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# Effect of Human Capital Expenditures on Corporate Social Responsibility of Oil and Gas Firms in Nigeria

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**Abstract:** This study is to ascertain the effect of human capital expenditures on corporate social responsibility of oil and gas firms in Nigeria It spanned for the period of 10 years (2008-2017) and made use of secondary data extracted from the financial reports and accounts of the oil and gas firms selected for the period. The study adopted ex-post facto research design and employed the panel least squares multiple regression analysis. Findings of the study provided empirical evidence that human capital expenditures proxy by expenditure on salaries and wages, on education and training and expenditure on health have significant positive effect on Corporate Social Responsibility (CSR) of oil and gas firms in Nigeria. This implies that increases in volume of corporate social functions of the firms are associated with increases in spending on the human capital indices. Based on these findings, it was recommended among others that oil and gas firms should keep up in the corporate supports to the community since it helps in the growth of their firms and ensure good salary pay structure for their workers to motivate them in community supports.

**Keywords:** Human Capital Expenditures, Corporate, Social Responsibility, Gas Firms, Nigeria

## 1. Background to the Study

Elementary economics has made it clear that no business can survive or thrive without the entrepreneur. Hence entrepreneur which stands for human person is singled out as the most essential of the factors of production. Given the rate of collapse or near collapse of companies in the country and the challenge of lack of cooperation notably in designated oil states in Nigeria, it becomes necessary to look into the effect of human capital expenditures of companies on corporate social responsibility of Oil & Gas firms in Nigeria.

Essentially, and naturally, companies are supposed to maintain a healthy, symbiotic relationship with the locality of community of operation by making significant contributions in support of the locality or community development. As it is said that one good turn deserves another, the community in question ought to reciprocate the gesture especially by providing internal peace and security of both properties and lives. This crucial provision of the community goes a long way towards promoting the overall performance of the organizations.

This study would privately investigate into the basic relationship activities by way of corporate social responsibilities by way of corporate social responsibilities of the companies and the effect on the people through the Human Capital expenditures.

### *1.1. Statement of the Problem*

Corporate social responsibility is one of the business approaches for addressing social and environmental impact of company activities. For instance in the work of Spence (2010), it was argued that managers ought to attend to shareholder needs first, and to stakeholder needs only when it advances shareholder return [1]. Proponents of this view argue that the manager-shareholder relationship is unique. Only shareholders provide (and risk) the capital from which all other contracting stakeholders are paid, relinquishing control to managers. This represents an irreplaceable contribution to the formation of wealth-creating firms; that is why the law imposes on managers unique fiduciary duties designed to protect shareholders

This function is often limited by some factors in the manufacturing firms which are also necessary for the company's operation and productivity. Workers' salaries, expenditures on education and training as well as health are among the major contributory factors. But despite these, it has not been numerically widespread the extent to which these factors affect the firms' corporate social responsibility especially as it concern companies from the oil and gas sector which have been the pivotal of the development of corporate social responsibility. Upon this premise, the question begging for answer is;

1. How do salaries and wages affect corporate social responsibility of oil and gas firms in Nigeria?
2. What is the effect of expenditures on education and training on corporate social responsibility of oil and gas firms in Nigeria?
3. In what way do expenditure on health affect corporate social responsibility of oil and gas firms in Nigeria?

In providing answers to these questions, the researcher will make use of data from three oil and gas firms Nigeria for the period of 2008-2017.

### 1.2. Objectives of the Study

The broad objective of this study is to ascertain the effect of human capital expenditures on corporate social responsibility of oil and gas firms in Nigeria for the period of ten (10) years (2008-2017). The specific objectives are:

1) To determine the effect of Salaries and Wages (SW) on corporate social responsibility of oil and gas firms in Nigeria.
2) To investigate the effect of Expenditure on education and Training (EETR) on corporate social responsibility of oil and gas firms in Nigeria.
3) To measure the effect of Expenditure on Health (EHT) on corporate social responsibility of oil and gas firms in Nigeria.

### 1.3. Research Questions

This study provides answers to the following questions

1) To what extent does expenditure on Salaries and Wages (SW) affect corporate social responsibility of oil and gas firms in Nigeria?
2) To what degree does expenditure on education and Training (EETR) affect corporate social responsibility of oil and gas firms in Nigeria?
3) To what magnitude does expenditure on Health (EHT) affect corporate social responsibility of oil and gas firms in Nigeria?

### 1.4. Statement of Hypotheses

The following hypotheses guided this study

1) Expenditure on salaries and wages has no significant effect on corporate social responsibility of oil and gas firms in Nigeria.
2) Expenditure on education and training does not significantly influence corporate social responsibility of oil and gas firms in Nigeria.
3) Expenditure on health has no significant effect on corporate social responsibility of oil and gas firms in Nigeria.

### 1.5. Conceptual Review

Corporate social responsibility is a corporate initiative of a company to behave socially and environmentally responsible while striving for its economic goals. It is a concept whereby business organizations consider the interest of society by taking responsibility for the impact of their activities on customers, suppliers, employees, shareholders, communities and other stakeholders as well as their environment. This responsibility shows that the organizations have to comply with legislation and voluntarily take initiatives to improve the well-being of their employees, families, local community, and society at large [2].

