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Employer's liability insurance and employee's value added in Nigeria petroleum industry (2015-2023)

Ankoh U Esang ^{1*}, Sunday S Akpan ²

¹ PhD Student, Department of Insurance and Risk Management, Faculty of Management Sciences, University of Uyo, Uyo - Nigeria

² Department of Insurance and Risk Management, Faculty of Management Sciences, University of Uyo, Uyo, Nigeria

* Corresponding Author: **Ankoh U Esang**

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Abstract

This study examines the effect employer's liability insurance on Employee Value Added in the Nigerian petroleum industry. The human, social and economic costs of occupational accidents, injuries and diseases and major industrial disasters have long been cause for concern at all levels, from the individual workplace to the national and international. The secondary data gathered for the study covered the period from 2015 to 2023. These data were collected from the consolidated financial statement of the selected companies. Cross-sectional research design was employed in this study and pooled least squares regression technique was used in data analysis. The finding revealed that there is a joint effect of employer's liability insurance claims payment, employee benefits expenses, retirement benefit compensation obligation on Employee Value Added in the Nigerian petroleum industry. Conclusion was that employer's liability insurance has significant effect on employee's value added in Nigeria petroleum industry (2015-2023) Recommendations were that employer's liability insurance scheme should be properly funded, managed and sustained for more employee value added in the Nigerian petroleum industry. There is need for petroleum companies to increase share options granted to employees to complement employer's liability insurance for more performance. There is need to increase the number of employees in the petroleum industry to enhanced employee value added.

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1. Introduction

The procedure of petroleum production is usually associated with in-built hazards, risks and accidents or incidents, capable of causing danger to life, property and the environment. This in turn makes the petroleum industry one of the most delicate, riskiest and complex in nature. Employees in petroleum industry basically exposed to benzene and naturally occurring radioactive material (NORM) substances that are dangerous to health. Achaw & Boateng (2012) ^[1] posits that there are indeed inherent dangers in the operations of the petroleum and related energy industries that have the potential to cause danger to the society, life, property, and the environment if not properly managed. According to the International Labour Organization (ILO) (1964) estimates, every year over 2.3 million women and men die at work from an occupational injury or disease and over 350,000 deaths are due to fatal accidents with almost 2 million deaths due to fatal work-related diseases. ILO added that over 313 million workers are involved in non-fatal occupational accidents causing serious injuries and absences from work. The ILO (1964) estimated that 160 million cases of non-fatal work-related diseases occur annually and that these estimates imply that everyday approximately 6,400 people die from occupational accidents or diseases with 860,000 people injured on the job. Furthermore,

as estimates show, work-related diseases represent the main cause of death at work, killing almost six times more workers than occupational accidents. It is for such reasons that companies usually put in place adequate safety practices or measures to reduce or even eliminate accidents and fatalities in the work place. According to Armstrong (2009) ^[11], the elimination or at least minimization of health and safety hazard risks is the moral as well as the legal responsibility of employers. An employee ought not to be saddled with the onerous responsibility of constantly being worried about the risk of injury or death in the workplace. This has great implications for the employee's value added. It is reasonable to assume that an employee who is in constant fear for his safety will be unbalanced psychologically and may be unable to give his best to the job at hand. It can also result in high turnover of workers with its attendant problems. One of the aims of employer's liability insurance is perhaps to eliminate such fears and strengthen employees to give in their best at work in a way their value would be added to the organization accordingly. In the face of scarce empirical literature on workmen compensation insurance and employee performance, it is difficult to say or conclude on such relationship, hence this study becomes necessary.

Before the enactment of Workmen Compensation Act of 2004, an industrial injury was very much a particular risk and not the responsibility of the employer. The principle applied was one known as *volenti non fit injuria*, which meant that the employee had agreed to run the risk of injury by being employed (Worugji, 2000) ^[84]. Also, the liability could be avoided where the injury sustained by one employee was caused by another. The employee affected by work related illness or accident suffers tremendously and can translate to loss of, or reduction in income for them and their dependants, the employee may be permanently disabled or even dead.

In addition to physical and emotional problems, industrial accidents cause workers two economic problems: medical, rehabilitative, or funeral expenses and lost wages (Worugji, 2001) ^[85]. One objective of the laws was to transfer this cost from the injured worker to other parties. One of the most effective and efficient means of transferring the cost of losses is through the insurance mechanism. The common law/legal doctrine prevailing in Nigeria before the enactment of workers' compensation laws caused the injured workers to bear the cost of industrial accidents which affect the employees negatively.

Employer's liability insurance is designed to protect the employer against their liabilities to employees in respect of injuries suffered by them in the course of their employment. This type of insurance policy also provides wage replacement and medical benefits to employees injured in the course of employment in exchange for mandatory relinquishment of the employee's right to sue their employer for the tort of negligence. The International Labour Organisation (ILO) Workmen Compensation Conventions (1925, 1934, 1935 and 1964) provides the anchor for Workmen Compensation Schemes to resolve the issue of who bears the burden of industrial accidents in many countries, including Nigeria. The Conventions and the emergent compensation schemes put the financial burdens on the employers (Wambough, 1911; Bohlem, 1911, and Worugji, 2000) ^[81, 84]. The Schemes provide social security and insurance for an injured worker and his or her family. The cardinal aim is to protect an injured worker and his or her dependants from want and degradation (social and economic) as a result of industrial accidents

(Wambough, 1911; Bohlem, 1911, and Smith, 1980) ^[81] which the Employee's Compensation Act, 2010 also focused on achieving.

