

EFFECT OF SUSTAINABLE HUMAN CAPITAL INVESTMENT ON PRODUCTIVITY OF PHARMACEUTICAL FIRMS IN NIGERIA

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Abstract: The study is to examine the effect of Sustainable Human Capital Investment on Productivity of Pharmaceutical Firms in Nigeria. The specific objectives are to; examine the effect of staff training on the cost of sales of pharmaceutical firms in Nigeria. evaluate the effect of pension contribution on the cost of sales of pharmaceutical firms in Nigeria. The study adopted an ex post facto research design. Data was obtained from published financial statements of the selected pharmaceutical firms in Nigeria. Data collected was analyzed using Pearson Correlation analysis. The study result revealed that Staff training has a significantly positive effect on cost of sales of pharmaceutical firms with a P-value of $(0.00 > 0.01)$. Pension contribution has a significantly positive effect on cost of sales of pharmaceutical firms with a P-value of $(0.00 > 0.01)$ in Nigeria. The study concluded that human capital expenditure significantly influenced profitability of manufacturing companies quoted on the Nigeria Stock exchange. The study hereby recommended among other that the firms should implement more of on-the -job training in order to reduce expenses on staff training.

Keywords: Capital, Human, Investment, Pharmaceutical, Productivity

1.1 Introduction

Sustainable human capital investment refers to the strategic allocation of resources towards the development and well-being of individuals within an organization or society, aimed at fostering long-term economic growth, social equity, and environmental sustainability (Ehnert, 2009). This concept recognizes that human capital—the skills, knowledge, and experience possessed by individuals—plays a crucial role in enhancing productivity and innovation, which are vital for the sustainable development of economies (Obeidat, et al 2020). The Importance of Human Capital is often regarded as one of the most valuable assets of any organization. Unlike physical capital, human capital can create new ideas, drive technological advancements, and improve operational efficiencies. Investments in education, training, health, and well-being not only enhance individual capabilities but also contribute to collective intelligence and resilience within communities and organizations (Koirala, & Acharya, 2020).

As the global landscape continues to evolve, challenges such as climate change, economic inequality, and demographic shifts necessitate a sustainable approach to human capital investment. Traditional models of investment often prioritize short-term gains over long-term viability, leading to skills mismatches, workforce

disengagement, and adverse environmental impacts (Kramar, 2014). Sustainable human capital investment seeks to balance economic objectives with social and environmental considerations, ensuring that investments benefit not just the current workforce but also future generations. Sustainable human capital investment is increasingly recognized as a critical driver of productivity in today's dynamic and competitive economic landscape (Yasin, et al 2023). This concept encompasses the strategic allocation of resources towards the education, training, health, and overall well-being of individuals within organizations and communities. By focusing on sustainable practices, such investments not only enhance individual capabilities but also foster an environment conducive to innovation and long-term growth (Macke, & Genari, 2019).

Understanding Human Capital and Productivity capital refers to the collective skills, knowledge, and experience of individuals that contribute to their ability to perform work and drive economic output. Productivity, often measured as the output per unit of input, is fundamentally linked to the effectiveness of human capital (Usman, et al 2023). A well-trained and healthy workforce is more adept at utilizing resources efficiently and adapting to changing market demands, leading to increased productivity levels. The pharmaceutical industry in Nigeria plays a pivotal role in healthcare delivery, economic development, and job creation. As the industry faces various challenges—such as regulatory hurdles, market competition, and evolving consumer needs—the importance of sustainable human capital investment becomes increasingly evident. Sustainable human capital investment involves the strategic allocation of resources towards the education, training, health, and overall well-being of employees (Koirala, & Acharya, 2020).

This approach not only enhances individual capabilities but also contributes to the overall productivity of pharmaceutical firms, fostering growth and innovation in a critical sector. Nigeria's pharmaceutical sector is marked by a diverse range of companies, from multinational corporations to local manufacturers (Laundon et al 2023). Despite its potential, the industry grapples with issues such as inadequate infrastructure, limited access to quality education, and a high prevalence of diseases. Consequently, the need for a skilled and capable workforce is paramount to ensure that pharmaceutical firms can meet the healthcare demands of a growing population.

1.2 Statement of the Problem

The pharmaceutical industry in Nigeria plays a critical role in addressing the healthcare needs of a rapidly growing population; however, it faces significant challenges that hinder its productivity and overall effectiveness. Despite the recognized importance of human capital as a key driver of organizational success, many pharmaceutical firms in Nigeria struggle to implement sustainable human capital investment strategies effectively. This inadequacy manifests in various forms, including insufficient training programs, inadequate employee health and wellness initiatives, and a lack of diversity and inclusion within the workforce.

As a result, pharmaceutical firms often experience high turnover rates, low employee engagement, and suboptimal productivity levels. These challenges not only affect the operational efficiency of individual firms but also compromise the quality of healthcare products and services available to the population. Moreover, the industry's inability to adapt to technological advancements and regulatory changes further exacerbates these issues.

