Skills to Scale: Unpacking the Link between Workforce Development and Entrepreneurial Success of selected Industrial Goods Firms in Nigeria

Chiamaka L. Anaike
Nnamdi Azikiwe University, Awka, Anambra State, Nigeria.
Lc.abaekobe-anaike@unizik.edu.ng

Gilbert Ogechukwu Nworie
Ukoro Odah Statisticals, Amansea, Anambra State, Nigeria.
dulcisgil@gmail.com

Akwuobi Bridget Udekwesili
Nnamdi Azikiwe University, Awka, Anambra State, Nigeria.
Budekwesili1@gmail.com
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Abstract
However, limited financial resources, inadequate training infrastructure, and a lack of strategic focus on human capital investment have resulted in widespread skills gaps and underprepared workforces. Many Nigerian firms struggle with workforce capabilities that lag behind industry requirements, negatively impacting their ability to innovate and engage in entrepreneurial activities. Hence, this research aims to examine the link between workforce development and entrepreneurial success within the context of industrial goods firms in Nigeria. Workforce development was measured using expenditure on employee development while firm entrepreneurial success was measured using earnings after tax. Ex-post facto research design was used in the study. The population of the study comprised 13 listed industrial goods firms from which a purposive sample of 7 was drawn. Secondary data were collected from the firms' annual reports over a ten year period: 2015-2024. The analyses were done using descriptive analysis and panel estimated generalised squares. The study found that workforce development has a significant positive influence on the entrepreneurial success of industrial goods firms in Nigeria ($\beta = 225.45$, $p = 0.0000$). In conclusion, human capital development is not merely a cost but a value-creating activity that directly contributes to the firm's bottom line and long-term sustainability. The study recommends that human resource managers in industrial goods firms should actively implement innovative employee growth strategies such as job swapping, cross-department rotations, and reverse mentoring programs to build versatile, entrepreneurial-minded teams who drive business growth from multiple angles.

Keywords: *Workforce development, Entrepreneurial Success, Industrial Goods Firms*

1.0 Introduction

In a world driven by constant economic change, the success and sustainability of firms increasingly hinge on their ability to develop and leverage human capital. Workforce development—encompassing employee training, skill enhancement, and continuous professional growth—has emerged as a critical factor in driving organizational competitiveness and innovation (Chukwu, 2025). Particularly in the industrial goods sector, where

technological advancements and market dynamics are continually shifting, firms must ensure their workforce is agile, skilled, and prepared to meet complex challenges (Onyebuchi, 2024). As firms strive for entrepreneurial success, which broadly refers to the ability to innovate, adapt, and create new business opportunities (Angel et al., 2018), workforce development stands as a foundational pillar. Despite this contribution, the Nigerian industrial sector has struggled with productivity issues and a lack of innovation, partly attributed to inadequate workforce capabilities. Furthermore, the industrial firms in Nigeria face challenges related to workforce skills mismatches, which hamper their ability to innovate and expand entrepreneurial activities (Agbai & Okechukwu, 2024). This situation emphasizes the critical need to examine how targeted workforce development can drive entrepreneurial success in Nigerian industrial firms.

Effective workforce development is more relevant than ever in today's business environment, characterized by intense competition, rapid technological changes, and evolving consumer demands (Kvirchishvili, 2023). Businesses that prioritize employee learning and skill-building are better positioned to respond to these pressures. Workforce development enables organizations to build internal capacities that foster creativity, problem-solving, and the implementation of new ideas (Nworie & Onwuka, 2023). It also enhances employee engagement and retention, which are crucial in maintaining a stable and motivated workforce capable of driving long-term business growth. For firms in industrial goods sectors, where operational efficiency and innovation are vital, investing in workforce development can mean the difference between stagnation and sustained entrepreneurial growth. Additionally, workforce development aligns with global trends emphasizing lifelong learning and adaptability as essential skills in the 21st-century workplace (Jafarov, 2025). By cultivating these attributes, firms can create an entrepreneurial culture that supports experimentation, risk-taking, and the continuous pursuit of business opportunities.