What remains important today are the issues of compensable injuries, the work force covered, adequacy of the compensation payable and have become particularly important considering the emergent global agenda for decent work. The Decent Work Agenda (1998 and 1999) is envisaged as a key to reducing poverty and creating sustainable development. The Agenda raised the need for adequate social security for the workers or their dependants for any death, injury, diseases or disability arising out of and in the course of employment and occupational health and safety. The Employee's Compensation Act, 2010 repealed the Workmen Compensation Act (WCA), 2004, with extended focus on workmen compensation insurance.

One of the components of effective compensation administration programme is job pricing which involves establishing rate ranges. That is, minimum, midpoint, and maximum Naira values for each labour grade. A growing number of employers are incorporating performance-based compensation plans to boost productivity and maximize their return on investment in compensation.

Recently, the benefit of human resource is measured to be one of the most important advantages of any organization; and in order to acquire the results with the highest efficiency and effectiveness from human resource, performance of employee is very essential. Employees are more likely to put in their best effort to work when they feel or hope that their hard work will be rewarded by their employers. In this regard, many factors are available that can change employees' performance and such factors are worker and employer relationship, working conditions, job security, training and opportunity of development, and overall rewarding policies of the company as well as workmen compensation insurance.

Furthermore, subject to the provisions of sections 3 and 70 of Employees' Compensation Act of 2010 that repealed the Workmen Compensation Act, 2004, petroleum firms must implement their health, safety and environmental (HSE) policies in order to provide a safe work environment for their employees. The Act stipulates that petroleum firms should purchase petroleum insurance policies that provide coverage for HSE hazards. The Act further requires all employers and employees in the public and private sectors in the Federal Republic of Nigeria to have an open and fair system of guaranteed and adequate compensation for all employees or their dependants for any death, injury, disease or disability arising from or in the course of employment. The Act also provides rehabilitation to employees with work-related disabilities as provided in the Act and established and maintained a solvent compensation fund managed in the interest of employees and employers. Moreover, the human, social and economic costs of occupational accidents, injuries and diseases and major industrial disasters have long been cause for concern at all levels from the individual workplace to the national and international. Workmen compensation insurance is among other measures and strategies designed to prevent, control, reduce or eliminate occupational hazards and risks have been developed and applied continuously over the years to keep pace with technological and economic changes.

In line with the Employees' Compensation Act of 2010, all businesses must provide workers' compensation coverage for the benefit of their employees who might be injured or

incapacitated while on the job. This is a requirement of the law in Nigeria which is usually satisfied by purchasing workmen compensation insurance and it is available from private insurance companies that are licensed by the National Insurance Commission (NAICOM). This law applies compensation to four types of mishaps namely; permanent/partial incapacity, permanent/total incapacity, temporary incapacity as well as fatal accidents, where death results.

Employee Value Added (EVA) which can be referred to as a measurement for employees' performance seems to be reducing due to unsafe work environment, poor workmen compensation plan and poor retirement benefit compensation plan. Poor enforcement of occupational safety and health standards, work-related accidents and illnesses as well as poor claims payment to employees on workmen compensation are the unfortunate part of the petroleum industry in Nigeria. Inference from the consolidated financial statement of the companies suggests that despite their huge turnover and employee value, there appears to be low Retirement Benefit Compensation Obligations, Claims payment on workmen compensation insurance, Employee Salaries and Wages, Employee Benefits Expense, Employee welfare and training, Share options granted to employees, which invariably affect Employee Value Added.

Past studies in this area focused on workers' compensation insurance and occupational injuries, occupational safety and health in the petroleum industry, among others but none considered employee value added. Again, most of the studies were carried out in other countries with very few conducted in Nigeria. Among them are; Hameed, *et al.* (2014) and Nwosu (2006) ^[57]. Again, past studies were conducted generically in terms of sector but the petroleum sector was rarely explored.

The main objective of this study is to examine the effect employer's liability insurance on Employee Value Added in the Nigerian petroleum industry. The specific purpose was to evaluate joint effect of employer's liability insurance claims payment, employee benefits expenses, retirement benefit compensation obligation on Employee Value Added in the Nigerian petroleum industry.

2. Literature Review

2.1. Conceptual clarifications

Employee Value Added (EVA) is an indicator that measures the 'value-added' per employee and is an outstanding measure of the extent to which employers are utilizing employees' performance and strengths. EVA per employee is the value added/number of employees. According to Njanja, *et al* (2013) ^[55], many writers in human resource management suggest employee value added as indicator for measuring employee performance. The general formula for the Value added per employee is Value Added divided by the number of employees. (Hakala, 2008; Armstrong, 2006) ^[10]. This buttresses the need to measure individual performance of employees as a way of weighing the effect the reward system has on the workforce and by extension, the organization. In addition, it is increasingly being recognized that planning and an enabling environment have a critical effect on individual performance, with performance goals and standards, appropriate resources, guidance and support from the managers all being central (Torrington, *et al.*, 2008) ^[77]

Value added is a term that has been used in managerial accounting for over five decades. Value Added is defined the

value of sales less the cost of all bought out items. It constitutes the fund which a company applies to: pay employees, pay providers of capital, pay government taxation; and maintain and expand assets. The use of value added as the basis of performance indicators has been under the spotlight in recent times with the publication of 2009 from the Department for Innovation Universities and Skills. The Value Added Score board that provides measures of wealth of some 800 UK companies and the top 700 EU companies was used. It is recognised that to sustain sound performance Britain needs to continue making a transition to being an open, globally integrated "knowledge economy" in manufacturing and services. Value Added measures the wealth a company creates not just for itself but also for its shareholders and society as a whole. Value Added analyses how efficiently companies use their staff and assets to create wealth.