This study aims to investigate the relationship between sustainable human capital investment and productivity in Nigerian pharmaceutical firms. It seeks to identify specific investment areas that can significantly enhance workforce capabilities and overall firm performance. By addressing this gap, the research will provide valuable insights into how pharmaceutical firms can leverage sustainable human capital investment to improve productivity, meet healthcare demands, and contribute to the broader economic development of Nigeria.

1.3 Objective of the study

The main objective of the study is to examine the effect of Sustainable Human Capital Investment on Productivity of Pharmaceutical Firms in Nigeria. The specific objectives are to;

- i. Examine the effect of staff training on the cost of sales of pharmaceutical firms in Nigeria.
- ii. Evaluate the effect of pension contribution on the cost of sales of pharmaceutical firms in Nigeria.

1.5 Hypotheses Formulation

The following null hypotheses were formulated for the purpose of this study:

- i. Staff training has no significantly effect on cost of sales of Pharmaceutical firms in Nigeria.
- ii. Pension contribution has no significantly effect on cost of sales of Pharmaceutical firms in Nigeria.

Review of Related Literature

2.1 Conceptual Review

Sustainable human capital investment (SHCI)

Particularly in light of long-term economic sustainability and social responsibility, the idea of sustainable human capital investment, or SHCI, has grown in importance in organizational theory and practice. Human capital, according to Gary Becker (1964), a pioneer in the field, is the sum of a person's experiences, education, and abilities. The foundation for comprehending how expenditures in education and training can increase individual productivity and, consequently, improve organizational performance is laid by Becker's work, even though it precedes the sustainability notion. He emphasizes how important it is to invest in human capital over the long run in order to reap major financial rewards. Numerous scholars endorse the notion of integrating social and environmental considerations into human capital investment plans, arguing that businesses should pay attention to how their personnel practices affect society and the environment in addition to financial outcomes.

Sustainable human capital management (SHCM) is a new strategy that incorporates governance, social, and environmental (ESG) factors into how a company develops and uses its people. According to Boudreau and Ramstad (2005), it acknowledges that workers are important assets that should be developed for the production of long-term value rather than merely being expenses to be reduced. Through the use of sustainable measures and principles, SHCM goes beyond standard HRM. Sustainable management, which aims to balance economic, social, and environmental performance, is the larger field from which SHCM has developed (Ehnert, 2009). Based on stakeholder theory, it contends that businesses should prioritize the needs of all parties involved, including workers, over those of shareholders alone (Freeman 2015).

Additionally, SHCM is based on human capital theory, which sees employee talents and abilities as a type of capital that can yield profits for businesses (Caire & Becker, 1967). A rising amount of actual data supports the commercial case for SHCM. Sustainable HRM approaches have been associated in studies with enhanced financial outcomes, innovation, and operational performance (Obeidat, 2020). According to Eccles et al. (2014), investors are increasingly evaluating company value and risk using ESG criteria, such as human capital metrics. Additionally, social legitimacy and company reputation can be improved by sustainable HRM (Anlesinya et al., 2023). SHCM usage is still uneven in spite of these possible advantages. HRM and sustainability are still seen as distinct fields by many firms (Guerci & Pedrini, 2014). Long-term human capital development is frequently

subordinated to short-term cost demands. Additionally, managers might not have the abilities and expertise necessary to successfully apply SHCM (Ulrich & Dulebohn, 2015).

A strategic mentality, dedication from the leadership, and alignment of HRM systems with sustainability objectives are necessary to overcome these obstacles. In the future, a number of trends are probably going to speed up SHCM's expansion. One is that society, investors, and employees are expecting more ethical company practices (Mariappanadar 2003). Another is the growing significance of intangible assets as factors that influence corporate value, such as social and human capital (Lev & Zambon, 2003). The importance of HRM in maintaining organizational resilience and employee well-being has also been brought to light by the COVID-19 pandemic (Koirala & Acharya 2020). SHCM will become a more vital skill for long-term success as these factors continue to influence the business environment.

Staff Training/Education

It is well known that many Nigerian university and other higher education graduates do not meet industry or business standards. Training, then, is the process of improving workers' abilities and teaching them new ideas, regulations, or attitudes to make them more productive in a certain position (Ofobruku and Nwakoby 2015). According to Beardwell and Holden (2001), training is a deliberate procedure that aims to change behavior, attitude, or knowledge through learning experiences in order to perform well in any activity or variety of activities. Its goals are to meet the organization's present and future needs while also fostering individual growth. According to Brum (2010) and Harris and Antti (2003), training promotes employee performance, which in turn boosts an organization's productivity and helps to prevent and reduce the various financial and human costs associated with employee turnover. Additionally, they contended that training helps workers in the company to maximize their potential contribution to the organization's success.