The corporate social responsibility (CSR) is a concept whereby companies on voluntary basis integrate social and environmental activities in their business operations; or investment to environmental sustainability, social progress and the like. The term which generally applies to company's efforts that go beyond what may be required by regulators or environmental protection groups, plays an important role in assessing a company [3]. This is because, the corporate social responsibility committees are generally saddled with responsibilities of undertaking various welfare measures like community development, pollution control, and eco-friendly measures thereby promoting the health care and sanitation, educational standards, empowerment and skill development of the people, among other responsibilities.

Corporate social responsibility is a multi-layered concept having four main aspects such as economic and legal responsibilities as required by society; ethical responsibilities as expected by society; and philanthropic responsibilities as desired by society. It is the way companies manage their businesses to produce an overall positive impact on society through economic, environmental and social actions [4].

Accordingly to the world Business Council for Sustainable Development (2006), CSR is a business contribution to sustainable economic development. Building on the basis of compliance with legislation and regulations, CSR includes beyond law commitments and activities pertaining to: corporate governance and ethics; healthy and safety; environmental stewardship; human/labour rights; sustainable development; conditions of work; industrial relations; community involvement, development and investment; involvement and respect for diverse cultures and disadvantaged people; corporate philanthropy and employee volunteering; and customer satisfaction and adherence to principles of fair competition [4].

Organizations cannot do without investment in corporate assets like land, building, plant and machinery, inventory cash holdings and others which enhance their productive capacity. Hence, Corporate Social Responsibility (CSR) has emerged as a business approach for addressing the social and environmental impact of company activities. Companies from the oil and gas sector have been at the centre of CSR development.

Moreover, since it is held that corporate social responsibility (CSR) could increase company profits, most large companies are actively engaged in it without actually considering some internal and external factors that could hinder this success. Most executives believe that CSR can improve profits. They understand that CSR can promote respect for their company in the marketplace which can result in higher sales, enhance employee loyalty and attract better personnel to the firm.

Also, CSR activities focusing on sustainability issues may lower costs and improve efficiencies as well. An added advantage for public companies is that aggressive CSR activities may help them gain a possible listing in the FTSE4Good or Dow Jones Sustainability Indexes, or other similar indices. This may enhance the company's stock price, making executives' stock and stock options more profitable and shareholders happier.

Generally, a high corporate assets turnover ratio indicates efficient utilization of these assets in generating sales. Effective organization of corporate assets is one of the most important parts of the entire organization. This study however is a 10-years empirical investigation of effect of human capital expenditures on corporate social responsibility of oil and gas firms in Nigeria.

### *1.6. Corporate Social Responsibility (CSR)*

Corporate Social Responsibility (CSR) is concerned with the way companies incorporate economic, environmental, and social concerns to be part of their culture, strategy, values, operations, and decision making process in an accountable and transparent approach, which will make it possible for the businesses to operate ethically to an extent that they can improve and create wealth within their operational settings [5, 6]. It is vital especially when organizations are expected to carry out their business activities in a manner that would promote sustainable development in both the immediate and extended environment of the organization.

Hailu and Rao (2016) defined the concept as a set of management practices which ensure that company maximizes the positive impact of its operations on society or operate in a manner that meets and exceeds the legal, ethical, commercial and public expectations that society has of business [7]. It is the ability of a company to manage business processes to produce an overall positive impact on the society; or a concept which makes companies decide voluntarily to contribute to a better society and a cleaner environment by integrating social and environmental concerns in their business operations and in their interaction with their stakeholders [8].

Corporate Social Responsibility is pivoted on the relationship between business and society and how businesses behave towards their key stakeholders such as employees, customers, investors, suppliers, communities, and special interest groups. It enables the production and distribution of wealth for the betterment of its stakeholders through the implementation and integration of ethical systems and sustainable management practices [9].

CSR addresses the well-being of all stakeholders and not just company's shareholders [10]. It is a business philosophy in terms of social investing which is aimed to build up social capital and as well improve the economic performance of the firm [9]. It can be viewed as a form of internal monitoring, management and external communication, which allows organizations of all sizes to meet the growing information needs of internal and external stakeholders [11].

In the opinion of Odetayo, Adeyemi and Sajuyigbe (2014), corporate social responsibility is concerned about how organizations behave ethically and contribute to economic development of society by improving the quality of life of the local community and society at large [12]. In essence, it conveys information about an organization's economic, environmental, and social operations, with its associated impacts on the organization's everyday activities. In the same vein, Mgbame (2017) opines that corporate social responsibility (CSR) is one of the moral and ethical issues encompassing corporate decision making by an organization to undertake certain activities or refrain from it because they are beneficial or detrimental to society [13].

According to Wan & Muhammad (2016), Corporate Social Responsibility (CSR) positions a company to both proactively manage risks and take advantage of opportunities especially with respect to their corporate reputations and broad engagement of their stakeholders enables them contribute both formally and informally towards improving the governance, social, ethical, labour and environmental conditions of the developing countries in which they operate, while remaining sensitive to prevailing religious, historical and cultural contexts [14].

### *1.7. Theoretical Review*

This study is anchored on the Instrumental Stakeholders Theory which is formed from two theories and suggests that there is positive relationship between Corporate Social Performance (CSP) and Corporate Financial performance (CFP). In the first place, instrumental theory is an economic theory that predicts what results will occur as a result of management decisions [15]. The second theory is an ethical theory that proposes that managers have a duty to put stakeholders' needs first than to increase the value of the firm. This theory is broader than the shareholders theory, which argues that managers, only have a duty to maximize the value of shareholders [16-18].