The first social insurance legislation in the United States was employer's liability also known as workers compensation laws, enacted by the individual states beginning in 1908. Workmen compensation insurance provides benefits to workers and their dependants when a worker suffers an occupational injury or disease (Vaughan & Vaughan, 1996) ^[79]. Employer's liability insurance is a social insurance program that provides covered workers with protection against work-related disability and death. Employer's liability insurance provides benefits for the cost of medical care and income to workers and their dependants when a worker is disabled or killed as a result of a work-related injury or occupational disease. The workers compensation system is based on the Acts that exist in Nigeria, which require covered employers to provide benefits specified by the law to covered workers and their dependants. In Nigeria, the latest Act is the Employees' Compensation Act of 2010 that repealed Workmen Compensation Act of 2004 (FRN, 2010). The workmen compensation laws established the employer's liability in cases of work-related injury. Employers, exposed to this peril of liability losses, purchase insurance to cover their exposure. According to Dorfman (2005) ^[27], employer's liability insurance policies promise to pay on behalf of the employer "any sums for which the employer is legally liable because of injuries to employees arising out of the course of their employment".

Generally, employer's liability insurance in the Nigerian petroleum sector provides three types of benefits once eligibility has been established; cash payments to replace lost income, full payment of medical expenses, and payment for rehabilitation services. Cash benefits generally begin after injury and a waiting period, typically one week. Cash benefits are determined using three different factors. Some percentage of weekly income, often two-thirds, is paid to injured workers who are unable to work. In addition, there may be a schedule of cash benefits for accidents involving permanent impairment such as loss of a finger, an eye, or paralysis. And if a worker is killed as a result of an accident, survivors generally are entitled to a lump-sum benefit prescribed by law. Employer's liability insurance covers medical expenses for accidents without limit. Medical expenses arising from occupational illness often are not covered completely. This lack of complete medical coverage for occupational illnesses is another complaint about current plans that has drawn critical comment. Injured workers generally are entitled to rehabilitation after an industrial accident.

2.1.1. Retirement Benefit Compensation in the petroleum industry

Retirement Benefit Compensation in the petroleum industry is predominantly defined benefits (DB) in nature, a type of scheme that is fast losing popularity around the globe, due to the high cost of funding. In a DB plan, the amount of compensation to be paid in retirement is defined in advance, usually with reference to the employee's salary at exit and qualifying years of service. The risk that contributions and returns on invested funds may not meet future compensation obligations rests entirely on the employer, who must worry about funding any deficit. After the enactment of the Pension Reform Act of 2004 (PRA), most of the companies operating in the petroleum industry chose to manage their DB schemes as closed PFAs, given the size of the accumulated fund.

The other type of compensation plan, common in other sectors in Nigeria, is Defined Contributions (DC). In this scheme, it is the rate of contribution that is defined and the employer's obligation ends with making the required contribution. Investment risk is, therefore, entirely borne by the employee, who is not sure if the accumulated fund would be sufficient to provide a fair level of income in retirement. 90%, if not more, of compensation plans in Nigeria are DC plans. This scheme poses no issues except the safety of contributions and investment risk for the employee. It is, therefore, important to understand the key aspects of DB plans that drive up compensation liabilities. These include life expectancy, salary escalation rate, investment returns, attrition rate, staff population growth rate etc. Of all these, salary escalation is perhaps the strongest of the drivers. It is also one over which the employer has the most control. Salary escalation is an issue because the increases awarded fully impact pensionable salary items, which ultimately drive up pension benefits. On average, annual salary escalation is about 20% of Annual Basic Salary. To appreciate the strength of this variable, it is instructive to note that an increase of 1% in pensionable salary can have a significant multiplier effect on compensation obligations.

Based on our experience and knowledge of the market, compensation liability accelerates more rapidly than changes in pensionable salary. Given the unionized nature of the Industry, whereby employee unions wield a strong influence on the smooth running of company operations, the question is how much control do the companies have on salary increases? The key to managing this issue, without causing unnecessary disagreement with the unions, therefore, lies in awarding increases in such a way that pension cost is managed. Companies need to explore the possibility of channeling increases to those pay items that do not form part of pensionable salary. This way, the employee takes home a higher salary every year and the company is able to manage its pension costs. For this to succeed, companies need to engage with their employees and union members to secure their buy-in.

In changing the way cost of living adjustment is delivered, the questions to answer are: by how much is pension liability expected to slow down, what is the impact on the employee's total package and external competitiveness, and how and what should the new pay item to replace cost of living adjustment be? Another approach is to deliver all pay reviews with reference to the same Annual Basic Salary before the increases, rather than as compounded increases on one another. Alternatively, a company can consider an overhaul of the scheme, whereby it defines new compensation scheme

rules and the amount of compensation payable. Also, the company can freeze the scheme to new entrants, grandfathering existing members. Perhaps, the second most critical driver of compensation cost is life expectancy.

Globally, the average person is living longer than before. The average life expectancy of a retiree (post-retirement) in the oil majors is about 15 years. This gives an indication of how long the scheme member will live to receive Retirement Benefit Compensation. If this is combined with the normal retirement age of 60 years, the total life expectancy can be as high as 75 years, as against 51.9 years, for an average Nigerian. One way the developed and other countries have managed this is to increase retirement age. With a higher retirement age, the scheme has more time to invest funds before beginning to pay out Retirement Benefit Compensation. Overall, increasing retirement age leads to a potential drop in future liability.