According to Ndibe (2014), the significance of training has been increasingly apparent due to the increasing complexity of the workplace, the quick changes in companies, and the development of technology, all of which make it more important for employees to receive training and development in order to address the difficulties. According to Jones, George, and Hill (2000), training ensures that people of an organization have the information and abilities necessary to carry out their tasks well, take on new responsibilities, and adjust to changing circumstances. For some firms, training has become the Holy Grail, demonstrating the management's genuine concern for its employees (Hamid, 2011).

Pension Contribution

Kotun, Adeoye, and Alaka (2016) define a pension as a type of income received by employees or their beneficiaries upon retirement, disability, or death. Additionally, according to Ako (2006), the pension system is fundamentally an income security program that offers benefits to dependants, retirees, and pensioners. Pensions as a system are intended to support the wellbeing of pensionable retired workers in both the public and commercial sectors, according to Rabelo (2002). Governments and companies should ideally figure out how to accommodate and fairly compensate workers for their prior efforts through structured pension systems so that they can fulfill their life's ambitions.

According to Kotun, Adeoye, and Alaka (2016), pension management is a tool that influences hiring decisions in a particular company since it refers to a type of income that workers or their beneficiaries receive after they retire,

become disabled, or pass away. According to Cascio (2003), workers' compensation, vacation and sabbatical time, severance pay (pension and gratuity), and holidays are all legally required benefits that employees must take use of. However, corporations frequently create these pay plans to improve workers' job performance.

Firm Productivity

Productivity, according to Jahchan (2017), is the effective use of labor, capital, land, materials, energy, and information in the creation of a variety of commodities and services. Achieving greater output in terms of volume and quality from the same input, or doing more with the same amount of resources, is what he defines as increased productivity. The formula for productivity is typically $\text{output} / \text{input} = \text{productivity}$.

Suganya (2011) offers suggestions for increasing productivity through manpower development and training, educating staff members about productivity evaluation techniques, rewarding and evaluating productive workers, strengthening workplace discipline measures, determining each employee's skills, providing constructive criticism without discouraging them, focusing on the positive aspects of productive work to foster productive work, and offering ongoing training to staff members on multifaceted work. Behnam (2014) also claims that by offering training and development, businesses may raise employee productivity and performance. The study also shows that investments in staff training in decision-making, problem-solving, teamwork, and interpersonal interactions provide positive firm-level results.

Individual productivity and organizational productivity are the two components that make up the concept of work productivity. An individual's mental attitude and personal attempts to enhance their quality of life are manifestations of the individual dimension linked to their personality traits. Productivity is examined by organizational characteristics in the context of the connection between input and output methods. Kusnendi (2003). Although there is a positive association between pay and employee performance, the rate of growth of net value added per worker is greater than the rate of growth of wages per worker, according to employee productivity measurement using net value added. According to Nayak and Patra (2013), compensation is not the only non-monetary factor that improves employee performance. According to the study, work-life balance is another element that influences employee performance in addition to pay. Employee performance and the quality of their working life are related, with career advancement being the most important element.

Cost of Sales as a Measure of Productivity

The cost of sales is a crucial indicator of output. When calculating this, take into account all of the costs associated with your sales team, including commissions and wages as well as associated benefits and incentives. Subsequently, add up the money your sales team makes. Your sales team's cost of sales can be calculated by dividing the total income they make by the expenses directly associated with their work. Both physical and soft costs should be measured in order to assist you find strategies to cut and manage expenses (Aximin 2014).

Since the population of Nigeria has a significant need for pharmaceutical products, the cost of sales is used in this study to gauge productivity. The demand for pharmaceutical products is high since falling ill is a normal occurrence; in other words, pharmaceutical companies tend to sell all of their inventory at any given time.

Theory of Human Capital Investment

A theory of human capital investment was developed by Becker (1962), who explained investment levels and forecasted who should foot the bill and who would gain from the training. General and customized on-the-job training were separated by Becker. General training is beneficial to other businesses in addition to the company offering it. Employers are less likely to fund this kind of training as a result. The employee would receive a pay raise as a result of general training in a competitive labor market, offsetting the training provider's profit. To put it another way, general training raises an employee's market value, implying that the worker should foot the bill for it, for instance, by getting paid less than their output.

Conversely, specific training has no positive impact on the market worth of the trainee because it does not benefit other businesses. The employee is unwilling to pay for specialized training because it has little bearing on salary. Specific on-the-job training is paid for by the company, and the company that provides the training gains more productivity. To keep the student from leaving the company before the specific training expenditure is recovered, the employer may give the employee a portion of the increased productivity. Becker's theory's central tenet is that the party most likely to profit from an investment also bears the expense. The function of various labor markets or the level of competition for skills in the market may lessen the fundamental reason why employers are unable to take advantage of general human capital, such as education, apprenticeship programs, and company training, which are also beneficial to other firms.

2.3 Empirical review

Habib, Zahra, and Mushtaq (2015) investigated how training and development affected Pakistani workers' output and performance. Using random and improbability sampling approaches, a sample of 33 employees from Bahria town, Pakistan, were given questionnaires. Using SPSS 16.0, the researcher analyzes data using regression. The findings demonstrate that employee job performance is significantly and favorably impacted by training and development. Additionally, its dependability test yields a rating of .79.