The instrumental stakeholders' theory suggests that Corporate Social Responsibility increases stakeholders' satisfaction and financial performance. The proponents of this theory were of the view that the increases in expenditure in corporate social responsibility (CRS) projects in the decade suggest that managers find an economic benefit from CSR programme. They further stated that most of the studies found positive relationships [19-22].

### *1.8. Empirical Review*

Perera and Thrikawala (2012) investigated the impact of investment in human capital on financial performances of the companies in Sri Lanka [23]. Financial information in financial statements of listed companies under Colombo Stock Exchange for the period of 2 years from 2009 to 2010 was used. Sample of the study was selected as 40 companies listed under Colombo Stock Exchange. Data analysis was carried out with aid of SPSS (Statistical Package of Social Sciences). Findings revealed that there was a significant relationship between investment inhuman capital and firm financial performances.

Onyekwelu, Osisioma and Ugwuanyi (2015) examined the impact of Human Capital Accounting (HCA) on financial performance and market valuation using four publicly quoted companies (banks) in Nigeria [24]. Data were sourced through questionnaires which were administered to randomly selected respondents of accountants of management cadre. Secondary data were sourced from the annual financial statements of five selected firms, relevant textbooks and the internet. Data were analyzed using percentages and Chi-Square statistical test. The finding revealed that there is a significant increase in firms' net worth when investments on human capital are treated as assets and capitalized as against the current practice where such expenditures are treated as mere revenue expenses thereby leading to gross undervaluation of firms' Statement of Financial Position (Balance Sheet) and the Income Statement (Profit and Loss Account).

Snježana, Željana and Ivana (2017) investigated the dynamics between human capital investments and company profitability measured by return on equity and profit margin ratios using panel data analysis over a five-year period [25]. The analysis was conducted using a sample of 5,000 companies in the European Union from the information technology industry for the period 2011-2015, i.e. approx. 25,000 company-year observations using an adequate panel data analysis technique. The result of the study showed that company size has a significant influence on the average employee costs, meaning that a larger company has higher employee costs. Larger companies have even greater requirement to train and develop their employees than smaller companies, and are constantly seeking higher levels of KSA.

Ezejiofor, John-Akamelu and Iyidiobi (2017) examined the appraisal of human resource accounting on profitability of corporate organization [26]. Exploratory research design and time series data were adopted. Data for the study were collected from selected ten (10) commercial banks in Nigeria. Data collected were analyzed and tested with t-test statistical tool with aid of SPSS version 20.0 version. The study revealed that increase in staff salary has positive effect on organizational profitability, the level of increment in staff has influence on organizational profitability and also that staff retirement benefits have positive effect on organizational profitability.

Using a unique cross-sectional dataset of Chinese industrial firms, Lan and Munro (2012) investigated the external and internal effects of human capital on firms' environmental performance [27]. The result showed that firms have better environmental compliance because they are pushed into making compliance decision by internal driver of human capital and pulled to be environmental friendly by external force of social human capital stock.

Olayemi (2012) investigated the relationship between human capital investment and industrial productivity in Nigeria using secondary data spanned through 1978 to 2008. Co-integration and Error Correction Mechanism (ECM) were employed to examine the nexus between human capital investment and industrial productivity [28]. Granger causality test was also adopted as a supplementary estimation method to explore the nature of causality among the variables established in the model. The study found that government expenditure on education maintained a positive long run relationship with index of industrial production while government expenditure on health and Gross Capital Formation exhibited long run negative relationship with the dependent variable.

Nguyen, Nguyen, Locke and Reddy (2017) investigated the effect of the human capital of directors on the financial performance of Vietnamese-listed companies [29]. The dynamic system generalized method of moments (system GMM) estimator was used to examine a panel data-set consisting of 315 firm-year observations over a four-year period from 2008 to 2011 and the finding supports the efforts made by Vietnamese policy-makers in setting up qualification standards as well as skills diversity.

Ukenna, Ijeoma, Anionwu and Olisa (2010) examined the effect of investment in human capital development on organizational performance [30]. Twenty-five small scale business owners were purposively selected in Awka metropolis of Nigeria. A structured five-point Likert type questionnaire was designed and distributed and a 100% return rate was recorded. ANOVA, t-test, multiple regression analysis, simple regression analysis, and Pearson's correlation coefficient were all employed to conduct relevant analyses. Findings of the study revealed that training and skill are stronger predictors of human capital effectiveness over and above knowledge and education.

Omodero, Alpheaus, and Ihendinihu (2016) investigated the effect of human resource costs on the financial performance of firms in Nigeria [31]. Secondary data on relevant financial variables was extracted from published financial statements of ten selected listed firms in Nigeria. The OLS technique was employed in analyzing the data and the results indicated that personnel benefit costs have positive and significant effect on Profitability, explaining about 73.9% of the variations in Profit After Tax of firms in Nigeria. The results however revealed no significant effect of Personnel Benefit Costs on firm turnover.

