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FUEL SUBSIDY REMOVAL AS A CORRELATE OF SUSTAINABLE ORGANIZATIONAL AGILITY IN OWERRI-BASED HEALTH FACILITIES

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ABSTRACT

The removal of fuel subsidy in Nigeria on May 29, 2023 is one action that challenges organizations to show their adaptability skills to corporate external environmental forces. A lot of research gaps have also been observed in the removal of the fuel subsidy in the country. The objectives of the study therefore, are to examine the relationship between fuel subsidy removal and green innovation (use of solar panels); and evaluate the level of correlation between fuel subsidy removal and Liquefied Petroleum Gas(LPG) conversion in Owerri-based health facilities. The research employs the survey research design. The study employs the Economic Theory of Subsidies and Welfare for the theoretical framework. A structured questionnaire was the major instrument for data collection. The study uses Cronbach Alpha statistic for obtaining 0.86 as the reliability ratio of the survey instrument. The research commits data analysis to descriptive statistics of mean and standard deviation and it employs correlation analysis for testing hypotheses. The findings show that there is a significant relationship between fuel subsidy removal and green innovation (use of solar panels); and there is significant level of correlation between fuel subsidy removal and Liquefied Petroleum Gas(LPG) conversion in health facilities at Owerri. The study concludes that fuel subsidy removal is a correlate of sustainable organizational agility in Owerri-based health facilities and organizations that desire sustainability and agility embrace divergent thinking always. The study recommends that the management of the various health facilities in Owerri should not see the removal of fuel subsidy as a punishment or anti-economic policy but an opportunity to be innovative with renewable and sustainable energy options. Also, management of health facilities should leverage on the fuel subsidy removal to create energy-based partnerships for seamless growth and stability in medical operations.

KEYWORDS: Fuel subsidy removal, green innovation, Solar panels, LPG Conversion.

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INTRODUCTION

Background of the Study

May 29, 2023 remains a very remarkable day to Nigerians as it marks not only the day Former President M. Buhari handed over power to President Bola Ahmed Tinubu but a day Nigeria experienced a landmark fuel subsidy regime which changed the story line on economic realities in Nigeria while creating the room for corporate entities to show their skills in sustaining organizational agility with sustainable response behaviours. The removal of fuel subsidy in Nigeria unarguably remains one of the most current matters arising in the Nigerian economic environment.

Ideally, fuel subsidy represents a financial assistance which the government provides for the reduction of fuel cost for the consumers so as to keep fuel prices lower and make fuel more affordable to the general population. This is the view of Akinnibi (2023). The Nigerian Economic Summit Group (2023) opines that the target of fuel subsidy in Nigeria is to reduce the fuel cost hence financial assistance is directly given to oil enterprises so as to lower the cost of fuel for the citizens.

Akinnibi (2023) asserts that removal of fuel subsidy implies bringing to an end, the financial assistance which government gives for fuel and such leads to the rising of prices to market levels. Usigbe (2023) opines that the Tinubu administration maintains that bringing the subsidy to an end is a way of encouraging climate action and investments in energy. He quotes President Tinubu as asserting thus: "the fuel subsidy is gone The subsidy can no longer justify its ever-increasing costs in the wake of drying resources. We shall instead re-channel the funds into better investment in public infrastructure, education, healthcare and jobs that will materially improve the lives of millions".

The removal of fuel subsidy in Nigeria appears to be a laudable step for economic rediscovery. Adeleke (2023) reveals that in the year 2021, the government of Nigeria, via the Nigerian National Petroleum Corporation (NNPC), parted with 1.77 trillion naira on fuel subsidies. This represents a four hundred and seventy-seven percent increase from the three hundred and seven billion naira the government had spent in 2015 on fuel subsidies. But in 2022, 4.39 trillion naira was spent by the NNPC on fuel subsidies. The sum represents more than twenty-four percent of the nation's aggregate expenditure. It is however worrisome that the same country spent, in 2022, 4.95 trillion naira only on capital projects. This accounts for the reason why the World Bank maintains that Nigeria must increase its borrowing, raise additional revenue elsewhere or reduce spending on other public goods and services if she must maintain fuel subsidies. This can only hinder economic growth and reduce the strength of Nigeria's fiscal accounts (Adeleke, 2023).