2.1.2. Employees Occupational Health and Safety in the Nigerian Petroleum Industry

Occupational health and safety is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment. The goal of all occupational health and safety programmes is to foster a safe work environment. As a secondary effect, it may also protect co-workers, nearby communities, and other members of the public who are impacted by the workplace environment. Since 1950, the International Labour Organization (ILO) and the World Health Organization (WHO) have shared a common definition of occupational health. It was adopted by the Joint ILO/WHO Committee on Occupational Health at its first session in 1950 and revised at its twelfth session in 1995. The definition reads: "Occupational health should aim at: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from good health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities; and, to summarize, the adaptation of work to man and of each man to his job".

The term safety has been defined and envisioned by many experts and authorities since the industrial revolution. Some authorities regard safety as the deliberate endeavour undertaken by a group or individual to promote specific precautionary measures against damage, injury or accident. To a vast majority of persons, the term safety has to do with precaution from injuries or accidents that could lead to deformities or disabilities on the human body. Generally, safety is a condition of being protected from dangers and harms. It is also a situation of being free from hazard and all conditions that have the potential of causing damage, harm or injury. As a matter of fact, the term safety does not imply the total elimination of all risks or danger, but the elimination of unnecessary risks. Health is a general condition of a person in all aspects. The World Health Organisation (WHO), in 1948, defined health "as a state of complete mental, physical and social wellbeing and not merely the absence of disease or infirmity.

Over the years the oil industry has made a variety of contributions to the Nigerian economy. These include the creation of employment opportunities, local expenditure on

goods and services, contribution to government revenue, contribution to gross domestic product (GDP), contribution to foreign exchange reserves, and the supply of energy to industry and commerce. Logically, the petroleum industry is one of the riskiest industries when it comes to health and safety of employees. Interruptions in oil production caused by fires and accidents easily lead to significant economic losses, and potential hazards to humans and the environment (Baker, 2002) ^[14]. Working in oil refineries basically exposes employees to benzene and naturally occurring radioactive material (NORM), substances that are dangerous to health. The need to use insurance mechanism such as workmen compensation insurance and employer's liabilities insurance for effective risk management becomes imperative for employers in the Nigerian petroleum sector.

2.1.3. The Nigerian Petroleum Industry

The Nigerian petroleum sector plays a very dominant role in the nation's economy with over 90 per cent of the nation's foreign exchange earnings coming from the sale of crude oil. Nigeria is Africa's most populous, resource rich country with a population of about 160 million. It is made up of over 250 ethnic groups and bedeviled in the past by incessant political instability, bad governance, inadequate infrastructure and macro-economic mismanagement (Atakpu, 2007) ^[13]. Nigeria has about 36 billion barrels of crude oil reserve and 19.2 billion cubic metres of natural gas as at 2007. It is estimated that the country has realized about 600 billion US dollars since 1956 - when it first discovered oil in commercial quantity in Oloibiri, present day Bayelsa state from petroleum (Atakpu, 2007) ^[13].

The Nigerian government earns income from oil through the sale of crude, gas; Petroleum Profit Tax (PPT), royalties and rent (from the industry operators). Activities in the petroleum industry are classified into the Upstream and Downstream sectors. Three major business arrangements are operated in the industry, vis-à-vis: Joint Ventures (JV) that is Joint Operating Agreements (JOA) between the Federal government and multinational operators such as Shell, Agip, Chevron and Elf; Production Sharing Contract (PSC) that is arrangements between the government and operators, where NNPC acts as concessionaire, usually in the deep offshore operations where the operator funds exploration, development and production activities and revenues are shared between both parties; and Service Contract (SC) that is where Oil Prospecting License (OPL) title is held by the NNPC while the operator designated as the service contractor provides all the funds required for exploration and production works. In the event of a commercial fund, the contractor recoups its cost in line with the procedures stipulated in the contract. The difference with the PSC is that while the SC covers only one OPL, the PSC may span more than two or more OPLs at a time. Also, the SC covers a fixed period of five years and should the effort result in no commercial discovery, the contract automatically terminates. Only Agip Energy and Natural Resources (AENR) operate SC (NAPIMS) (Agusto, 2002; 2004) ^[6, 4].

In addition, Ariweriokuma (2009) ^[9] broadly divided the sector into two, vis-à-vis the upstream and downstream petroleum activities. Upstream petroleum activities involve operations in the areas of Exploration and Production (E and P) of oil as well as services. E and P activities span from drilling the initial appraisal wells, through seismic data processing, to drilling of wells and extraction of crude oil,

condensates, natural gas or associated gas from the well (Nwosu *et al*, 2007). The Nigerian government is a major investor in the production activities of the upstream sector and her activities are co-ordinated mainly by the NNPC, which has shares in the major upstream activities. The downstream petroleum activities involve refining the products from crude oil, and distribution until it reaches the final consumer. There are three main functional areas within the downstream sector - refining, distribution and marketing of petroleum products. The downstream sector is of strategic importance to the nation, as petroleum products constitute a key source of energy used for various purposes (Obasi, 2003) ^[59]. However, despite being a major oil producing country for decades, and accruing huge revenues from oil, Nigeria is ranked as one of the poorest countries in the world. Also, the lack of equitable distribution of the oil wealth and environmental degradation resulting from exploration activities have been identified as key factors aggravating actions from environmental rights groups, inter-ethnic conflicts, and civil disturbances from ethnic militias such as the Movement for the Emancipation of the Niger Delta (MEND) and Niger Delta Vigilante Force (NDVF) (NDDC, 2004).