Kharal, Zai-ur-Rehman, Abrar and Khan (2014) examined the effects of intellectual capital on the performance of companies in the oil and gas sector of Pakistan [32]. The study adopted a correlational research design and Value Added Intellectual Capital Coefficient (VAIC) model in measuring the efficiency of intellectual capital to financial performance of listed oil and gas companies in the Karachi Stock Exchange. Data on the three components of VAIC (Human Capital, Structural Capital and Capital Employed Efficiencies) and three measures of financial performance (ROA, ROE and EPS) were extracted from the twelve (12) listed oil and gas companies from 2005 to 2013 with average of six (6) years data for each company. The pooled OLS technique and correlation analysis was used in estimating the parameters of the study. The findings revealed a positive impact of intellectual capital on the organizational performance and value of the companies in Pakistan.

Bassey and Tapang (2012) investigated the influence of human resources cost on corporate productivity of selected ten listed firms in the Nigerian Stock Exchange [33]. Primary data on Acquisition Costs, Development Costs and Corporate Productivity were sourced with the aid of structured questionnaire validated with correlation coefficients ranging from 0.58 to 0.71. Using multiple regression technique, the study provided statistical support for the existence of a positive and significant relationship between human resource costs and the performance of Nigerian companies, and concluded that capitalized human resource costs are important determinants of company performance.

Anumudu (2010) investigated the effect of human capital on labour productivity in manufacturing industries in Enugu and Anambra States [34]. The study applied the ordinary least squares and the principal component Analysis in the estimation. The evaluation results showed that human capital has a positive effect on the sectorial labour productivity level of the industry. Training, Education, Medicare and Research are strongly correlated with productivity.

***Table 1.*** *Summary of Empirical Reviews*

| Author (s) | Year | Title of work | Analytical tools | Findings |
|---|---|---|---|---|
| Anumudu | 2010 | Effect of human capital on labour productivity in manufacturing industries in Enugu and Anambra States. | Ordinary least squares and Principal component Analysis | Human capital has a positive effect on the sectorial labour productivity level of the industry. Training, Education, Medicare and Research are strongly correlated with productivity. |
| Ukenna, Ijeoma, Anionwu&Olisa | 2010 | Effect of investment in human capital development on organizational performance: Empirical examination of the perception of small business owners in Nigeria | ANOVA, t-test, multiple regression analysis, simple regression analysis, and Pearson's correlation coefficient | Training and skill are stronger predictors of human capital effectiveness over and above knowledge and education. |
| Perera&Thrikawala | 2012 | Impact of human capital investment on firm financial performances: An empirical study of companies in Sri Lanka | Panel OLS | A significant relationship between investment in human capital and firm financial performances |
| Lan& Munro | 2012 | Environmental compliance and human capital: Evidence from Chinese Industrial Firms | Descriptive statistics | Firms have better environmental compliance because they are pushed into making compliance decision by internal driver of human capital and pulled to be environmental friendly by external force of social human capital stock. |
| Olayemi | 2012 | Human capital investment and industrial productivity in Nigeria | Co-integration and Error Correction Mechanism (ECM) and Granger Causality Test | Government expenditure on education maintained a positive long run relationship with index of industrial production while government expenditure on health and Gross Capital Formation exhibited long run negative relationship with the dependent variable. |
| Bassey&Tapang | 2012 | Capitalized Human Resources Cost and its Influence on Corporate Productivity: A Study of Selected Companies in Nigeria | Multiple regression technique | Statistical support for the existence of a positive and significant relationship between human resource costs and the performance of Nigerian companies |
| Kharal, Zai-ur-Rehman, Abrar& Khan | 2014 | Effects of intellectual capital on the performance of companies in the oil and gas sector of Pakistan | Pooled OLS technique and Correlation analysis | A positive impact of intellectual capital on the organizational performance and value of the companies in Pakistan. |
| Onyekwelu, Osisioma, &Ugwuanyi | 2015 | Impact of Human Capital Accounting (HCA) on financial performance and market valuation in Nigeria | Percentages and Chi-Square statistical test | a significant increase in firms' net worth when investments on human capital are treated as assets and capitalized as against the current practice where such expenditures are treated as mere revenue expenses thereby leading to gross undervaluation of firms' Statement of Financial Position (Balance Sheet) and the Income Statement (Profit and Loss Account) |
| Omodero, Alpheaus&Ihendinihu | 2016 | Human resource costs and financial performance: evidence from selected listed firms in Nigeria | OLS technique | Personnel benefit costs have positive and significant effect on profitability, explaining about 73.9% of the variations in Profit After |

| Author (s) | Year | Title of work | Analytical tools | Findings |
|---|---|---|---|---|
| | | | | Tax of firms in Nigeria. The results however revealed no significant effect of Personnel Benefit Costs on firm turnover. |
| Snježana, Željana&Ivana | 2017 | An analysis of human capital investments, profitability ratios and company features in the EU | Panel data analysis technique | Company size has a significant influence on the average employee costs, meaning that a larger company has higher employee costs. Larger companies have an even greater requirement to train and develop their employees than smaller companies, and are constantly seeking higher levels of KSA |
| Ezejiofor, John-Akamelu&Iyidiobi | 2017 | Appraisal of human resource accounting on profitability of corporate organization | OLS | Increase in staff salary has positive effect on organizational profitability, the level of increment in staff has influence on organizational profitability and also that staff retirement benefits have positive effect on organizational profitability. |
| Nguyen, Nguyen, Locke & Reddy | 2017 | Effect of the human capital of directors on the financial performance of Vietnamese-listed companies | Dynamic system generalized method of moments (system GMM) estimator | Supports the efforts made by Vietnamese policy-makers in setting up qualification standards as well as skills diversity for the boards. |

Source: Researcher's computation (2018)

# 2. Research Design

The study adopted *ex-post facto* research design since the data used were already in existing from the fact book of Nigeria stock exchange and could not be manipulated.