Workforce development contributes significantly to entrepreneurial success by equipping employees with the knowledge, skills, and mindset necessary to identify and exploit new market opportunities (Ye et al., 2023). Entrepreneurial success in firms is not merely about launching new ventures; it also encompasses the ability to innovate within existing structures—often called intrapreneurship. Through workforce development initiatives such as skills training, leadership programs, and continuous education, firms build a pool of employees who are capable of driving innovation, improving processes, and launching new products or services (Indarti, 2021). This development fosters a proactive workforce that contributes ideas, embraces change, and actively participates in the firm's growth trajectory. Moreover, skilled employees can enhance a firm's responsiveness to market changes, enabling quicker adaptation to technological disruptions or shifts in consumer preferences. In the Nigerian industrial context, where firms operate in a complex environment marked by infrastructural challenges and intense competition, workforce development if capitalised can serve as a strategic tool that transforms human capital into a competitive advantage.

However, limited financial resources, inadequate training infrastructure, and a lack of strategic focus on human capital investment have resulted in widespread skills gaps and underprepared workforces. Many Nigerian firms struggle with workforce capabilities that lag behind industry requirements, negatively impacting their ability to innovate and engage in entrepreneurial activities. This disconnect between workforce potential and firm expectations creates a critical barrier to the entrepreneurial success of these firms (Okaredje, 2025). Industrial firms that fail to develop their workforce effectively risk stagnation, reduced competitiveness, and declining market share. The inability to innovate and adapt in a dynamic business environment undermines firm sustainability and growth prospects. Additionally, inadequate workforce development can lead to low employee morale and high turnover, further weakening organizational capabilities. On a broader scale, this situation limits the overall contribution of

the industrial sector to Nigeria's economic development and job creation goals. Therefore, understanding and addressing the workforce development challenges faced by Nigerian industrial goods firms is essential for fostering entrepreneurial success and enhancing the sector's performance. This research aims to examine the link between workforce development and entrepreneurial success within the context of industrial goods firms in Nigeria, a country marked by significant industrial potential but also faced with unique developmental challenges.

2.0 Literature Review

2.1 Conceptual Issues

2.1.1 Workforce Development

Workforce development refers to the systematic process through which organizations, governments, or societies enhance the skills, competencies, and abilities of their labor force (Onyebuchi, 2024). It is a broad concept that encompasses various activities aimed at improving the knowledge and capabilities of employees or job seekers to meet current and future labor market demands. In essence, workforce development is about preparing individuals with the necessary skills to perform effectively in their roles, thereby aligning human capital with economic and organizational goals.

This concept involves a continuum of learning experiences, ranging from initial training and education to ongoing professional development (Nworie & Onwuka, 2023). Workforce development is not limited to technical skills acquisition; it also includes the cultivation of soft skills such as communication, teamwork, and problem-solving. The objective is to create a more adaptable and versatile workforce capable of navigating complex, ever-changing work environments. This approach ensures that workers can contribute meaningfully to their organizations while also enhancing their own career prospects (Ye et al., 2023).

Importantly, workforce development reflects a strategic orientation that views employees as key assets whose growth drives organizational success (Okaredje, 2025). It implies active investment in human capital, recognizing that continuous learning and skill upgrading are vital for maintaining competitiveness in dynamic industries. By fostering a culture of learning and skill enhancement, workforce development initiatives aim to bridge the gap between existing employee capabilities and the evolving demands of the labor market.

2.1.2 Entrepreneurial Success

Entrepreneurial success refers to the achievement of desired outcomes and goals by individuals or firms engaged in entrepreneurial activities (Dej, 2010). It encompasses the ability to effectively identify, create, and exploit business opportunities that result in the growth and sustainability of new or existing ventures. Entrepreneurial success is multifaceted, often measured not only by financial performance but also by factors such as innovation, market impact, and long-term viability.

Entrepreneurial success is about transforming ideas into viable business outcomes (Alstete, 2008). It involves the realization of a venture's potential through strategic decision-making, risk management, and effective resource utilization. Success in entrepreneurship is frequently associated with the capacity to create value for customers, generate profits, and establish a competitive position in the marketplace. However, it also extends beyond economic metrics to include personal fulfillment, social impact, and contribution to industry development. Be that as it may, this study uses net profit after tax as a measure of entrepreneurial success of listed industrial goods firms in Nigeria.