Kim and Ployhart (2015) examined how training and staffing affected company productivity and profit development in Korea prior to, during, and following the Great Recession. using longitudinal firm-level earnings data from 359 businesses across various Korean economic sectors spanning more than 12 years. The Korean Information Service provided company annual financial data from 1999 to 2011, while the Korean Research Institute for Vocational Education and Training's Human Capital company Panel Survey supplied data. The hypotheses are tested using random coefficient growth models (RCGMs). According to the findings, internal training and selective staffing have a direct and interactive impact on firm profit growth through their effects on labor productivity. This suggests that internal training and staffing help create slack resources that help buffer and then recover from the effects of the Great Recession. Additionally, pre-recession profitability benefits more from internal training that develops specialized human capital resources, but post-recession recovery benefits more from staffing, presumably because staffing generates generic human capital resources that allow for company flexibility and adaptation.

Ofobruku and Nwakoby (2015) investigated how training affected workers' output in the Nigerian insurance sector. A questionnaire that was sent to 110 employees of Sterling Assurance Nigeria Ltd. who took part in the study was used to gather primary data. One hundred questionnaires were filled out and sent back. Chi-Square

analysis was used to examine the data. The outcome demonstrates that staff productivity in Nigeria's insurance sector is significantly impacted by training.

Kotun, Adeoye, and Alaka (2016) investigated the impact of contributory pension plans on workers' output using data from the state government of Lagos. For the study, primary data from interviews and questionnaires were employed. Using a field survey that involves distributing the questionnaire was the primary source. One hundred and twenty (120) respondents make up the sample size. To conduct the questionnaire, a straightforward random selection technique was employed. The Statistical Package for Social Sciences (SPSS) version 21 was used to statistically analyze the data and create a tabular presentation. The analysis's findings show a strong correlation between workers' productivity and appropriate retirement benefits, which also improves the effectiveness of the company. However, both the empirical investigation and the oral interview revealed that the contributory pension plan (CPS) has more potential than the defined benefits pension plan (DBPS). Thus, to increase the contributing pension plan's acceptability and workability,

Mphil, Ramzan, Zubair, Ali and Arslan (2014) examine the impact of compensation on employee performance. The population of the study consists of 45 banks which were selected randomly. A Sample of 200 respondents was selected randomly from the staff of the 45 banks. Secondary data were collected from the respondents through questionnaire which was designed to collect the data on the factors related to compensation like salary, rewards, indirect compensation and employee performance. The data collected were analyzed in SPSS 17.0 Version. Different analytical and descriptive techniques were used to analyze the data. Results: Various findings support the idea that compensation improves worker performance. All of the independent variables show weak to moderately positive associations with one another, as demonstrated by correlation analysis. All of the independent factors have a negligible and favorable effect on employee performance, according to regression analysis. Additionally, descriptive analysis shows that every independent variable improves employee performance. Education does not have the same effect on employee performance, according to ANOVA data.

Yamoah (2013) examined how employee productivity and pay relate to each other in Ghana's banking sector. Every employee of Ghana Commercial Bank in the Greater Accra Region of Ghana made up the population. The data was gathered using a structured questionnaire as the tool. Convenience sampling was used in the study to choose a sample of 60 respondents. A descriptive survey was conducted with a case study methodology to gather information from Ghana Commercial Bank workers in the Greater Accra Region. The data was examined using descriptive statistics. The significance of the association between employee pay and productivity was examined using Pearson chi-square. The findings showed that production and compensation were significantly correlated.

Adejoh (2013) did a study to examine the influence of contributory pension schemes on Nigerian Economic Development with relevance. Examining the relationship between contributory pension plans and Nigeria's GDP was the aim of this study. Furthermore, the goal of this study is to provide the most effective and trustworthy method of addressing or managing the concern that the current trustees may mismanage the funds or Retiree Savings Account (RSA) contribution. The study was conducted using the survey design approach, with a sample size of 30 for the staff and 70 for the clients. Both primary and secondary sources of data were gathered, and percentages were used for analysis.

For assessing secondary data, the researcher used correlation analysis, and for primary data, ANOVA. ANOVA showed that risk prevalence has a beneficial influence on pension fund management, while correlation analysis using a t-test showed that the Contributory Pension Scheme (CPS) has a substantial impact on GDP. In order to improve the timely delivery of pensions to retirees, the researcher advises pension fund administrators to make investments in less hazardous portfolios.

3. Methodology

This study adopted an ex post facto research design which provides an empirical solution to research problems by using data which are already in existence. The study is therefore based on published financial statements of the selected pharmaceutical firms in Nigeria. This study was conducted in Nigeria and focused on pharmaceutical firms listed on the Nigeria Stock Exchange (NSE) during the relevant period. The population of the study comprised the ten (10) pharmaceutical firms listed on the Nigeria Stock Exchange Market (NSE), which consist of the following firms: Secondary data is the source of data for this study. Data on employees' training expenses, pension contributions, and firm sales costs were used from the published annual financial statements of the selected pharmaceutical firms in Nigeria for ten years (2010 to 2020).

