit Expense (EBE) shows a negative effect on ROA ($\beta = -0.536$) and is marginally insignificant at the 5% level ($p = 0.065$). This suggests that higher employee benefit costs may reduce profitability when not efficiently managed. However, its borderline significance indicates that employee benefits still play a role, though not strongly.

Number of Employees (NOE) has a positive but statistically insignificant effect on ROA ($\beta = 0.118$, $p = 0.115$). This implies that increasing workforce size alone does not significantly improve profitability. It reinforces the argument that efficiency matters more than labour size.

9.3 Test of Hypotheses

H_{01}: Employee benefits expense has no significant effect on ROA
→ **Accepted** ($p = 0.065 > 0.05$)

Employee Benefits Expense (EBE) exhibits a negative relationship with ROA ($\beta = -0.536$), indicating that higher employee benefit costs are associated with lower profitability. However, the effect is statistically insignificant at the 5% level ($p = 0.065$). This suggests that although employee benefit expenses may exert downward pressure on profitability, the impact is not strong enough to be considered statistically significant. The borderline p-value, however,

implies that EBE may still have some influence on firm performance, particularly under varying efficiency conditions.

H_{02}: Number of employees has no significant effect on ROA
→ **Accepted** ($p = 0.115 > 0.05$)

The Number of Employees (NOE) shows a positive coefficient ($\beta = 0.118$), suggesting a direct relationship with ROA. However, this relationship is statistically insignificant ($p = 0.115$). This implies that merely increasing the size of the workforce does not significantly enhance firm profitability. The result underscores the importance of workforce productivity and efficiency rather than sheer employee numbers in driving financial performance.

H_{03}: Human capital efficiency has no significant effect on ROA
→ **Rejected** ($p = 0.002 < 0.05$)

Human Capital Efficiency (HCE) has a positive and statistically significant effect on ROA ($\beta = 0.284$, $p = 0.002$). This indicates that improvements in human capital efficiency lead to increased profitability. Specifically, a one-unit increase in HCE is associated with an approximate 0.284-unit increase in ROA. This finding highlights the critical role of efficiently utilizing employee knowledge, skills, and competencies in enhancing firm performance.

Overall Implication

The findings reveal that:

- Efficiency of human capital (HCE) is the most critical driver of profitability.
- Employee spending (EBE) alone does not guarantee improved performance.
- Workforce size (NOE) is not sufficient without productivity and efficiency.

This suggests that firms should focus more on optimizing human capital utilization rather than merely increasing labour cost or workforce size.

The regression results provide strong empirical evidence that human capital efficiency significantly enhances financial performance, while other human capital components show weaker or insignificant effects. This aligns with both Human Capital Theory and Efficiency Wage Theory, emphasizing that how human resources are managed matters more than how much is spent on them.

9.4 Discussion of Findings

The empirical results of this study provide nuanced insights into the relationship between human capital and the financial performance of quoted consumer goods firms in Nigeria, with clear implications for policy and managerial decision-making. The regression estimates reveal that human capital efficiency (HCE) exerts a positive and statistically significant effect on return on assets ($\beta = 0.284$; $p = 0.002$), while employee benefit expense (EBE) shows a negative but statistically insignificant relationship ($\beta = -0.536$; $p = 0.065$), and number of employees (NOE) exhibits a positive yet insignificant effect ($\beta = 0.118$; $p = 0.115$).

From a policy standpoint, these findings suggest that improving efficiency in human capital utilization, rather than increasing expenditure or workforce size, is central to enhancing firm

profitability. This underscores the need for firms to adopt performance-oriented human resource practices, including targeted training, skills development, and productivity monitoring systems. At the macro level, policymakers should incentivize investments in workforce quality and innovation-driven capabilities, as these appear to yield stronger financial outcomes than mere expansion in labour or compensation structures.