Entrepreneurial success can manifest in various forms depending on the context and objectives of the entrepreneur or firm. For startups, success might mean surviving the critical early years and achieving scalable growth. For established firms engaging in intrapreneurship, it may involve the successful introduction of innovative products or processes that enhance

competitiveness. Ultimately, entrepreneurial success embodies the culmination of entrepreneurial efforts to create meaningful, sustainable, and impactful business ventures (Angel et al., 2018). It reflects the interplay of vision, skill, resilience, and opportunity exploitation, defining the entrepreneurial journey from inception to achievement.

2.1.1 Best Ways of Developing Employees for Increased Entrepreneurial Success

Helping employees grow and learn new skills is very important for any company that wants to do well and be creative. When workers get better at their jobs, they can come up with new ideas, solve problems faster, and help the business grow. This is called entrepreneurial success — when a company can create new products, find new customers, or make money in smart ways. To reach this, companies need to focus on developing their employees in the best possible ways. Aside the traditional ways known to us as means of employee development, below are some creative, unusual and effective methods companies can use to help their employees grow and succeed.

1. Job Swapping and Cross-Department Rotations: Instead of keeping employees stuck in one role, companies can let them swap jobs temporarily or rotate through different departments. This exposes employees to new challenges and perspectives outside their usual tasks. For example, an engineer could spend a month in marketing, learning how customers think and what sells. This breaks silos, sparks fresh ideas, and builds versatile employees who understand the whole business — a huge boost to entrepreneurial thinking.
2. Failure Festivals: Most companies fear failure, but what if you made it a celebration? A "Failure Festival" is an event where employees openly share their biggest failures, what they learned, and how those lessons sparked innovation. This turns fear into fuel and creates a culture where risk-taking is rewarded. It encourages employees to experiment boldly — essential for entrepreneurial success.
3. Personal Passion Projects at Work: Allow employees to spend a percentage of their time (like Google's famous 20%) working on projects they are passionate about, even if unrelated to their daily job. This freedom unleashes creativity, uncovers hidden talents, and can lead to unexpected innovations or new business ideas. Encouraging passion-driven work boosts motivation and entrepreneurial energy.
4. Crowdsourced Problem Solving: Instead of top-down solutions, invite employees at all levels to suggest and develop solutions for company challenges through open innovation platforms or internal hackathons. This taps into the collective intelligence of the workforce and empowers employees to become entrepreneurs within the company, driving fresh approaches and ownership of success.
5. Storytelling and Narrative Building: Encourage employees to share stories about their work, challenges, and successes in creative ways — through videos, blogs, or even theater performances. Storytelling helps employees see the impact of their contributions, inspires others, and builds a shared vision. It nurtures an entrepreneurial mindset by emphasizing meaning, connection, and motivation.
6. Mindfulness and Reflection Time: It might sound unusual, but giving employees dedicated time for mindfulness or quiet reflection can improve creativity and decision-making. When people slow down, they process information better and come up with more original ideas. Firms that integrate mindfulness practices often see more innovative thinking and better problem-solving — key ingredients for entrepreneurial success.
7. Reverse Mentoring: Instead of only senior employees mentoring juniors, reverse mentoring pairs younger employees with senior leaders to share fresh perspectives, especially on technology or cultural trends. This breaks hierarchical barriers and helps leaders stay in touch with new market realities, while young employees gain confidence and influence, creating a fertile ground for entrepreneurship.

8. Innovation Sabbaticals: Offer employees a paid sabbatical to explore a new skill, start a side venture, or study something completely different for a few months. This break from routine can refresh their mindset, deepen expertise, and spark new entrepreneurial ideas that they bring back to the company with renewed energy.

2.2 Theoretical Framework and Hypothesis Development

The study is anchored on Human Capital Theory. This theory was originally developed by Theodore W. Schultz in 1961 and later expanded by Gary Becker in 1964 (Fadare, 2023). Human Capital theory emerged in response to the growing recognition of the role of education and training in economic growth. Schultz introduced the concept as a way of explaining how investments in education, health, and training could enhance individual productivity and contribute to national development. Becker advanced this theory by applying economic analysis to human behavior, emphasizing how individuals and organizations make rational decisions to invest in people much like they would in physical assets. The theory gained prominence during the 1960s and 1970s as economists and policymakers sought to understand the drivers of productivity and long-term economic performance.