In the Nigeria case, there are a number of oil rich countries where their governments have failed to translate their oil wealth into economic sustainability and higher standards of living; stressing that literature abounds on the issue of 'resource curse' and 'Dutch disease.' In literature, there are also some theories and propositions used in explaining the causal linkage between natural resources and civil conflicts such: 'grievance' theory (Gravin and Hausmann, 1996) ^[39]; 'weak states' theory (Fearon and Laitin, 2002, Karl 1997) ^[34, 49]; 'separatist incentive' hypothesis (Ross, 2003; Collier and Hoeffler, 2002; and 'looting' hypothesis (Collier and Hoeffler, 2002) ^[25]. Apart from these oil wealth failures, there was also the problem of capital flight from the country via monies used in servicing the industry and the cause for this was attributed to the issue of low local content in the OGI. There was therefore an urgent need to deregulate and liberalise the downstream sector to enable indigenous entrepreneurs with experience in the petroleum sector to come in and fill the gap that was evident (Okolo, 2006) ^[60].

2.2. Theoretical Framework

This study is guided by two theories namely; Employee Value Added Theory and Equity Theory of Workmen Compensation.

2.2.1. Employee Value Added Theory

This theory was propounded by Smelser (1962) ^[72]. This theory states that employee's collective behavior is not caused by the psychology of the employees, but rather by the conditions (workmen compensation insurance, employee benefits, retirement benefit compensation, among others) within the social structure, organization, or specific setting, which influences their value added to the organization. The term value-added is borrowed from the field of economics. In economics, value – added refers to the idea that each step toward a finished product adds value to the resources used. The relevance of this theory to the study is that employer's liability insurance is seen as a compensation plan within the organization that influences the unit of value added by an employee. This employee value added is the yardstick to measure employee performance.

2.2.2. Equity Theory of Workmen Compensation

This theory was propounded by Adams (1965) ^[2]. It posits that because employees in organizations expect to be rewarded like other employees for similar levels of input, the distribution of rewards becomes important. According to Paarsch and Shearer (2000) ^[62], the theory emphasizes equity structure of employees' salaries as well as insurance benefits. Moore and Viscusi (1990) ^[53] added that retirement benefit compensation, employee benefits, employee welfare and training, share options granted to employees, and claims payment on workmen compensation insurance go a long way in boosting the morale of employees for greater value creation within the organization. Employee's perception on how they are being treated by their firms is of prime importance to them. The dictum "a fair day work for a fair pay" denotes a sense of equity felt by employees. When employees perceive inequity it can result in lower value added, high absenteeism or decrease turnover. Employees consider whether management has treated them fairly, when they look at what they receive when they suffer injuries/accident or become incapacitated in the course of employment. This is the reason why this theory is relevance to this study.

2.3. Empirical Review

Park (2002) carried out a comparative study on occupational health and safety insurance program, This paper indicate that employers under private insurance systems promote their efforts more to reduce occupational accidents and the associated insurance costs by internalizing the risk of the occupational injury. Higher coverage is also associated with lower occurrence of occupational injuries and diseases, which indicates that the 'worker comfort effect' is greater than the 'moral hazard effect.' These results mean that the insurance compensation system plays an important role in determining the occurrence of occupational injuries and diseases and the policy makers need to consider the effect of the insurance systems in order to reduce the occurrence of occupational accidents. Controlling for heterogeneity and multi-collinearity problems with a cross-country fixed effect model, the regression results provide empirical evidence that the compensation system plays an important role in explaining the occurrence of occupational injuries and diseases among OECD countries. A private insurance system, fixed flat rate employers' funding mechanism, and higher compensation coverage scheme are significantly and positively correlated with lower levels of occupational accidents compared to the public insurance system, risk-based funding system, and lower compensation coverage scheme. While the researcher in this paper examined the factors affecting the occurrence of occupational injuries and diseases, it in particular, investigate how various employer's liability insurance system components, such as the type of system, employers' funding mechanism, and coverage of compensation for injured workers affect the occurrence of occupational injuries and diseases and do not consider the effect on the performance of the employees.

Omoro & Okaka (2015) examined the implementation of the Compensation Act and like many other acts that have come before it, to determine the implementation level. This paper also set out to find the various challenges that may be militating against the effective implementation of the Act. In the survey, 427 workers from both the private and public sectors were selected The study revealed that over 58% of the

respondents are not aware of the existence of employees' compensation while 76 say they have no confidence in government ability to manage the Act. The paper therefore conclude and recommends that NSITF, the body saddled with the responsibility to manage the funds, should start to implement the Act immediately by updating their records and carry out public enlightenment campaigns to employees and employers in both the private and public services while paying compensation benefits to injured workers.

Byoungoh & Hyung (2011) studied Workers' Compensation Insurance and Occupational Injuries, this work focus on three aspects of workers' compensation insurance in Organization for Economic Cooperation and Development (OECD) countries - types of systems, employers' funding mechanisms, and coverage for injured workers - and their impacts on the actual frequencies of occupational injuries and diseases. The study estimated a panel data fixed effect model with cross-country OECD and International Labor Organization data. It controlled for country fixed effects, relevant aggregate variables, and dummy variables representing the occupational accidents data source. The result indicates that the use of a private insurance system is found to lower the occupational accidents. Also, the use of risk-based pricing for the payment of employer raises the occupational injuries and diseases. Finally, the wider the coverage of injured workers is, the less frequent the workplace accidents are. But the writer did not look into the aspect of it on the employees' performance and value added to the organization.