## *2.1. Population of the Study*

Population of the study is thirteen oil and gas firms quoted in Nigerian Stock Exchange as at August, 2018. The study variables are: corporate social responsibility (donations) of the oil and gas firms and their human capital expenditures such as expenditure on salaries and wages, expenditure on education and training, and expenditure on health of the workers.

## *2.2. Model Specification*

This study adopted the conventional panel least square regression model which took its basis from the classical linear regression model. The model is specified thus:

$$Y_t = \beta_O + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots + \beta_k X_k + \varepsilon_t \quad (1)$$

*Where;*

*$Y_t$ = Dependent or Response variable*

*$X_1$, $X_2$, $X_3$ = Independent or Explanatory variables.*

*$\beta_O$ = Constant*

*$\beta_1$, $\beta_2$, $\beta_3$ = Regression parameters or coefficients of the regression estimates.*

*$\varepsilon_t$ = Error term*

Such that:

$$Y = Z\bar{\beta} + e \quad (2)$$

Where;

$$Y = \begin{bmatrix} Y_{i,1} \\ Y_{i,2} \\ Y_{i,3} \end{bmatrix}; Z = \begin{bmatrix} X_{ij,1} \\ X_{ij,2} \\ X_{ij,3} \end{bmatrix}; \text{and } e = \begin{bmatrix} e_{i,1} \\ e_{i,2} \\ e_{i,3} \end{bmatrix}$$

The study made use of the following symbols to denote the respective variables in the model.

Y = Corporate social responsibility (Dependent variable),

$X_i$ = Expenditures on: Salaries and wages, education and training, and Health (Independent variables)

$\beta_O$ = Overall mean of the regression equation,

$\beta_{i's}$ = Regression parameters,

$\varepsilon$ = Error term.

Such that:

$$CSR_t = \beta_O + \beta_1 SW_t + \beta_2 EETR_t + \beta_2 EH_t + \varepsilon_t \quad (3)$$

Disaggregating the model for the individual hypothesis, we have that:

## *2.3. Hypothesis One*

$$CSR_t = \beta_O + \beta_1 SW_t + \varepsilon_t \quad (4)$$

Where;

$CSR_t$ = Corporate Social Responsibilityat time t (Dependent variable),

$SW_t$ = Expenditure on Salaries and Wages at time t (Independent variable),

$\beta_0$ = Constant/intercept of the regression model,

$\beta_1$ = Coefficient of SW in the model,

$\varepsilon_t$ = Random/stochastic error associated with the model

## *2.4. Hypothesis Two*

$$CSR_t = \beta_O + \beta_1 EETR_t + \varepsilon_t \quad (5)$$

Where;

$CSR_t$ = Corporate Social Responsibilityat time t (Dependent variable),

$EETR_t$ = Expenditure on education and training at time t (Independent variable),

$\beta_0$ = Constant/intercept of the regression model,

$\beta_1$ = Coefficient of EETR in the model,

$\varepsilon_t$ = Random/stochastic error associated with the model

### 2.5. Hypothesis Three

$$CSR_t = \beta_O + \beta_1 EH_t + \varepsilon_t \quad (6)$$

Where;

$CSR_t$ = Corporate Social Responsibilityat time t (Dependent variable),

$EH_t$ = Expenditure on Health at time t (Independent variable),

$\beta_0$ = Constant/intercept of the regression model,

$\beta_1$ = Coefficient of EH in the model,

$\varepsilon_t$ = Random/stochastic error associated with the model

The variables used for the study are described in table 2

**Table 2.** *Description of Study Variables.*

| Variable name | Notation | Description |
|---|---|---|
| Dependent variable<br>1. Corporate social responsibility | CSR | This is the price of a single share of a number of saleable stocks of a company, derivative or other financial asset |
| Independent variables<br>1. Expenditure on salaries and wages | SW | Expenses on payment of workers |
| 2. Expenditure on education and training | EETR | Expenses on workers acquisition of knowledge, skills and abilities through professional development. |
| 3. Expenditure on Health | EH | Expenses on workers' health for improved quality services. |

Source: Author's compilation (2018)

### 2.6. Methods of Data Analysis

Analytical tools employed in this study were categorized into statistical and econometric techniques. The statistical tools are descriptive statistics and Pearson product moment correlation analyses while the econometric tool was panel least squares simple regression analysis. The descriptive statistics was used to describe the variables under investigation; correlation analysis was used to measure the preliminary interactions/relationships among the variables while the panel least squares simple regression analysis was used to estimate the effect of expenditures on salaries and wages (SW), expenditures on education and training (EETR), and expenditures on health (EH) of workers on the corporate social responsibility (CSR) of oil and gas firms. Electronically, the analysis was aided by Eviews 9.0 econometric package.

## 3. Data Presentation

The annual time series data from the selected oil and gas firms are presented in tables 3 to 5.