Human Capital Theory posits that individuals possess knowledge, skills, and abilities that can be enhanced through deliberate investment in education, training, and development (Wuttaphan, 2017). These investments increase workers' productivity and efficiency, leading to greater economic returns for both individuals and organizations. The theory assumes that such investments are economically rational and that the benefits — such as higher income, improved performance, and innovation — outweigh the costs. Human capital is thus considered an intangible asset that contributes directly to organizational success, competitiveness, and adaptability in dynamic markets (Chukwu et al., 2025).

This theory is highly relevant to the current study on workforce development and entrepreneurial success in Nigeria's industrial goods sector. The central idea that investment in employee training and skill development leads to improved performance aligns directly with the study's focus on building internal capabilities to foster innovation and business growth. In the context of Nigerian industrial firms, where skills mismatches and low productivity are persistent issues, Human Capital Theory provides a strong foundation for examining how targeted workforce development strategies can unlock entrepreneurial potential and enhance firm-level outcomes. By framing human capital as a strategic resource, the theory emphasizes the need for firms to prioritize continuous learning and capacity-building to remain competitive in a rapidly evolving global economy.

In the light of the above, this study hypothesizes that *workforce development will have a significant positive influence on the entrepreneurial success of industrial goods firms in Nigeria*.

2.3 Synthesis of Empirical Findings

A critical examination of recent empirical literature reveals a consistent consensus on the pivotal role of human capital development in enhancing organizational performance and financial outcomes across various sectors in Nigeria and beyond. Studies by Chukwu et al. (2025), Onyebuchi (2024), and Ogiriki and Owota (2022) affirm that investments in employee training and retraining significantly improve financial performance metrics such as return on equity and return on assets. These findings are echoed by Anosa (2021), who found that training, employee engagement, and knowledge accessibility significantly enhanced productivity in manufacturing firms. Similarly, Igudia (2022) and Uzoamaka and Innocent (2017) highlight that the design and delivery of training programs strongly influence both individual and organizational effectiveness, although the latter also cautions that poorly structured training can hinder productivity.

Beyond financial metrics, other studies have emphasized the broader behavioral and attitudinal dimensions of workforce development. Okaredje (2025) shows that career development initiatives—including mentoring, training, and advancement opportunities—enhance employee commitment, suggesting a psychological return on human capital investments. Indarti (2021) presents a subtle view, noting that while education and training by state-owned enterprises in Indonesia did not directly impact SME growth, entrepreneurial attitude mediated these effects, highlighting the importance of intrinsic motivation and mindset. Ye et al. (2023), drawing from a Chinese context, support this view through their findings that employee development spurs entrepreneurship indirectly via enhanced creativity, particularly within environments supportive of innovation. These results suggest that workforce development strategies must be holistic, targeting not just technical skills but also the entrepreneurial and cognitive capacities of employees.

Finally, in industrial goods and manufacturing sectors specifically, human capital development is tightly linked to innovation and quality outcomes. Chigozie et al. (2018) found that knowledge and skills had strong positive effects on product quality and innovation, underlining the strategic importance of technical proficiency in competitive industries. Philip and Ikechukwu (2018) further observed that training and educational attainment positively influenced performance in oil service firms, while Joanes et al. (2024) expanded this perspective within higher education, showing that educational qualifications and skill development significantly enhanced teaching performance. Collectively, these findings reinforce the argument that in industrial contexts, skill development is a critical lever for scaling both firm-level innovation and entrepreneurial capacity. Thus, across diverse sectors, workforce development emerges not merely as a human resources function but as a strategic imperative for organizational success and entrepreneurial scalability.