Fuel subsidy removal may be a boost to organizational agility in health facilities. Rithum (2023) describes organizational agility as an organization's ability to respond quickly to market changes. It requires foresight, preparedness and flexibility. Anderson (2023) refers to organizational agility as the ability of an organization to adapt to changes of external and internal nature; the ability of an entity to satisfy customers in terms of meeting their demands and their expectations; the ability of a going concern to take the lead in improving culture, practices and outcomes; and the ability of an organization to continuously have competitive advantage. In the context of this study, organizational agility is the ability of health facilities to embrace green innovation (use of solar panels) and Liquefied Petroleum Gas (LPG) conversion as a response behavior to the May 29, 2023 fuel subsidy removal by His Excellency, President Ahmed Tinubu. Ashok (2024) in (Njoku, Udo-Orji and Adioha, 2024) describes solar energy as radiation from the sun which has the capacity to produce heat, leading to chemical reactions and generates electricity. The aggregate amount of solar energy incident in the world is quite in excess of the global present and anticipated energy needs. If prudently harnessed, solar energy, a very

seriously diffused source, has the ability to take care of all future energy needs. In the 21st Century, this source of energy could become expansively attractive as a renewable energy source over its unending supply as well as its zero pollution characteristic as against finite fossil fuels, coal, natural gas and petroleum. Collins and Mack (2023) reveal that solar energy exposes people to savings in their energy bills; it makes offices and home self-reliant and independent from the electric grid; it avails enterprises of the opportunity to have cleaner energy source; and the installation of solar panels increases the value of business houses.

Also, Edge (2020) maintains that LPG is a natural by-product of oil extraction and refinery, technically classifying it as a fossil fuel. It can come in the forms of propane or butane. These two forms are often found in items at home like lighters and camping stoves. LPG is in liquid form. It is always purchased from petrol filling stations and it can be even in gas bottles. One can even use a large tank for heating or using as fuel for a generator. LPG conversion is the process of taking a petrol engine and converting it so that it runs using LPG. LPG costs less per litre than petrol and diesel; it is a cleaner fuel and therefore better for the environment; and it can operate as a dual fuel engine.

This study on fuel subsidy removal as a correlate of organizational agility in Owerri-Based health facilities is an empirical effort to unravel the response behavior of the health facilities to the May 29, 2023 removal of the fuel subsidy especially as it relates to the ability of the organizations to resort to green innovation (use of solar panels) and LPG conversion. This is with a view to ascertaining the capacity of the health facilities to remain seamlessly in operations despite the fuel subsidy removal. This way, their adaptability to changes may be empirically ascertained.

Statement of the Problem

The researchers have observed that managements of many health facilities are yet to demonstrate their agility over the removal of fuel subsidy by the Federal Government of Nigeria. Most of the health facilities especially those in Owerri have been observed to have done little or nothing to adapt to the fuel subsidy removal for corporate survival and sustainability.

It is therefore disturbing that many organizations are yet to embrace green innovation and LPG conversion to remain agile in operations. Also, empirical studies assessed by the researchers on fuel subsidy removal in Nigeria did not show how fuel subsidy removal correlated with green innovation and LPG conversion in health facilities in Owerri. This shows that a wide research gap exists. The research gap constitutes the major problem of this study.

Objectives of the Study

The major objective of this study is to assess fuel subsidy removal as a correlate of organizational agility in Owerri-Based health facilities. The specific objectives include to:

i) examine the relationship between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities.
ii) evaluate the level of correlation between fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities.

Research Questions

In alignment with the objectives of the study, the researcher developed the following research questions:

i) What is the relationship between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities?
ii) What is the level of correlation between fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities?