**Table 3.** *MRS Oil & Gas firm.*

| Years | CSR (₦) | SW (₦'000) | EETR (₦'000) | EHT (₦'000) |
|---|---|---|---|---|
| 2008 | 205342 | 19300 | 8215 | 11793 |
| 2009 | 206712 | 18312 | 8156 | 12090 |
| 2010 | 219134 | 29134 | 7764 | 13112 |
| 2011 | 221450 | 33112 | 5309 | 13320 |
| 2012 | 207448 | 29443 | 62902 | 14976 |
| 2013 | 219000 | 360419 | 63319 | 15213 |
| 2014 | 1464500 | 618953 | 82150 | 15021 |
| 2015 | 1542870 | 102166 | 84431 | 15342 |
| 2016 | 1754500 | 933558 | 90025 | 15735 |
| 2017 | 1572300 | 937581 | 93217 | 15813 |

Source: Financial Statement and Accounts of MRS oil and gas firm

**Table 4.** *TOTAL Oil & Gas firm.*

| Years | CSR (₦) | SW (₦'000) | EETR (₦'000) | EHT (₦'000) |
|---|---|---|---|---|
| 2008 | 43326 | 3829005 | 45690 | 13834 |
| 2009 | 56443 | 4416650 | 48665 | 13567 |
| 2010 | 84465 | 5547322 | 50132 | 15433 |
| 2011 | 98723 | 5983442 | 47002 | 17661 |
| 2012 | 105433 | 6359707 | 44897 | 19807 |
| 2013 | 108564 | 6533412 | 47331 | 22116 |
| 2014 | 119200 | 6805276 | 47653 | 24510 |
| 2015 | 131655 | 6786096 | 49429 | 21663 |
| 2016 | 132123 | 7483750 | 37049 | 21765 |
| 2017 | 135004 | 7863354 | 35988 | 22356 |

Source: Financial Statement and Accounts of Total oil and gas firm

**Table 5.** *OANDO Oil & Gas firm.*

| Years | CSR (₦) | SW (₦'000) | EETR (₦'000) | EHT (₦'000) |
|---|---|---|---|---|
| 2008 | 3002256 | 51234 | 2115 | 1007 |
| 2009 | 3298743 | 54778 | 2379 | 1408 |
| 2010 | 3744190 | 108075 | 4365 | 1155 |
| 2011 | 4112555 | 110529 | 4438 | 1634 |
| 2012 | 11201240 | 139112 | 6998 | 1698 |
| 2013 | 13307680 | 172217 | 9045 | 1943 |
| 2014 | 13985750 | 163011 | 10220 | 2004 |
| 2015 | 17329000 | 101223 | 12441 | 2337 |
| 2016 | 20096540 | 946479 | 15009 | 2509 |
| 2017 | 21033825 | 895547 | 15303 | 2794 |

Source: Financial Statement and Accounts of Oando oil and gas firm

### 3.1. Data Analysis

**Table 6.** *Descriptive statistics.*

| | CSR | SW | EETR | EH |
|---|---|---|---|---|
| Mean | 761325.6 | 204295.2 | 50548.80 | 14241.50 |
| Median | 220292.0 | 155650.0 | 63110.50 | 14998.50 |
| Maximum | 1754500. | 618953.0 | 93217.00 | 15813.00 |
| Minimum | 205342.0 | 18312.00 | 5309.000 | 11793.00 |
| Std. Dev. | 686248.4 | 178645.0 | 37103.41 | 1465.154 |
| Skewness | 0.439339 | 1.092767 | -0.225232 | -0.552973 |
| Kurtosis | 1.237803 | 3.466185 | 1.247303 | 1.714064 |
| Jarque-Bera | 4.846766 | 6.242361 | 4.093581 | 3.595936 |
| Probability | 0.088621 | 0.044105 | 0.129149 | 0.165635 |
| Sum | 22839768 | 6128856. | 1516464. | 427245.0 |
| Sum Sq. Dev. | 1.37E+13 | 9.26E+11 | 3.99E+10 | 62253644 |
| Observations | 30 | 30 | 30 | 30 |

Source: Researcher's E-views result

The descriptive statistics shows among others the mean, standard deviations, skewness, kurtosis, and Jarque-Bera statistics of the study variables. The result shows that the mean of CSR for the firms is ₦761325.6 for the period with a standard deviation of ₦686248.4 which indicates a wide variation or high volatility. The mean of SW for the period is ₦204295200 with a standard deviation of ₦ 178645000. The EETR is ₦50548800 with a standard deviation of ₦37103410 while for EH the mean value is ₦14241500 with a standard deviation of ₦1465154. This indicates a wide variation in the series of the dataset. The Jarque-Bera probability values of CSR, EETR and EH ($p > 0.05$) indicates that the series follows a normal distribution. The probability value of SW ($p < 0.05$) indicates that the data series is not normally distributed. This was confirmed its excess kurtosis ($K > 3$) among other variables. Skewness result indicates that the series in CSR and SW are positively skewed while those in EETR and EH are negatively skewed.

### *3.2. Test of Hypothesis*

The formulated hypotheses were tested using the Ordinary Least Square (OLS) regression technique. In a stepwise testing process, the following steps were adopted by the researcher:

Step I: Restatement of the hypotheses in null and alternate forms,

Step II: Specify the level of significance

Step III: State the decision rule

Step IV: Presentation and discussion of the results arrived at using the estimation technique

Step V: Taking a decision on the rejection or acceptance of the null hypothesis based on the appropriate decision rule.