2.4 Gap in Literature: Novelty and Originality

Based on the reviewed literature, a notable gap emerges in the methodological and sectoral focus of existing studies on workforce development and entrepreneurial outcomes. Most empirical investigations—including those by Chukwu et al. (2025), Okaredje (2025), Igudia (2022), and Anosa (2021)—have relied heavily on primary data collected via surveys or structured questionnaires, with limited attention to secondary data sources that could offer broader, longitudinal hints. Additionally, while some studies like Onyebuchi (2024) and Ogiriki and Owota (2022) used secondary data, their analyses were typically limited to basic regression models and did not employ more robust techniques such as Panel EGLS (Cross-section SUR), which are better suited to controlling for firm-level heterogeneity and capturing dynamic effects over time. Moreover, none of the studies integrated panel econometric models to analyze workforce development's long-term effects on entrepreneurial success, especially within industrial goods firms—a sector particularly poised for scalable growth.

Furthermore, the majority of existing studies have concentrated on organizational performance outcomes such as return on equity, employee productivity, and profitability (e.g., Chukwu et al., 2025; Uzoamaka & Innocent, 2017), with little emphasis on entrepreneurial success as a distinct construct. While Ye et al. (2023) and Indarti (2021) touched on entrepreneurial behavior and attitudes, their contexts (China and Indonesian SMEs, respectively) differ significantly from the Nigerian industrial goods sector. Notably absent are studies that examine how workforce development practices translate into entrepreneurial capabilities—such as innovation, opportunity recognition, and business scalability—within Nigeria's industrial firms. This study addresses this critical gap by focusing specifically on selected industrial goods firms in Nigeria from 2015 to 2024, using secondary data and advanced panel econometric methods to unpack the link between workforce development and entrepreneurial success.

3.0 Methodology

This study adopted an ex-post facto research design, which is appropriate for analyzing the effect of historical and non-manipulable variables—such as workforce development initiatives—on firm-level outcomes like entrepreneurial success (Nworie et al., 2022; Nworie & Orji-Okafor, 2024). The use of ex-post facto design is justified because the study variables (e.g., training expenditures, human capital development costs, and measures of entrepreneurial outcomes) are derived from already-existing secondary financial records and reports. The design facilitates a causal investigation into how workforce development practices implemented by industrial goods firms in Nigeria have influenced their entrepreneurial performance over the period 2015 to 2024.

The population of the study consists of all the 13 industrial goods firms listed on the Nigerian Exchange Group (NGX) as of December 31, 2024. According to the NGX listing, there are thirteen (13) such firms. From this population, a purposive sampling technique was used to select nine (9) firms. The main criteria for inclusion were: (i) the firm must have been listed on the NGX by 2015, and (ii) it must have published its 2024 annual report as at the time this report was being drafted. This filtering approach ensured the availability of a balanced panel dataset and minimized the risk of missing data, which could compromise the reliability of the regression analysis. The sampled firms are:

1. Berger Paints Plc
2. Beta Glass Plc
3. Cap Plc
4. Cutix Plc
5. Dangote Cement Plc
6. Lafarge Africa Plc
7. Tripple Gee and Company Plc

Source: Researcher's Compilation (2025)

The study relied exclusively on secondary data obtained from audited financial statements, annual reports, and corporate disclosures of the sampled firms between 2015 and 2024. These documents were sourced from the Nigerian Exchange Group, official company websites, and online financial repositories. The use of secondary data enhances the objectivity and verifiability of the research, particularly for measuring economic indicators like workforce development investment and entrepreneurial performance.

The key variables in this study are Workforce Development and Entrepreneurial Success. Workforce development is operationalized using employee development expenditure, while entrepreneurial success is proxied by firm earnings after tax

To analyze the effect of workforce development on entrepreneurial success, the study employed the Panel Estimated Generalized Least Squares (EGLS) method using the Cross-section Seemingly Unrelated Regression (SUR) technique. This model is preferred for its robustness in handling heteroskedasticity and contemporaneous correlation across firms (Egbunike et al., 2019).

The model is specified as:

$ESit = \alpha 0 + \beta 1 WDit + \mu it$ _____eqi

Where:

ESit = Entrepreneurial Success of firm *i* at time *t*

WDit = Workforce Development investment of firm *i* at time *t*

it}μit = Error term

α0 = Intercept

β1 = Coefficient estimate for workforce development

Hypothesis was tested at a 5% level of significance. A p-value less than 0.05 indicates a statistically significant effect of workforce development on entrepreneurial success, while a p-value greater than 0.05 leads to acceptance of the null hypothesis.