Hypotheses

In other to answer the research questions, the researcher posed the following set null hypotheses:

Ho_1: There is no significant relationship between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities.

Ho_2: There is no significant level of correlation between fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities.

Scope of the Study

The geographical scope of the study is Owerri Municipal, Imo State. For the content scope, the study concentrates on the relationship between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities; fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities. The unit scope comprises of the Chief Executives and other workers in the health-based facilities.

REVIEW OF RELATED LITERATURE

This consists of conceptual, theoretical and empirical literatures. The section also consists of the gap identified in literature.

Conceptual Framework

Fuel Subsidy Removal in Nigeria

Onyeiwu (2024) opines that the removal of the fuel subsidy came to Nigerians as a surprise because of the economic and political implications of such decision. Onyeiwu (2024) sees fuel subsidy as unfriendly to the economy of Nigeria but asserts that the removal of the subsidy should have been gradual so as to reduce the harsh economic effects of the sudden removal of fuel subsidy in Nigeria.

Layade (2023) reveals that Nigeria never gained from oil price surge because of low output in oil and the spike in expenses over fuel subsidy. The removal of fuel subsidy comes with opportunities and challenges. There is surge in fuel costs upto the tune of 150 to 200%. Simpson, Steadman, Tindall, Tan, Emenekwe, Okereke and Onyeneke (2024) opine that fuel subsidies drain government finances by increasing fiscal deficits; they contribute to climate change, air pollution and congestion while discouraging the adoption of cleaner renewable energies and reduce the money that ought to have been used for investing in other areas. It also, in a very disproportionate manner, benefit citizens who are wealthier because they consume more fuel. Usigbe (2023) opines that the president's removal of subsidy has driven up the overall cost of living in Nigeria. Anichukwueze

(2024) reveals that the fuel subsidy was removed by the President to prevent the nation from degenerating to bankruptcy.

Green innovation (Use of Solar Panel)

Olalando (2023) maintains that solar panels convert sunlight into electricity through photovoltaic cells. Solar panels provide clean, reliable and affordable energy.

Green City Times (2024) maintains that solar panels is a source of renewable energy as it never runs out; it encourages long term savings on electricity bill; it attracts tax incentives from government; it enhances less reliance on the utility grid; it increases the value for landed assets like houses; it has a very long span.

Solar panels, by definition, are those devices designed to absorb the rays of the sun while converting same to heat or electricity. It is indeed, a collection of solar or photovoltaic used for the generation of electricity via photovoltaic effect. In fact, it is in a grid-like pattern that the cells are arranged on the panels' surface. One can also explain a solar panel to be a set of photovoltaic modules which is mounted on a structure that supports it. it is important to state further that a photovoltaic module is a packaged and connected assembly of 6 x 10 solar cells. It is characterized by wearing out very slowly hence in a period of twelve months, a panel's effectiveness only decreases about 1 to 2 percent or even less than that. Most of the panels are composed of crystalline silicon solar cells (Njoku, Udo-Orji and Adioha, 2024).

The very act of installing solar panels in offices is a tool for fighting lethal emissions of greenhouse gases and indeed it helps in reducing global warming. The solar panels never allow for pollution of any kind and they are very clean. The panels reduce the rate at which human rely on fossil fuels and traditional or conventional sources of power. Thought expansive, solar panels are fixed outdoors since they require sunlight to get charged(economictimes.com) in (Njoku, Udo-Orji and Adioha, 2024).

Liquefied Natural Gas (LNG) Conversion

Liquefied Natural Gas is natural gas which from its gaseous state, has been turned into liquid form for seamless storage and safe transportation. It engenders economic growth, tax revenue growth; convenience in delivering natural gas to areas where there is supply shortage; cheap transportation; easy conversion and regasification; greener environment; flexible distribution; reduction in noise pollution and employment (tankfarmnigeria.com). Eikens (2021) opines that natural gas is resilient in comparison with coal and oil.