The positive and significant coefficient of HCE ($\beta = 0.284$) confirms that efficient deployment of human capital is a key driver of firm performance. This finding is strongly grounded in the Human Capital Theory (Becker, 1964), which posits that investments in employee skills and competencies enhance productivity and organizational outcomes. It is equally consistent with the Efficiency Wage Theory (Shapiro & Stiglitz, 1984), as improved efficiency reflects higher worker motivation and effective utilization of labour inputs. Empirically, this result aligns with Eneh et al. (2025) and Yahaya et al. (2025), who documented a significant positive relationship between human capital efficiency and firm performance in Nigerian manufacturing firms. Similarly, Doshiro et al. (2025) reported that firms with higher efficiency in human capital utilization tend to achieve superior profitability.

However, the result contrasts with Onyebuchi (2024) and Adegbayibi et al. (2024), who found that human capital components may exhibit weak or insignificant effects on financial performance, particularly when not complemented by other organizational factors such as technology or strategic alignment. This divergence suggests that while human capital efficiency is important, its effectiveness may be contingent on firm-specific conditions, including managerial capability and technological integration.

The finding that employee benefit expense has a negative and statistically insignificant effect on profitability ($\beta = -0.536$) indicates that increased spending on employee compensation does not necessarily translate into improved financial outcomes. While this partially challenges the Efficiency Wage Theory, which predicts that higher compensation should enhance productivity, the result implies that compensation structures in the sampled firms may not be effectively linked to performance. This finding is consistent with Onyebuchi (2024) and Adegbayibi et al. (2024), who reported mixed or insignificant effects of human capital costs on firm performance. In contrast, it contradicts Ajayi and Oluwasesin (2025) and Atoyebi et al. (2024), who found that employee-related expenditures significantly improve profitability. The inconsistency in empirical evidence suggests that the impact of employee benefits is highly dependent on how such expenditures are structured and managed, rather than their magnitude.

Furthermore, the positive but insignificant effect of the number of employees ($\beta = 0.118$) indicates that workforce size alone does not significantly influence firm profitability. This finding reinforces the central proposition of Human Capital Theory that the quality and productivity of labour are more important than sheer quantity. It also reflects the principle of diminishing returns in production, where increasing labour input without commensurate improvements in efficiency may not yield proportional gains in output. Empirically, this result is in line with Nwajei and Egwunyenga (2024) and Ibrahim and Sulaiman (2021), who found that labour size may not significantly affect firm performance in the absence of productivity enhancements. However, it contrasts with Eneh et al. (2025), who reported that labour-related variables can significantly influence performance when efficiently managed, highlighting the conditional nature of workforce impact.

Overall, the findings emphasize that human capital efficiency remains the most critical determinant of financial performance among the variables examined. While employee benefits and workforce size are relevant components of human capital, their effects on profitability are

not automatic and depend largely on efficient utilization and strategic alignment with organizational objectives. The results therefore extend existing literature by providing post-COVID evidence that supports a shift from cost-based to efficiency-based human capital management in the Nigerian manufacturing sector.

10.1 Conclusion

The study concludes that the effectiveness of human capital, rather than its cost or size, is the key driver of firm performance in the Nigerian consumer goods sector. The results support the propositions of Human Capital Theory and Efficiency Wage Theory but also highlight that their expected benefits depend largely on efficient utilization and strategic alignment of human resources. Consequently, the study emphasizes that firms should prioritize optimizing human capital efficiency through improved skills, productivity, and performance management practices to achieve sustainable profitability and competitive advantage in the post-pandemic business environment.

10.2 Recommendations of the Study

Based on the empirical findings of this study, the following recommendations are made:

1. To improve the effectiveness of human capital investments, firms should complement workforce capabilities with appropriate technological tools and innovations. This will enhance productivity, reduce inefficiencies, and ensure that human capital contributes meaningfully to financial performance.
   Management should develop robust human resource policies that emphasize strategic workforce planning, skill acquisition, and continuous development. Proper alignment of human capital strategies with organizational goals will ensure that investments in employees yield measurable performance outcomes.

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