Data for the study will be collected from the annual reports and accounts of the sample pharmaceutical firm for ten years. Pearson Product Moment Correlation Coefficient was used to test the relevance of the independent to the dependent variables whereby staff training and pension contribution will be used as proxies for human capital investment (independent variables). In contrast, the cost of sales was used as a proxy for firm productivity (dependent variable). This test will be done at a 5% significance level, which means a higher correlation coefficient; the association level will be stronger between the two variables. The correlation coefficient can be either positive or negative, depending on the direction of the relationship between two variables Pearson Correlation analysis was chosen because the correlation can be compared without regarding the amount of variation exhibited by each variable separately. In this study, the researcher used this technique to test the changes in human capital investment to the productivity of pharmaceutical firms in Nigeria.

The following model was developed based on the variables used in the study:

$$COS = \beta_0 + \beta_1STE + \beta_2PC + \beta_3SSW + \epsilon$$

Where:

COS = Cost of sales

f = Function of

STE = Staff Training/Education

PC = Pension Contribution

SSW = Staff Salaries & Wages

Cost Of Sales (COS): In pharmaceutical firm, it is the total cost of manufacturing pharmaceutical products plus net inventory. These two items put together represent the total cost of pharmaceutical products produced during the period. Net inventory is opening inventory less closing inventory.

Staff Training/Education (STE): This is the process of developing employees' skills and learning new concepts, rules or attitudes in order to increase effectiveness on a particular job.

Pension Contribution (PC): any form of compensation provided by the organization other than wages or salaries that are paid for in whole or in part by the employer. It is usually paid at the end of the employees services to the

organization. Staff Salaries and Wages (SSW): These are payments received by workers as on the job payment to meet their basic needs such as food, clothing, medical and housing.

Data Presentation and Analysis

4.1 Data Presentation

The data collected from the published annual accounts of the selected pharmaceutical firms in Nigeria are presented in tables 4.1.1 to 4.1.5

TABLE 4.1.1: GLAXOSMITHKLINE CONSUMER NIGERIA PLC

YEAR	COST OF SALES	PENSION CONTRIBUTION	STAFF TRAINING/ EDUCATION
	N(000)	N(000)	N(000)
2020	11,610,160	302	6,504
2019	9,924,146	42,447	10,774
2018	20,308,465	169,245	2,409
2017	19,719,655	130,975	26,155
2016	17,581,625	136,109	13,365
2015	15,080,461	128,162	11,431
2014	12,537,935	111,065	9,950
2013	9,420,290	266,789	7,329
2012	8,444,296	461,881	7,119
2011	7,177,239	527,304	6,447
2010	6,041,660	527,156	4,931
2009	6,092,889	475,989	4,980

Source: Published annual accounts of the firm

Description of table 4.1.4

Cost of sales of GlaxoSmithKline consumer Nigeria Plc stood at N6,092,889,000 in 2009 but decrease to 6,041,660,000 in 2010. The trend changes as increase where recorded to the tune of 6,041,660,000, 7,177,239,000, 8,444, 296,000, 9,420,290,000, 12,537,935,000, 15,080,461,000, 17,581,625,000, 19,719,655,000, in 2010, 2011, 2012, 2013 2014 2015 2016, 2017 and 2018 respectively. However cost of sales fell to 9,924,146,000 in 2019 and there was an increase if 11,610,160,000 in 2020.

This pension contribution stood at 475,989,000 in 2009 but increased to 527,156,000 and 527,304,000 respectively in 2010 and 2011. However there was a decrease to 1 461,881,000 and 266,789,000 and 111,065,000 in 2012, 2013 and 2014 respectively. While an increase of 128,162,000 and 136,109,000 was presented in 2015 and 2016. There was a decrease of 130,975,000 in 2017 and an increase of 169,245,000 in 2018. There was also a decrease of 42,447,000 and 302,000 in 2019 respectively. This trend established unstable compensation scheme by the firm.

Staff training for 2009 stood at 4,980,000. It declined by 4,931,000 in 2010. However, the figure increased to 6,447,000, 7,119,000, 7,329,000, 9,950,000, 1,431,000, 13,365,000, 26,155,000 in 2011, 2012, 2013, 2014, 2015, 2016, 2017 but reduced drastically to N2,409,000 in 2018. Though there was an increase of N10,774,000 in 2019. Yet another decline was recorded of N6,504,000 in 2020.