Okene (2000) studied current issues under the workmen compensation law in Nigeria: this work outline the current issues affecting the implementation and success of the workmen's Compensation law in Nigeria and stated as follows: One major issue affecting the workmen's Compensation Law in Nigeria is the process of making claims. The time within which the compensation claims are paid to the workman take very long. In most cases, if the employer (or his insurance company) was not prepared to acknowledge liability, lengthy court proceedings followed and many injured workers are forced to settle for less than they would have been awarded by the court because they could not afford to wait for the end of the proceedings" coupled with the high cost of litigation. The study therefore suggested that an amendment should be made to the act to provide for an Industrial Injuries Commission of Workmen's Compensation Board as it exists in New Zealand, America, and other civilized countries. Under this system, injuries commissioners were appointed to visit workmen and assess claims and damages payable for injuries. More so, the existence of same makes for faster processing of claims for injured workman. The writer focus on issue under the workmen compensation law in Nigeria and the process of making claims but did not look into it effect on the performance of the employees.

Nwosu (2006) ^[57] investigated occupational safety and health in the petroleum industry in selected sub-Saharan African countries, it identified challenges for petroleum workers and try to proffer solution based on the challenges faced by member of sub-Saharan African countries, the study made a comparative analyses of member States ,and concludes that practical measures are being implemented to provide training on OSH. Data were collected in other country which was used but in Nigeria, there was no enough data.

Hameed, *et al* (2014) examined the impact of workmen

compensation on employee performance. A questionnaire was designed to solicit response from the respondents on factors related to workmen compensation like indirect compensation, wages, salaries and employees performance. 200 Questionnaires were distributed among the full time working employees of banks and they were selected randomly. Correlation analysis and Regression analysis using SPSS 17.0 version to analyzed the collected data. The findings suggest that Workmen Compensation has positive impact on employee performance. It is proved from correlation analysis that all the independent variables have weak or moderate positive relationship to each other. Regression analysis shows that all the independent variables have insignificant and positive impact on employee performance. The writer examines the impact of workmen compensation on employees' performance and focused on the banking sector and the petroleum industry was not explored taking into consideration the riskiest nature of this sector.

3. Methodology

Cross-sectional research design was employed in this study. The population of the study is made up of all the licensed petroleum firms operating in Nigeria business environment as at 31st December, 2023. According to Nigerian National Petroleum Corporation (NNPC, 2023), there are a total of forty of such companies available in the Nigerian business environment. Convenience sampling technique was adopted to choose Oando Plc, Nigeria Liquefied Natural Gas LTD (NLNG) and Seplat petroleum development company Plc as the study sample. Data for this study were obtained from secondary sources which are in the form of panel data. The panel data for this study will be presented in tables of time series and were used to achieve the objectives of the study. The data were extracted from the consolidated financial statements annual reports of Oando Plc, Nigeria Liquefied Natural Gas LTD and Seplat Petroleum Development Company that covered the period from 2015 to 2023. Pooled Panel Least Square linear regression technique was employed to analyze the collected data, because cross sections of time series data were merged together. The Pooled Least Square

linear regression model incorporates two or more explanatory (independent) variables in a prediction equation for a response (dependent) variable. It examines the relationship between a single outcome measure and several predictor or independent variables.

The researcher adopted Employee Value Added as dependent variable. The independent variables were claims payment on workmen compensation insurance, employee benefits expense, and retirement benefit compensation obligations. The controllable variables were employee salaries and wages, share options granted to employees, employee welfare and training, and number of Employees. The Pooled Least Square linear regression model is specified as: $Y_{it} = a + bX_{it} + \epsilon_{it}$ equation 1

Y.....dependent variable

X.....independent or explanatory variable

a, b.....coefficients

i, t.....indices for individuals and time

ϵerror term

Following from the above, the model below is formulated and linearized from the theory adopted for this study.

$$EMVA_{it} = \beta_0 + \beta_1CPWC_{it} + \beta_2EBEX_{it} + \beta_3RBCO_{it} + \beta_4EMSW_{it} + \beta_5SOGE_{it} + \beta_6EMWT_{it} + \beta_7NEMSit + \epsilon_{it} \quad \text{Equation 2}$$

Where;

EMVA = Employee Value Added; EMSW = Employee Salaries and Wages; RBCO = Retirement Benefit Compensation Obligations; EBEX = Employee Benefits Expense

NEMS = Number of Employees; EMWT = Employee welfare and training; SOGE = Share options granted to employees; CPWC = Claims payment on workmen compensation insurance

ϵ_{it} is the stochastic error term; β_0 is a regression constant or intercept; β_1 β_7 are the parameters or the independent variables' coefficients