4.0 Findings

4.1 Descriptive Analysis and Model Diagnostics

This research aims to examine the link between workforce development and entrepreneurial success within the context of industrial goods firms in Nigeria. The key variables in this study are Workforce Development and Entrepreneurial Success. Workforce development is operationalized using employee development expenditure, while entrepreneurial success is proxied by firm earnings after tax. Table 1 below shows the descriptive statistical analysis of the data.

Table 1 Descriptive Analysis

	Net Profit (₦'000)	**Staff Development Cost (₦'000)**
Mean	66639927	90204.27
Median	1671458	11748.50
Maximum	1027217000	598500.0
Minimum	-13223626	0.000000
Std. Dev.	169567667	157692.3
Skewness	3.461194	1.956465
Kurtosis	16.98103	5.687935
Jarque-Bera	709.8835	65.73005
Probability	0.000000	0.000000
Sum	4.66E+09	6314299.
Sum Sq. Dev.	1.98E+18	1.72E+12
Observations	70	70

Source: Eviews 10 Output (2025)

The descriptive statistics for **Net Profit** (₦'000) in Table 1 reveal that the average net profit of the sampled industrial goods firms stands at approximately ₦66.64 billion, indicating substantial earnings after tax across these firms. The median net profit is much lower at ₦1.67 billion, which suggests that the distribution of net profits is highly skewed, with a few firms earning exceptionally large profits while many earn significantly less. The highest recorded net profit is about ₦1.03 trillion, whereas the lowest is a loss of approximately ₦13.22 billion, demonstrating a wide variability in financial performance. The large standard deviation of ₦169.57 billion further underscores this dispersion. The skewness value of 3.46 confirms a pronounced positive skew, indicating most firms report lower profits with some extreme high-profit outliers. A kurtosis of 16.98 suggests a leptokurtic distribution with heavy tails, implying the presence of extreme values beyond what a normal distribution would predict. Finally, the Jarque-Bera test with a p-value of 0.0000 rejects the normality assumption, which suggests the data are not normally distributed and should be analyzed with suitable econometric techniques. Regarding **Staff Development Cost** (₦'000), firms spend on average about ₦90.2 million on employee development, though the median of ₦11.75 million shows that many firms invest considerably less, indicating a right-skewed distribution in training expenditures. The highest staff development cost reported was around ₦598.5 million, while some firms reported no spending at all. A standard deviation of ₦157.69 million signals wide variation in the extent of workforce development spending among firms. The skewness of 1.96 confirms a positive skew, meaning a small number of firms invest heavily in staff development relative to the majority.

The kurtosis of 5.69 points to a leptokurtic distribution with heavier tails than normal, again implying the presence of outliers or extreme values. The Jarque-Bera test p-value of 0.0000 further confirms the non-normality of staff development cost data, indicating the importance of using appropriate estimation methods in subsequent analyses.

Table 2 Model Diagnostics

Statistics	Test statistic	p-value
Breusch-Pagan LM test for Cross-sectional Dependence Test	48.92711	0.0005
Likelihood ratio test for Heteroskedasticity	578.5027	0.0000

Source: Eviews 10 Output (2025)

Table 2 presents the model diagnostics for assessing key assumptions underlying the panel data analysis. The Breusch-Pagan LM test for Cross-sectional Dependence evaluates whether residuals across different firms (cross-sections) are correlated, which, if present, can bias standard errors and inference. The test statistic of 48.93 with a p-value of 0.0005 strongly rejects the null hypothesis of no cross-sectional dependence, indicating that the residuals are indeed correlated across firms. This result suggests the need for estimation techniques that account for such dependence to ensure reliable parameter estimates and valid inference.
The Likelihood Ratio test for Heteroskedasticity assesses whether the variance of the residuals is constant (homoskedasticity) across observations or varies (heteroskedasticity). The reported test statistic of 578.50 with a p-value of 0.0000 decisively rejects the null hypothesis of homoskedasticity. This indicates the presence of heteroskedasticity in the model, meaning that the error variance is not constant across firms or over time. Recognizing this issue is crucial because heteroskedasticity can lead to inefficient estimates and incorrect standard errors, necessitating the use of robust estimation methods such as panel EGLS that correct for heteroskedasticity to improve the reliability of the results.