Table 4.1.2: MORRISON INDUSTRIES PLC

YEAR	COST OF SALES	PENSION CONTRIBUTION	STAFF TRAINING/ EDUCATION
	N(000)	N(000)	N(000)
2020	117,474	25,200	813
2019	121,261	25,200	655
2018	114,351	20,780	580
2017	140,852	20,715	809
2016	235,920	28,014	1,337
2015	247,108	23,054	848
2014	113,096	21,422	745
2013	164,320	21,890	625
2012	152,804	21,308	611
2011	135,791	19,256	536
2010	126,250	18,456	425
2009	108,443	17,117	308

Source: Published annual accounts of the firm

Description of Table 4.1.2

Cost of sales of Morrison Industries plc stood at N108,443,000 in 2009 but increased to N126,250,000, 135,791,000, 152,804,000, 164,320,000 in 2010, 2011, 2012 and 2013 respectively. However, cost of sales decreased by N113,096,000 in 2014 and the figure increased by N247,108,000 in 2015. And a decline of N235,920,000, N140,852,000, N114,351,000 in 2016, 2017 and 2018 respectively. While an increase of N121,261,000 in 2019 was presented and a decrease of N117,474,000 in 2020. This established an unstable flow of cost of sales.

Pension contribution stood at N17,113,000 in 2009 but increased by N18,456,000, N19,256,999, N21,308,000, N21,890,000, N21,422,000, N23,054,000, N28,014,000 in 2010, 2011, 2012, 2013, 2014, 2015 and 2016 respectively. Though there was a decrease to the tune of N47,671,000 and N35,677,000 in 2017 and 2018. Yet an increase to N37,154,000 and N48,386,000 in 2019 and 2020 respectively.

Staff training and education of the firm stood at N308,000 in 2009. It increased by N425,000, N536,000, N611,000, N625,000, N745,000, N848,000 and N1,337,000 in 2010, 2011, 2012, 2013, 2014, 2015 and 2016. However, a decline of N809,000 and N580,000 was recorded in 2017 and 2018. But there was an increase of N655,000 and N813,000 in 2019 and 2020 respectively.

Table 4.1.3: NEIMETH INTERNATIONAL PHARMACEUTICAL PLC

YEAR	COST OF SALES	PENSION CONTRIBUTION	STAFF TRAINING/ EDUCATION
	N(000)	N(000)	N(000)
2020	604,670	32,201	7,335
2019	776,758	45,669	1,409

2018	776,060	89,245	945
2017	874,435	108,399	6,609
2016	959,226	227,563	5,214
2015	685,522	275,869	4,020
2014	8,250,365	205,346	3,942
2013	1,023,123	268,598	3,524
2012	825,654	279,887	3,045
2011	792,684	283,328	2,754
2010	825,654	279,887	2,524
2009	792,684	283,328	22,451

Source: Published annual accounts of the firm

Description of Table 4.1.3

Costs of sales of Neimeth International Pharmaceutical Plc. Stood at N792,684,000 in 2009 but increased to N825,654,000 in 2010. The trends changed as a decrease were record to the tune of N792,784,000 in 2011. However, cost of sales increased to N825,654,000 and N1,023,123,000 and N8,250,365,000 in 2012, 2013 and 2014 respectively. It declined by N685,522,000 in 2015 and increased to N959,226,000 in 2016. And yet decreased to N874,435,000, N776,060,000, N776,758,000, N604,670,000 in 2017,2018 2019, 2020 respectively. Pension contribution stood at N283,328,000 in 2009 but decrease to N279,887,000 in 2010. However, there was an increase to N283,328,000 and N279,887,000 in 2011 and 2012 respectively. The figure decreased to N268,598,000 and N205,346,000 in 2013 and 2014 respectively. And yet another increase to N275,869,000 in 2015 and a decrease to N227,563, N108,399, N89,245,000, N45,669,000, N32,201,000 in 2016, 2017,2018, 2019, and 2020. This shows unstable movement of sales and wages.

Staff Training stood at N22,451,000 in 2009 but a decrease to N2,524,000 in2010. However, there was an increase to N2,754,000, N3,045,000, N3,524,000, N3,942,000, N4,020,000, N5,214,000, N6,609,000, N945,000 and N1,409,000 in 2011, 2012 2013, 2014, 2015, 2015, 2016 2017, 2018 and 2019 and yet another decrease to N7,335,000 in 2020. This shows that the firmis spending on training of their staff.

Table 4.1.4: PHARMA DEKO PLC

YEAR	COST OF SALES	PENSION CONTRIBUTION	STAFF TRAINING/ EDUCATION
	N(000)	N(000)	N(000)
2020	830,230	28,215	82,099
2019	595,558	28,730	87,207
2018	769,751	72,340	1,157
2017	642,268	53,396	5,311
2016	616,954	75,191	4,608
2015	546,712	96,467	1,000
2014	692,673	227,087	73,009
2013	383,006	247,274	40,383
2012	418,791	254,970	32,250

2011	752,634	223,148	24,512
2010	645,135	212,520	19,465
2009	502,354	195,237	15,234

Source: Published annual accounts of the firm

Description of Table 4.1.4

Cost of sales stood at N502,354,000 in 2009 but increased to N645,135,000, N752,634,000 in 2010 and 2011 respectively. However, there was a decrease to N418,791,000 and N383,006,000 in 2012 and 2013 respectively and an increase to N692,673,000 in 2014. In 2015 a decline was presented as N546,712,000. Though an increase were presented as N616,954,000, N642,268,000, N769,751, N595,558,000, N830,230,000 in 2016, 2017, 2018, 2019 and 2020 respectively.