2.2 Theoretical Literature

The researcher used the following theory to show the relevance of this study:

Economic Theory of Subsidies and Welfare

The theory was propounded by Arthur Cecil Pigou in his work "The Economics of Welfare". Pigou was an Economist of British extraction. His work was published in the year 1920. The work dwells extensively on the impact subsidies have on the dynamics of the market as well as the general societal welfare. The theory holds that despite the merits of subsidies including making things affordable for the consumers, it has demerits like distortions and inefficiencies within the market. The examination of the repercussions of subsidy removal makes researchers to thoroughly evaluate alterations in the market prices, allocation of resources as well as consumer behavior. As an example, sequel to the removal of subsidies, there are likely shifts in consumer expenditure

patterns following the adaptation of households to the prices that are increased especially in essential sectors such as fuel (Ali et al, 2024).

Again, the theory emphasizes the relevance of evaluating the trade-offs related with subsidy reforms whereas subsidies may bring short-term gains like reduction of costs for the consumers even as they can give the government financial burden and become a barrier to efficiently allocating resources. In fact, policymakers target the endorsement of market efficiency while mitigating distortions by way of not continuing with subsidies. This is despite the fact that the policymakers must consider the negative effects on vulnerable populations as well as concerns which relate to equity (Ali et al, 2024).

Empirical Review

The following empirical studies were used to boost the study:

Ali, Ahmad and Jibrilla (2024) did a study on 'assessing the long-term socio-economic impact of fuel subsidy removal on households' living standards in Adamawa State, Nigeria: An empirical analysis. The study was conducted with the objective of evaluating the long term socio-economic impact after fuel subsidy removal. The survey research design was adopted in the study. The Pigou Economic Theory of Subsidies and Welfare theory was used in the study. Data analysis was committed to descriptive statistics of mean, frequency distribution and standard deviation. It was found that employment status, income prospects, entrepreneurial opportunities, education, skill development and lifestyle changes were affected by the removal of the subsidy in the long term. Their study concludes that there is long term socio-economic impact of fuel subsidy removal on household living standards in Adamawa State, Nigeria. It was recommended that the government should target the Social Safety Net (SSN), such as cash transfers of fund subsidies to assist vulnerable households.

Okorie and Wesseh (2024) investigated 'fossil fuel subsidy removal, economic welfare and environmental quality under alternative policy schemes'. The objective of the study was to examine the economic and environmental impacts of fossil fuel subsidy removal. The ex post facto research design was used in the study. The study employs the African Energy and Environment Integrated Computable General Equilibrium (AEEICGE) Model, Version 2.0 as well as percentages for analysis. It was found that fuel subsidy removal improves environmental quality but negatively affects the economic well-being of the economic agents while increasing overall prices. The removal of the fuel subsidy resulted in an overall welfare loss for the Nigerian economy.

Idrees, Rabi, and Nura (2024) examined 'implications of fuel subsidy removal on Nigeria's sustainable development. The objective of the study was to investigate the ramifications of removal of fuel subsidies and their possible role in encouraging sustainable development. Exploratory research design was adopted as secondary data were analyzed using qualitative content analysis. It was discovered that fuel subsidy removal has direct economic consequences namely inflationary pressures, fiscal sustainability, debt reduction, increased poverty and vulnerability, protests and social unrest. Their study recommends that government should ensure there is transparency and accountability in the management of funds saved from subsidy removal while tackling widespread hunger, unemployment and declining living standard.

Abdulyakeen and Mumuni (2024) investigated the 'challenges of fuel subsidy removal on the Nigerian economy: A study of Gombe State. It was a survey research. Descriptive statistics of percentages and frequency distribution were used for data analysis. It was found that the fuel subsidy removal raised prices for petroleum products, hurt economic growth and decreased household income while making businesses less competitive. It decreased economic welfare and increased inflation. Gombe citizens have a bad opinion of the fuel subsidy removal. It was concluded that rural residents' living situations were negatively impacted by the fuel subsidy

removal policy. It was recommended among others that the policy should be executed in a sincere manner to avoid public rejection of well-intended government policies.