4.2 Test of Hypothesis

Ha: *Workforce development has a significant positive influence on the entrepreneurial success of industrial goods firms in Nigeria.*

Table 3 Test of Hypothesis

Dependent Variable: Net Profit
Method: Panel EGLS (Cross-section SUR)
Date: 05/26/25 Time: 10:04
Sample: 2015 2024
Periods included: 10
Cross-sections included: 7
Total panel (balanced) observations: 70
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Staff Acquisition Development	225.4459	11.51714	19.57482	0.0000
C	43585033	1404711.	31.02777	0.0000

Weighted Statistics			
R-squared	0.867732	Mean dependent var	0.385517
Adjusted R-squared	0.865787	S.D. dependent var	4.896331
S.E. of regression	0.979847	Sum squared resid	65.28677
F-statistic	446.1090	Durbin-Watson stat	1.736739
Prob(F-statistic)	0.000000		

Source: Eviews 10 Output (2025)

Table 3 presents the results of the Panel EGLS regression estimating the effect of workforce development, measured by staff acquisition and development expenditure, on entrepreneurial success proxied by net profit for industrial goods firms in Nigeria from 2015 to 2024. The model validity statistics indicate a strong explanatory power, with an R-squared value of 0.868. This means that approximately 86.8% of the variation in net profit among these firms is explained by variations in workforce development expenditures. The Durbin-Watson statistic of 1.74 suggests no serious autocorrelation problem in the residuals, supporting the reliability of the regression estimates. The overall model is highly statistically significant as evidenced by the F-statistic probability value of 0.0000, implying that the combined effect of the independent variables on net profit is not due to chance.

The constant term (intercept) in the model is estimated at ₦43,585,033, with a p-value of 0.0000, indicating it is statistically significant at the 5% level. This intercept represents the expected net profit in Nigerian Naira (₦) for industrial goods firms when staff acquisition development expenditure is zero. Although a zero workforce development expenditure is unlikely in practice, the positive and significant intercept suggests that firms would generate considerable net profit even without additional spending on workforce development, likely due to existing firm capabilities or other unmodeled factors.

Regarding the hypothesis that workforce development has a significant positive effect on entrepreneurial success, the coefficient for staff acquisition development expenditure is 225.45 ($p = 0.0000$). This means that for every ₦1,000 increase in expenditure on workforce development, net profit increases by approximately ₦225,445.90. This large positive marginal effect strongly supports the hypothesis, showing that investment in workforce development contributes substantially to improving entrepreneurial success, as measured by net profit. The effect is highly significant at the 5% level, confirming that workforce development plays a crucial role in driving profitability in Nigerian industrial goods firms. Therefore, employee development expenditure positively affects net profit, with a large and statistically significant coefficient. In other words, workforce development has a significant positive influence on the entrepreneurial success of industrial goods firms in Nigeria ($\beta = 225.45$, $p = 0.0000$).

4.3 Discussion of Finding

The study found that workforce development has a significant positive effect on the entrepreneurial success of industrial goods firms in Nigeria ($\beta = 225.45$, $p = 0.0000$). This result suggests that every additional unit of expenditure on workforce development—such as staff training, acquisition, and capacity building—translates into a substantial increase in the firm's net profit. The positive effect can be attributed to the fact that well-developed employees bring enhanced skills, knowledge, and innovative capacities to the organization, which in turn improves operational efficiency, product quality, and competitive advantage. These improvements help firms capitalize on market opportunities, reduce costs, and boost profitability, thereby driving entrepreneurial success. The statistical significance at the 5% level confirms that this positive effect is unlikely to be due to random chance, emphasizing the

critical role workforce development plays in firm performance within the industrial goods sector.