Hypothesis one

Ho: Expenditure on salaries and wages has no significant effect on corporate social responsibility of oil and gas firms in Nigeria.

Level of significance ($\alpha$) = 0.05

Decision rule: Reject the null hypothesis if the p-value is less than 0.05 otherwise, do not reject.

***Table 7.*** *Result of effect of SW on CSR.*

| | | | | |
|---|---|---|---|---|
| **Dependent Variable: LCSR** | | | | |
| **Method: Panel Least Squares** | | | | |
| **Date: 10/15/18 Time: 04:56** | | | | |
| **Sample: 2008 2017** | | | | |
| **Periods included: 10** | | | | |
| **Cross-sections included: 3** | | | | |
| **Total panel (balanced) observations: 30** | | | | |
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| C | 7.320096 | 0.837636 | 8.738996 | 0.0000 |
| LSW | 0.496508 | 0.071662 | 6.928460 | 0.0000 |
| R-squared | 0.631596 | Mean dependent var | | 13.07083 |
| Adjusted R-squared | 0.618439 | S. D. dependent var | | 0.999542 |
| S. E. of regression | 0.617423 | Akaike info criterion | | 1.937817 |
| Sum squared resid | 10.67392 | Schwarz criterion | | 2.031230 |
| Log likelihood | -27.06725 | Hannan-Quinn criter. | | 1.967701 |
| F-statistic | 48.00356 | Durbin-Watson stat | | 1.794795 |
| Prob (F-statistic) | 0.000000 | | | |

Source: Researcher's E-views result (2018)

The result shows that expenditure on salaries and wages have positive effect on the corporate social responsibility of oil and gas firms. The coefficient result (LSW = 0.497) indicates that a unit investment in workers' salaries and wages will trigger the corporate donations by about 0.497 units.

The R-squared value of 0.632 which measures the explanatory power of the model indicates that about 63.2% of the total variations in corporate social responsibility of oil and gas firms can be explained by expenditure on salaries and wages of the workers. 36.8% are unexplained, hence the model is a good fit.

The Durbin-Watson statistic value of 1.794795 which is closer to 2 than to zero indicates that the model is free from first order serial correlation problem.

Hypothesis Two

Ho: Expenditure on education and training does not significantly influence corporate social responsibility of oil and gas firms in Nigeria.

Level of significance ($\alpha$) = 0.05

Decision rule: Reject the null hypothesis if the p-value is less than 0.05 otherwise, do not reject.

***Table 8.*** *Result of effect of EETR on CSR.*

| | | | | |
|---|---|---|---|---|
| **Dependent Variable: LCSR** | | | | |
| **Method: Panel Least Squares** | | | | |
| **Date: 10/28/18 Time: 04:17** | | | | |
| **Sample: 2008 2017** | | | | |
| **Periods included: 10** | | | | |
| **Cross-sections included: 3** | | | | |
| **Total panel (balanced) observations: 30** | | | | |
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| EETR | 2.23E-05 | 2.86E-06 | 7.779240 | 0.0000 |
| C | 11.94487 | 0.178494 | 66.92026 | 0.0000 |

| **Dependent Variable: LCSR** | | | | |
|---|---|---|---|---|
| **Method: Panel Least Squares** | | | | |
| **Date: 10/28/18 Time: 04:17** | | | | |
| **Sample: 2008 2017** | | | | |
| **Periods included: 10** | | | | |
| **Cross-sections included: 3** | | | | |
| **Total panel (balanced) observations: 30** | | | | |
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| R-squared | 0.683675 | Mean dependent var | | 13.07083 |
| Adjusted R-squared | 0.672378 | S. D. dependent var | | 0.999542 |
| S. E. of regression | 0.572121 | Akaike info criterion | | 1.785407 |
| Sum squared resid | 9.165021 | Schwarz criterion | | 1.878820 |
| Log likelihood | -24.78111 | Hannan-Quinn criter. | | 1.815291 |
| F-statistic | 60.51658 | Durbin-Watson stat | | 1.421687 |
| Prob (F-statistic) | 0.000000 | | | |

Source: Researcher's E-views result

The result indicates that expenditure on workers' education and training positively and significantly affects the corporate social responsibility of oil and gas firms in Nigeria. The researcher therefore rejects the null hypothesis.

The R-squared value of 0.684 indicates that about 68.4% of the total variations in corporate social responsibility of oil and gas firms in Nigeria can be attributed to expenditure on education and training. The unexplained 31.6% are attributable to other relevant variables not included in the model.

The Durbin-Watson statistic value of 1.421687 following the rule of thumb indicates the test is inconclusive of the presence or absence of first order autocorrelation problem.

Hypothesis Three

Ho: Expenditure on health has no significant effect on corporate social responsibility of oil and gas firms in Nigeria.

Level of significance ($\alpha$) = 0.05

Decision rule: Reject the null hypothesis if the p-value is less than 0.05 otherwise, do not reject.