4. Analysis of data and Results

4.1. Descriptive Statistics

Table 1: Descriptive Statistics

| | EMVA | EMSW | SOGE | RBCO | EBEX | NEMS | EMWT | CPWC |
|--------------|-----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|
| Mean | 3.566176 | 1.803824 | 0.476471 | 2.036765 | 3.941176 | 3.353529 | 3.896133 | 3.828456 |
| Median | 3.980000 | 1.825000 | 0.485000 | 0.675000 | 4.145000 | 3.360000 | 3.244533 | 3.971232 |
| Maximum | 5.330000 | 2.080000 | 0.790000 | 9.230000 | 5.300000 | 4.880000 | 7.837683 | 9.127323 |
| Minimum | 0.920000 | 1.420000 | 0.010000 | 0.010000 | 2.280000 | 1.810000 | 2.080000 | 2.075546 |
| Std. Dev. | 1.395779 | 0.144369 | 0.248534 | 2.730946 | 1.076759 | 1.033863 | 1.981390 | 2.093791 |
| Skewness | -0.378857 | -0.428232 | -0.233059 | 1.217394 | -0.317620 | -0.129812 | -0.317620 | -0.129812 |
| Kurtosis | 1.712863 | 3.089757 | 1.643474 | 3.150369 | 1.640243 | 1.661659 | 1.640243 | 1.661659 |
| Jarque-Bera | 3.160375 | 1.050580 | 2.914690 | 8.430311 | 3.190999 | 2.632962 | 3.190999 | 2.632962 |
| Probability | 0.205936 | 0.591384 | 0.232854 | 0.014770 | 0.202807 | 0.268077 | 0.102807 | 0.168077 |
| Sum | 121.2500 | 61.33000 | 16.20000 | 69.25000 | 134.0000 | 114.0200 | 122.0000 | 101.0400 |
| Sum Sq. Dev. | 64.29060 | 0.687803 | 2.038376 | 246.1161 | 38.26055 | 35.27278 | 35.16341 | 33.23498 |
| Observations | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |

Source: Field Survey Data, 2024

Table 1 shows that Employee Value Added (EMVA) has a mean score of 3.57; this implies that the average score of EMVA in this domain is 3.57. EMVA has a standard deviation of 1.396, showing that the deviation from the mean

is quite high hence; the data are clustered around the mean. The minimum value of EMVA for the petroleum firm was recorded in 2017 where the value is 0.92 and a maximum value of 5.33 was recorded in 2017. This statistics reveals that

the level of deviation of the minimum from the maximum value is high. Thus, indicating much disparity in Employee Value Added (EMVA) for different years. Furthermore, Employee Salaries and Wages (EMSW) has a mean score of 1.8038, which implies that the average employee salaries and wages of petroleum firms is 1.8038. It further shows that employee salaries and wages had a standard deviation of 0.144369, indicating a high deviation from the expected mean. This implies that the data is clustered around the mean. The result also shows a minimum value of 1.42 and a maximum value of 2.08. This explains a high level of difference in the employee salaries and wages across the specified years. Share options granted to employees (SOG) of petroleum firms had an average score of 0.476471 and a standard deviation of 0.248534. This implies that there is a high difference in SOGE across different years under this study. This is also evidenced in the result which shows a minimum value of 0.01 and a maximum value of 0.79. Table 1 further reveals that the mean value of employee welfare and training (EMWT) is 3.896133 with the value of standard deviation 1.981390 showing that the deviation from the mean is quite low hence; the data are clustered below the mean. The result also shows that EMWT has a minimum value and a maximum value of 2.08 and 7.837683 respectively. The maximum value of EMWT indicates reasonable commitment of petroleum firms to employee welfare and training. The average value for number of employees (NEMS) is 3.353529 with a standard deviation of 1.033863. Therefore, there exists very significance variation among the values of NEMS across the period under study. The minimum value is 1.81 while the maximum value is 4.88. The statistics reveal that the level of deviation of the minimum from the maximum value is

moderate. Thus, indicating a moderate disparity in the level of number of employees for different years. Employee benefits expense (EBEX) maintained the mean value of 3.941176 and the value of the standard deviation is 1.076759 which implied high variations among the paid out values of Employee benefits expense. The maximum and minimum values were 5.3 and 2.28 respectively. Retirement Benefit Compensation Obligations (RBCO) of petroleum firms had an average score of 2.036765 and a standard deviation of 2.730946. This implies that there is a high difference in RBCO across different years under this study as also evidenced in the result which shows a minimum value of 0.01 and a maximum value of 9.23. Claims payment on workmen compensation insurance (CPWC) maintained a mean score of 3.828456 and a standard deviation of 2.093791 indicating that the deviation from the mean is quite high hence; the data are clustered around the mean. The minimum value of CPWC for the petroleum firm is 2.075546 and a maximum value of 9.127323 was recorded in 2017. This statistics reveals that the level of deviation of the minimum from the maximum value is high. Thus, indicating much disparity in Claims payment on workmen compensation insurance (CPWC) for different years.

4.2. Multi-collinearity Test

Furthermore, the researcher conducted VIF (Variance Inflation Factor) post- estimated test analysis for the whole models after regression analysis. The VIF result extracted from Table 2 indicated that both the centered and uncentered VIF values were below the cut-off value of 10 which signified no collinearity problem.

Table 2: Variance Inflation Factors

| Variance Inflation Factors | | | |
|----------------------------|----------------------|----------------|--------------|
| Date: 03/31/24 Time: 09:15 | | | |
| Sample: 2015 2023 | | | |
| Included observations: 81 | | | |
| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
| C | 4.901983 | 2.953834 | NA |
| LOG(CPWC) | 4.018323 | 4.050889 | 0.249098 |
| LOG(EBEX) | 5.990052 | 4.743831 | 2.913656 |
| LOG(RBCO) | 5.771159 | 2.454467 | 2.769765 |
| LOG(EMSW) | 2.707513 | 2.336527 | 2.238755 |
| LOG(SOGE) | 1.622843 | 3.954188 | 3.201908 |
| LOG(EMWT) | 2.884059 | 2.787964 | 2.407556 |
| LOG(NEMS) | 3.604431 | 4.850554 | 2.500097 |

Source: Field Survey Data, 2024

4.3. Research Hypothesis Testing

In an attempt to test the hypothesis which states that there is no joint effect of employer’s liability insurance claims payment, employee benefits expenses, retirement benefit

compensation obligation on Employee Value Added in the Nigerian petroleum industry, pooled least square regression analysis was carried out and the results presented in Table 3.