Pension contribution of the firm stood at N195,237,000 2009 but there was an increase to N212,520,000, N223,148,000, N254,970,000 in 2010, 2011 and 2012 respectively. However, the price declined to N247,274,000 and 227,087,000 in 2013 and 2014 respectively. Yet another increase to N96,467,000 in 2015 and a decrease to N75,191,000, N53,396,000, N72,340,000, N28,730,000, N28,215,000 in 2016, 2017, 2018 2019 and 2020 respectively.

Staff Training expenses stood at N15,234,000 in 2009 but increased to N19,465,000, N24,512,000 N32,250,000 N40,383,000, N73,009,000 in 2010, 2011, 2012, 2013 and 2014 respectively. In 2015, there was a decline of N,000,000 and an increase to N4,608,000 and N5,311,000 in 2016 and 2017. And yet a decrease to N1,157,000 in 2018, an increase to N87,207,000 in 2019 and a decline to N82,099,000 in 2020.

Table 4.1.5: MAY AND BAKER NIGERIA PLC

YEAR	COST OF SALES	PENSION CONTRIBUTION	STAFF TRAINING/ EDUCATION
	N(000)	N(000)	N(000)
2020	6,075,115	79,602	75,277
2019	5,933,561	114,846	65,844
2018	5,079,323	202,042	64,752
2017	4,459,253	142,860	48,654
2016	4,107,078	142,860	38,654
2015	3,598,750	137,317	73,048
2014	2,864,134	101,011	60,583
2013	3,298,612	98,240	51,230
2012	2,856,234	84,525	63,455
2011	2,563,240	80,025	64,214
2010	2,350,450	75,725	68,453
2009	1,215,293	66,636	64,636

Source: Published annual accounts of the firm

Description of Table 4.1.5

Cost of sales stood at NN1,215,293 in 2009 but increased to N2,350,459,000, N2,563,240,000, N2,856,234,000 and N3,298,612,000 in 2010, 2011, 2012 and 2013 respectively. However, there was a decline of sales at

N2,864,134,000 in 2014 and an increase N3,598,750,000, N4,107,078,000, N4,459,253,000, N5,079,323,000, N5,933,561,000, N6,075,115 in 2015,2016,2017,2018, 2019 and 2020.

Pension Contribution stood at N66,636,000 in 2009 but increased to N75,725,000, N80,025,000, N84,525,000, N98,240,000, N101,011,000, N137,317,000, N142,860,000, N202,042,000 in 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017 and 2018 respectively. However, there was a decline of pension to N114,846,000 and N70,602,000 in 2019 and 2020 respectively.

Staff trainings stood at N64,636,000 in 2009 but increased in 2013 to N68,453,000 in 010. Though there was a decrease of N64,214,000, N63,455,000, N51,230,000 in 2011, 2012 ad 2013 respectively. However, there was an increase to N60,583,000 and N73,048,000 in 2014 and 2015 respectively. A decrease to N38,654,000 in 2016. Yet another increase to N48654,000, N64,752,000N65,844,000, N75,277,000 in 2017, 2018 2019 and 2020.

Table 4.6: POOLED DATA FOR THE SELECTED FIRMS

YEAR	COST OF SALES	PENSION CONTRIBUTION	STAFF TRAINING/ EDUCATION
	N(000)	N(000)	N(000)
2020	11,610,160	302	6,504
2019	9,924,146	42,447	10,774
2018	20,308,465	169,245	2,409
2017	19,719,655	130,975	26,155
2016	17,581,625	136,109	13,365
2015	15,080,461	128,162	11,431
2014	12,537,935	111,065	9,950
2013	9,420,290	266,789	7,329
2012	8,444,296	461,881	7,119
2011	7,177,239	527,304	6,447
2010	6,041,660	527,156	4,931
2009	6,092,889	475,989	4,980
2020	117,474	25,200	813
2019	121,261	25,200	655
2018	114,351	20,780	580
2017	140,852	20,715	809
2016	235,920	28,014	1,337
2015	247,108	23,054	848
2014	113,096	21422	745
2013	164,320	21,890	625
2012	152,804	21,308	611
2011	135,791	19256	536
2010	126,250	18,456	425
2009	108,443	17,117	308