Ejime (2024) investigated 'the microeconomic and macroeconomic implications of fuel subsidy removal in Nigeria'. The objective of the study was to analyze the microeconomic and macroeconomic implications of fuel subsidy removal in Nigeria. Desk review method with discourse analysis methodology was adopted. It was found that the microeconomic implications of fuel subsidy removal in Nigeria include the freeing up of resources for other sectors of the economy; availability of petroleum product, reduction of smuggling and associated security risk, equitable resources for individuals, households and firms. On the other hand, it has adverse microeconomic effects like high cost of living and perceived public protest. For macroeconomic implications, it minimizes government borrowing, improves the local currency and reduces imported inflation; it boosts sovereign credit rating; it influences the African Continental Free Trade Area (AfCFTA) to export to other African countries; it leads to increased players in the downstream sector. On the other hand, the saved funds may not be used to develop critical infrastructure, education and healthcare because of issues of corruption. It leads to rising inflation; it boosts high unemployment rate and poverty margin. The study concluded that the 2023 fuel subsidy removal offers opportunity to Nigeria to take a more fiscally responsible approach to managing its resources. It was recommended that there should be effective palliatives and promotion of the use of alternative energy sources; increment in minimum wage and provision of foreign exchange to importers of petroleum products.

Njoku, Udo-Orji and Adioha (2024) examined green innovation as a predictor of stakeholders' satisfaction in Deposit Money Banks in Owerri. The objectives of the study are to examine the relationship between use of solar panels(USP) and employee satisfaction; evaluate the level of correlation between use of solar panels(USP) and customer satisfaction; assess the extent to which eco-friendly business conferences(EBC) influences employee satisfaction and determine the level of correlation between eco-friendly business conferences(EBC) and customer satisfaction. It was a survey research. The research commits data analysis to descriptive statistics of mean and standard deviation and employs correlation analysis for testing hypotheses. The findings show that there is a significant relationship between use of solar panels(USP) and employee satisfaction; there is significant level of correlation between use of solar panels(USP) and customer satisfaction; it is to a great extent that eco-friendly business conferences(ESC) influences employee satisfaction and there is significant level of correlation between eco-friendly business conferences(ESC) and customer satisfaction. The study concludes that green innovation predicts stakeholders' satisfaction in Deposit Money Banks in Owerri. The study recommends that management of Deposit Money Banks should always use solar panels to eliminate severe noise pollution for greater stakeholders' satisfaction.

Njoku, Udo-Orji and Anyanwu (2024) assess green management and organizational outcomes in hospitality firms in Mbaise. The objectives of the study were to evaluate the level of correlation between pollution control and market share; assess the level of correlation between pollution control and employee retention; examine the level of correlation between waste management and market share; and to determine the relationship between waste management and employee retention in hospitality enterprises in Mbaise. The research adopts the survey research design. To analyze data, descriptive statistics was used. The study uses Spearman Product Moment correlation analysis to test hypotheses. The paper reveals that pollution control and market share; pollution control and employee retention; waste management and market share; waste management and employee retention in hospitality enterprises in Mbaise, have positive and significant relationships. The study concludes that green management improves organizational outcomes in hospitality enterprises in Mbaise. The researchers recommend that management of hospitality firms should make more efforts to control all forms of pollution in the enterprises for improved market share and employee retention. Waste to wealth strategy should be employed

by hospitality firms for improved organizational outcomes. Hospitality firms in Mbaise should always seriously embrace green management.