***Table 9.*** *Result of effect of EH on CSR.*

| **Dependent Variable: LCSR** | | | | |
|---|---|---|---|---|
| **Method: Panel Least Squares** | | | | |
| **Date: 10/28/18 Time: 04:19** | | | | |
| **Sample: 2008 2017** | | | | |
| **Periods included: 10** | | | | |
| **Cross-sections included: 3** | | | | |
| **Total panel (balanced) observations: 30** | | | | |
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| EH | 0.000485 | 9.06E-05 | 5.351401 | 0.0000 |
| C | 6.162248 | 1.297573 | 4.749057 | 0.0001 |
| R-squared | 0.505628 | Mean dependent var | | 13.07083 |
| Adjusted R-squared | 0.487972 | S. D. dependent var | | 0.999542 |
| S. E. of regression | 0.715234 | Akaike info criterion | | 2.231926 |
| Sum squared resid | 14.32366 | Schwarz criterion | | 2.325339 |
| Log likelihood | -31.47889 | Hannan-Quinn criter. | | 2.261810 |
| F-statistic | 28.63749 | Durbin-Watson stat | | 1.118959 |
| Prob (F-statistic) | 0.000011 | | | |

Source: Researcher's E-views result (2018)

The least squares regression estimate indicates that expenditure on health interacts positively and significantly with corporate social responsibility of oil and gas firms in Nigeria. Hence, the null hypothesis is rejected.

The R-squared result which estimates the explanatory power of the model indicates that about 50.6% of the total variations in corporate social responsibility of oil and gas firms in Nigeria can be attributed to expenditure on health. The unexplained 49.4% are attributable to other relevant variables not included in the model.

The Durbin-Watson statistic value of 1.118959 following the rule of thumb indicates the test is inconclusive of the presence or absence of first order autocorrelation problem.

***Table 10.*** *Multiple Panel Regression Result.*

| | | | | |
|---|---|---|---|---|
| **Dependent Variable: LCSR** | | | | |
| **Method: Panel Least Squares** | | | | |
| **Date: 11/05/18 Time: 05:17** | | | | |
| **Sample: 2008 2017** | | | | |
| **Periods included: 10** | | | | |
| **Cross-sections included: 3** | | | | |
| **Total panel (balanced) observations: 30** | | | | |
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| C | 19.20075 | 25.01555 | 0.767553 | 0.4497 |
| LSW | 0.383652 | 0.126892 | 3.023457 | 0.0056 |
| LEETR | 0.320375 | 0.244318 | 1.311300 | 0.2012 |
| LEH | -1.451981 | 2.870082 | -0.505902 | 0.6172 |
| R-squared | 0.661481 | Mean dependent var | | 13.07083 |
| Adjusted R-squared | 0.622421 | S. D. dependent var | | 0.999542 |
| S. E. of regression | 0.614193 | Akaike info criterion | | 1.986552 |
| Sum squared resid | 9.808073 | Schwarz criterion | | 2.173379 |
| Log likelihood | -25.79828 | Hannan-Quinn criter. | | 2.046320 |
| F-statistic | 16.93501 | Durbin-Watson stat | | 1.585706 |
| Prob (F-statistic) | 0.000003 | | | |

Source: Researcher's E-views result (2018)

The joint regression result indicates that human capital expenditure proxied by expenditure on salaries and wages, expenditure on education and training, and expenditure on health significantly affect corporate social responsibility of oil and gas firms in Nigeria ($F = 16.935$; p-value $< 0.0000$).

Particularly, the result shows that expenditure on salaries and wages and expenditure on education and training have positive influence while expenditure on health is negative. The effects of expenditure on education and training and expenditure on health controlling for salaries and wages are insignificant while the effect of expenditure on salaries and wages is significant.

The model is free from first order autocorrelation problem (D-W stat. = $1.585706 \cong 2$) and have high explanatory power (R-squared = 66.1%) indicating a good fit.

## 4. Discussion of Findings

The findings that human capital expenditure has a significant effect on corporate social responsibility of oil and gas firms in Nigeria agrees with the previous findings of some authors. Particularly, the result aligns with Anumudu (2010) that training, education, Medicare and research are strongly associated with productivity of manufacturing industries in Enugu and Anambra States [34]. The result is also in agreement with the findings of Ukenna et al (2010); Perera and Thrikawala (2012); Bassey and Tapang (2012); and Ezejiofor, et al (2017) that increases in staff salary has positive effect on organizational profitability, the level of increment in staff has influence on organizational profitability and also that staff retirement benefits have positive effect on organizational profitability [22, 26, 30, 33].

## 5. Summary of Findings

This study empirically examined the effect of human capital expenditure on corporate social responsibility of oil and gas firms in Nigeria. From the findings, it was revealed that:

1) Expenditure on salaries and wages positively and significantly affect corporate social responsibility of oil and gas firms in Nigeria.
2) Expenditure on education and training had negative and significant effect on corporate social responsibility of oil and gas firms in Nigeria.
3) Expenditure on health had positive and significant effect on corporate social responsibility of oil and gas firms in Nigeria.

## 6. Recommendations

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

1) Oil and gas firms should keep up in the corporate supports to the community since it helps in the growth of their firms. Ensure good salary pay structure for their workers to motivate them in community supports.
2) They should review their expenditure on education and training and consider possible adjustment towards achieving the organizational goal.
3) Proper and adequate concern should be given to healthcare of the workers so as to maximize profits in the firms. Not forgetting the saying that health is wealth.

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