2020	604,670	32,201	7,335
2019	776,758	45,669	1,409
2018	776,060	89,245	945
2017	874,435	108,399	6,609
2016	959,226	227,563	5,214
2015	685,522	275,869	4,020
2014	8,250,365	205,346	3,942
2013	1,023,123	268,598	3,524
2012	825,654	279,887	3,045
2011	792,684	283,328	2,754
2010	825,654	279,887	2,524
2009	792,684	283,328	22,451
2020	830,230	28,215	82,099
2019	595,558	28,730	87,207
2018	769,751	72,340	1,157
2017	642,268	53,396	5,311
2016	616,954	75,191	4,608
2015	546,712	96,467	1,000
2014	692,673	227,087	73,009
2013	383,006	247,274	40,383
2012	418,791	254,970	32,250
2011	752,634	223,148	24,512
2010	645,135	212,520	19,465
2009	502,354	195,237	15,234
2020	6,075,115	79,602	75,277
2019	5,933,561	114,846	65,844
2018	5,079,323	202,042	64,752
2017	4,459,253	142,860	48,654
2016	4,107,078	142,860	38,654
2015	3,598,750	137,317	73,048
2014	2,864,134	101,011	60,583
2013	3,298,612	98,240	51,230
2012	2,856,234	84,525	63,455
2011	2,563,240	80,025	64,214
2010	2,350,450	75,725	68,453
2009	1,215,293	66,636	64,636

Source: Author's Compilation

4.2 Data Analysis

A hypothesis is a predicted answer to a research question. It is an a priori statement about the likely outcome of a research effort. This supposition is based on what others have done. Three hypotheses were altogether postulated for this study. This section is dedicated to testing of these hypothesis.

As stated earlier, the spearman’s correlation coefficient was used to measure the strength of the association between the variable used. Two-tailed Pearson correlation test were employed to assess predictive validity of the posited variables.

4.3 Test of Hypothesis

Test of hypothesis One

Restatement of hypothesis One

H₀: Staff training/education does not significantly relate with cost of sales of Pharmaceutical firms in Nigeria.

H₁: Staff training/education significantly relate with cost of sales of Pharmaceutical firms in Nigeria.

Table 4.1.7: Showing the correlations result output of staff training/education significantly relate with cost of sales Pharmaceutical firms in Nigeria.

	Cost of sales	Staff training/education
Pearson correlation	1	.723**
Staff training/education sig. (2-tiled)		.000
N	360	360
Pearson correlation	.723**	1
Cost of sales sig. (2 tailed)	.000	
N	360	360

Source: E-view

**Correlation is significant at the 0.01 level (2-tailed).

From the correlation table 4.1.7, the correlation value of 72.3% is a relationship that is very strong. The p-value of the variable is greater that the level of significant of 5% (0.00 > 0.01). This shows that there is positive and strong correlation between staff training/education and cost of sales, which is also significant at the 0.01 level (2-tailed). This means that we uphold the alternate hypothesis. This implies that staff training/education significantly related with cost f sales of Pharmaceutical firms in Nigeria.

Test of Hypothesis Two

Statement of Hypothesis Two

H₀: Pension Contribution does not significantly relate with cost of sales of Pharmaceutical firms in Nigeria.

H₁: Pension Contribution does significantly relate with cost of sales of Pharmaceutical firms in Nigeria.

Table 4.1.8: Showing the correlations result of Pension Contribution and cost of sales.

	Pension contribution	Cost of sales
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Pearson correlation	1	.567**
Pearson correlation sig. (2-tailed)		.000
N	360	360
Pearson correlation	.567**	1
Cost of sales sig (2 tailed)	.000	
N	360	360

** Correlation is significant at the 0.01 level (2-tailed).

From the correlation table 4.1.8, the correlation value of 56.7% is a relationship that is very strong. The p-value of the variable is greater than the level of significance of 5% ($0.00 > 0.01$). This shows that there is a positive and strong correlation between pension contribution and cost of sales, which is also significant at the 0.01 level (2-tailed). This means that we uphold the alternate hypothesis. This implies that pension contribution is significantly related to the cost of sales of Pharmaceutical firms in Nigeria.

5. Conclusion

In the light of the findings, the discussion and the summary conclude that both staff training of pharmaceutical firms in Nigeria positively and strongly relate with the cost of sales of the firm. We also conclude that pension contribution of the pharmaceutical firms positively and weakly relate with the cost of sales of the firms during the period studied. The study revealed that all the explanatory variables have a positive relationship with profitability; however, expenditure on health contribution is more to the profitability of the firms than expenditure on salaries and wages, training and contributory pension. The study concluded that human capital expenditure significantly influenced the profitability of manufacturing companies quoted on the Nigeria Stock exchange.

Recommendations

Based on the findings, discussion and conclusion of this study, we hereby recommend as follows:

- i. In light of the positive and significant relationship between staff training expenses and productivity of the pharmaceutical firms in Nigeria, this study hereby recommends that the firms should implement more of on-the-job training in order to reduce expenses on staff training. On-the-job training should be augmented with other forms of staff training.
- ii. Also, since pension contribution is positively related with the cost productivity of the firms, Nigerian pharmaceutical firms should increase their pension contribution such as pension, gratuity and other staff retirement benefits packages. This study has proved the presence of such reserves in the income statement of the pharmaceutical firms serve as motivation for the employees of the firms.