Njoku, Onuegbu and Ugo (2024) investigated solar power and eco-friendly conferences as correlates of air and land pollution in listed beverage firms in Imo and Abia States. The objectives of the study were to examine the relationship between use of solar panels and reduced air pollution as well as assess the extent to which eco-friendly business conferences influence the reduction of air pollution and land pollution in the listed beverage firms. The researchers employed the survey research design in the research. Data analysis was committed to descriptive statistics. Correlation analysis was used to test hypotheses. The study finds that there is a positive and significant relationship between: use of solar panels and reduced air pollution; use of eco-friendly business conferences and reduction of air pollution; and use of eco-friendly business conferences and reduced land pollution in the listed firms. It was concluded that solar power and eco-friendly business conferences are correlates of air and land pollution in listed beverage firms in Imo and Abia States. The study recommends among others that management should make more efforts to expand the use of solar energy so as to reduce air pollution for business premises preservation.

Muktar (2023) investigated fuel subsidy removal and the Nigerian economy: A systematic review. A desk research (extant literature) approach was adopted. The study was conducted to find the implications of the fuel subsidy removal policy on the Nigerian economy. It was found that the policy undermines households' welfare through the erosion of real income. It reduces aggregate demand while increasing the cost of production. It has positive effect on revenue savings and environment. It has the capacity to cause recession, cripple business and compound poverty in Nigeria. It can lead to 'green paradox' – a situation whereby environmentally unfriendly activities would be pursued example failing of trees for firewood as alternative energy source. the study concludes that the low and middle income classes are worst hit by the policy. The study suggests the pursuit of the fuel subsidy reform with caution while ensuring that adequate compensation schemes are developed.

Su, Bei-Bei, Shan, Xu and Jin-Long (2023) did an empirical analysis of green finance and high-quality economic development in the Yangtze River Delta based on VAR and coupling coordination model. It was an ex post facto study. VAR, gray correlation method and gray prediction method were used for data analysis. It was found that green finance has short-term mutual promotion effects with high-quality economic development. It was recommended that more professionals need to be involved in green finance innovation.

Li, Wang and Nutakor (2023) did an empirical research on the influence of corporate digitalization on green innovation. They used ex post facto research design. Resource-based theory was employed. Regression analysis was used for data analysis. It was found that corporate digitalization improved green innovation by improving human capital. It was concluded that enterprises that boost their digital strategies do better in green innovation. It was recommended that organizations need to encourage green innovation for sustainable business development.

Elshaer, Azazz and Fayyad (2023) evaluated green management and sustainable performance of small and medium-sized hospitality businesses: moderating the role of an employee's pro-environmental behavior. It was a survey research. The study used the Smart PLS-structural equation modelling technique to analyze data. It was found that green management improved environmental, economic and social performance of businesses. It was recommended that enterprises should concentrate on creating the culture of environmental stewardships and involvement in green initiatives for improved sustainable corporate outcomes.

Goni, Binti, Isa and Abdullah (2023) investigated green innovations and environmental performance of hotels in Kano, Nigeria: moderating role of green transformational leadership. It was a survey research. PLS-SEM was used for data analysis. It was found that green innovation positively and significantly influenced environmental

performance of Kano-based hotels. The study concludes that green innovations affect environmental performance. It was recommended that management should use facilities that do not expose the environment to pollutions.

Soyeye, Makinde and Akinlabi (2023) examined green supply chain management and organizational performance of fast moving consumer goods firms in Lagos Nigeria. It was a survey research. Data analysis was committed to multiple regressions, Cronbach Alpha and descriptive statistics. It was found that green supply chain management had positive and significant effect on the performance of fast-moving consumer goods companies in Lagos.

Si and Tiwari (2023) did a study on understanding the green procurement behavior of household appliance manufacturing industry: an empirical study of the enablers. It is a survey research. Data analysis was committed to Structural Equation Model(SEM). The findings show that exogenous driving powers are more inclined to encourage household appliance manufacturers to perform green procurement strategy compared with endogenous factors. Business strategy, governmental regulations and customer awareness show greater influence on green purchasing behavior unlike the little impact of corporate culture, production system and suppliers. Taxation policies, environmental awareness and green strategies are the key driving forces for promoting green procurement from the government, individual and organizational dimensions.