Table 3: Pooled Least Squares Regression Result

| Dependent Variable: LOG(EMVA) | | | | |
|--|-------------|------------|-------------|-------|
| Method: Pooled Least Squares | | | | |
| Date: 03/31/24 Time: 11:50 | | | | |
| Sample: 2015 2023 | | | | |
| Included observations: 27 | | | | |
| Cross-sections included: 3 | | | | |
| Total pool (balanced) observations: 81 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |

| | | | | |
|--------------------|-----------|-----------------------|-----------|-----------|
| C | 1.632069 | 0.114429 | 14.26277 | 0.0000 |
| LOG(CPWC) | 35.44501 | 2.913494 | 12.16581 | 0.0000 |
| LOG(EBEX) | -1.513959 | 0.130257 | -11.62290 | 0.0000 |
| LOG(RBCO) | 0.377742 | 0.072411 | 5.216648 | 0.0000 |
| LOG(EMSW) | -0.523471 | 0.086545 | -6.048526 | 0.0000 |
| LOG(SOGE) | -2.128896 | 0.187066 | -11.38043 | 0.0000 |
| LOG(EMWT) | 0.278585 | 0.073665 | 3.781761 | 0.0002 |
| LOG(NEMS) | 0.041054 | 0.013826 | 2.969333 | 0.0003 |
| R-squared | 0.514515 | Mean dependent var | | -2.800524 |
| Adjusted R-squared | 0.492648 | S.D. dependent var | | 1.064078 |
| S.E. of regression | 0.803756 | Akaike info criterion | | 2.414030 |
| Sum squared resid | 290.7110 | Schwarz criterion | | 2.468273 |
| Log likelihood | -321.2515 | Hannan-Quinn criter. | | 2.435397 |
| F-statistic | 69.49206 | | | |
| Prob(F-statistic) | 0.000000 | | | |
| Durbin-Watson stat | 2.213428 | | | |

Source: Eviews Outputs, 2024

Since the calculated p-values were less than the p-value of 0.05, the researcher rejects the null hypothesis and the finding was that there is a joint effect of employer's liability insurance claims payment, employee benefits expenses, retirement benefit compensation obligation on Employee Value Added in the Nigerian petroleum industry.

4.4. Discussion of the Findings

A regression coefficient of 1.632069 implies that there is a positive effect of employer's liability insurance claims payment, employee benefits expenses, retirement benefit compensation obligation on Employee Value Added in the Nigerian petroleum industry. The coefficient of determination (R^2) was 0.515 which implies that about 51.5% variations in employee value added were caused by employer's liability insurance claims payment, employee benefits expenses, retirement benefit compensation obligation while the remaining 48.5% were due to other variables outside the regression model which also affects employee value added. The calculated p-values were less than the p-value of 0.05, the finding was that there is a positive and significant joint effect of employer's liability insurance claims payment, employee benefits expenses, retirement benefit compensation obligation on Employee Value Added in the Nigerian petroleum industry. The F-statistic of 69.49 indicated that the model has a good fit. The Durbin-Watson Statistic of 2.213 indicated that the errors are positively autocorrelated. This finding corroborates the finding of Hameed, *et al* (2014) that Workmen Compensation has positive impact on employee performance.

5. Conclusion and Recommendations

The paper has examined the effect employer's liability insurance on Employee Value Added in the Nigerian petroleum industry. The finding revealed that there is a joint effect of employer's liability insurance claims payment, employee benefits expenses, retirement benefit compensation obligation on Employee Value Added in the Nigerian petroleum industry. Employer's liability insurance provides benefits to workers and their dependants when a worker suffers an occupational injury or disease. Employer's liability insurance is a social insurance program that provides covered workers with protection against work-related disability and death. Employer's liability insurance provides benefits for the cost of medical care and income to workers and their dependants when a worker is disabled or killed as a result of a work-related injury or

occupational disease. The employer's liability compensation system is based on the Acts that exist in Nigeria, which require covered employers to provide benefits specified by the law to covered workers and their dependants. In Nigeria, the latest Act is the Employees' Compensation Act of 2010 that repealed Workmen Compensation Act of 2004. The workmen compensation laws established the employer's liability in cases of work-related injury. Employers, exposed to this peril of liability losses, purchase insurance to cover their exposure. Based on the finding, it is concluded that employer's liability insurance has significant effect on employee's value added in Nigeria petroleum industry (2015-2023)

Employer's liability insurance scheme should be properly funded, managed and sustained for more employee value added in the Nigerian petroleum industry. There is need for petroleum companies to increase share options granted to employees to complement employer's liability insurance for more performance. There is need to increase the number of employees in the petroleum industry to enhanced employee value added. Fair and prompt claims payment on employer's liability insurance should be given a priority to motivate and enhance the employees value added. Employee welfare and training should be prioritized by the employers in the Nigerian petroleum industry. Safety culture amongst workers should be prioritized at work and inculcated to reduce exposure to work hazards. Future research may be carried out on occupational health and safety in the petroleum industry in Nigeria.

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