Several empirical studies support this finding by demonstrating the beneficial role of workforce development and human capital investment on firm performance metrics. For example, Chukwu et al. (2025) found that investment in employee training and retraining significantly improved return on equity in Nigerian insurance companies, highlighting how workforce development boosts financial outcomes. Similarly, Onyebuchi (2024) established a positive influence of training expenditure on return on assets for industrial goods manufacturers, aligning closely with the present study's findings on net profit. Okaredje (2025) showed that career development initiatives positively affected employee commitment in manufacturing firms, which likely translates into improved firm success. Other studies such as those by Philip and Ikechukwu (2018) and Uzoamaka and Innocent (2017) confirm that continuous training and well-designed employee development programs enhance performance, while Anosa (2021) and Igudia (2022) emphasize the role of engagement and effective training design in raising productivity and organizational effectiveness. Furthermore, Ye et al. (2023) demonstrate how development investment fosters entrepreneurial behaviors mediated by employee creativity, reinforcing the link between workforce development and entrepreneurial outcomes. Ogiriki and Owota (2022) found that human resource expenses relate positively to profitability among consumer goods firms, but other variables like employee benefits did not significantly influence profits. However, Indarti (2021) showed that education and training alone do not directly enhance business growth but must be mediated through entrepreneurial attitudes, implying that other internal firm dynamics also matter.

5.0 Conclusion and Recommendations

Firms invest strategically in workforce development to build a skilled, innovative, and agile workforce capable of driving entrepreneurial success. However, such investment is only made by firms which recognize that continuous employee training and skill enhancement are essential to fostering creativity, improving productivity, and adapting to rapidly changing market demands. When effectively managed, workforce development empowers employees to contribute to new product development, process improvements, and business expansion, ultimately propelling firms toward sustained growth and competitive advantage.

The significant positive effect of workforce development on entrepreneurial success implies that investments in employee training, skill acquisition, and professional growth are integral to enhancing the financial outcomes of industrial goods firms in Nigeria. This finding highlights the critical role human capital plays as a strategic asset that drives profitability and competitive advantage. By developing the workforce, firms not only improve operational efficiency but also foster innovation, adaptability, and resilience in an increasingly dynamic business environment. This implies that human capital development is not merely a cost but a value-creating activity that directly contributes to the firm's bottom line and long-term sustainability. Moreover, the result reflects the broader economic and organizational context where skilled and motivated employees contribute significantly to entrepreneurial ventures' success. It indicates that entrepreneurial success within industrial goods firms is closely tied to the quality and capability of the workforce, which enhances decision-making, problem-solving, and value creation processes. This relationship also suggests that firms with a strong emphasis on workforce development are better positioned to exploit market opportunities, respond effectively to challenges, and maintain growth trajectories. Consequently, workforce development emerges as a fundamental driver of firm-level entrepreneurship in Nigeria's industrial sector.

Based on the finding that workforce development significantly and positively influences entrepreneurial success, it is recommended that industrial goods firms' management prioritize

increasing budget allocations for employee training and development programs to enhance skills and competencies that drive firm profitability.

The study recommends that human resource managers in industrial goods firms should actively implement innovative employee growth strategies such as job swapping, cross-department rotations, and reverse mentoring programs to build versatile, entrepreneurial-minded teams who drive business growth from multiple angles.

Also, organizational culture architects and senior management should foster an environment that embraces experimentation and learning from failure by organizing "Failure Festivals" and supporting personal passion projects, thus empowering employees to take risks and innovate fearlessly.

5.1 Limitations of the Study and Suggestions for Further Studies

One major limitation of this study is that it relied only on secondary data from company reports, which may not capture the full picture of how workforce development efforts are carried out or felt by employees. Also, because the study focused on only 7 industrial goods firms out of the 13 listed, the findings might not fully represent the entire sector or other industries. Finally, since the study used past data (ex-post facto design), it could not control for all the other factors that might have influenced the firms' entrepreneurial success during the period.

Future researchers can consider using interviews or questionnaires to gather direct feedback from employees and managers, so we can better understand how workforce development actually works in practice. Also, it would be helpful to include more companies from different sectors or expand the sample size to compare results across industries. Lastly, future studies might look at other factors—like company culture, leadership style, or technology use—that could also affect entrepreneurial success.

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