Gap Identified in Literature

The gap identified in literature is that, based on studies the researcher was able to access, empirical studies were not conducted on the relationships in the conceptual model as can be seen in conceptual model of the study. The relationships include: fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities; fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities. This present study bridges the gaps.

Methodology

The researchers used the survey research design in the study. The population of the study was made up of the Chief Executives and other management staff of 12 health facilities in Owerri. The total population of the study was 153. The researcher used the Taro Yamen's formula for sample size determination to obtain a sample size of 111 for the study. Accordingly, 111 copies of the questionnaire were administered to respondents in the study health facilities. The sources of data included the primary and secondary sources. While the questionnaire was the major instrument of data collection used for the study as a primary data tool, the researchers relied on texts, journals and internet sources for secondary data. The validity of the instrument was done by showing the instrument to research experts for their inputs and by ensuring that the study focused on the research questions. The reliability ratio of the instrument was done with the use of pilot study whose results were committed to Cronbach alpha statistic. A ratio of 0.86 was obtained. The instrument was therefore 86% reliable. The study employed the descriptive statistics of mean and standard deviation for data analysis. Spearman Product Moment Correlation analysis was used to test hypotheses. The rejection of null hypothesis was based on $P<0.05$.

Data Presentation & Analysis/Discussion of results

Out of the 111 questionnaire copies distributed to the respondents, only 90 copies were properly filled and returned. This means 81.1% return.

Research Question 1:

What is the relationship between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities?

Table 1: Respondents' responses on the level of correlation between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities.

Q/No	Item	SA	A	UN	D	SD	N	Mean	Std. Dev.
1	Fuel subsidy removal encourages management of health facilities to go for solar panels.	42	29	8	5	6	90	4.07	0.733
2	Solar panels are only expensive in the short run but sustainably benefits the health-facilities in the long run compared with the cost of fuel.	39	26	10	8	7	90	3.91	0.746

Field Survey (2024)

The Table 1 above presents data from responses by the respondents under study. The result also disclosed a strong agreement by the respondents on their opinion on the level of correlation between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities. The results further shows that the respondents agreed to the facts that: fuel subsidy removal encourages management of health facilities to go for solar panels ($\bar{\bar{x}} \pm$ S. D of 4.07 ± 0.733); solar panels are only expensive in the short run but sustainably benefits the health-facilities in the long run compared with the cost of fuel (with a $\bar{\bar{x}} \pm$ S. D of 3.91 ± 0.756).

Research Question 2:

What is the level of correlation between fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities?

Table 2: Respondents' responses on the level of correlation between fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities.

Q/No.	Item	SA	A	UN	D	SD	N	Mean	Std. Dev.
3	Fuel subsidy removal makes it more feasible for health facilities to embrace Liquefied Petroleum Gas (LPG) conversion.	41	30	9	6	4	90	4.09	0.827
4	Management considers Liquefied Petroleum Gas (LPG) conversion as	33	22	21	10	4	90	3.78	0.805

	more efficient in the new fuel regime.								

Field Survey (2024)

The Table 2 above presents data from responses by respondents on the level of correlation between fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities. The results show that majority of the respondents affirmed to the statements. There is a high level agreement by the respondents on the opinion that fuel subsidy removal makes it more feasible for health facilities to embrace Liquefied Petroleum Gas (LPG) conversion as the result accounted for a mean of 4.09 and a standard deviation of 0.827. The result has indicated that the majority of the respondents agreed to the item statement that management considers Liquefied Petroleum Gas (LPG) conversion as more efficient in the new fuel regime (with a $\bar{x} \pm \text{S.D}$ of 3.78 ± 0.805).

Testing of Hypotheses

Ho_1: There is no significant relationship between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities.

Table 3: Correlation analysis between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities.

Item	Mean	Standard Deviation	Correlation Coefficient	P-value
Fuel subsidy removal	4.07	0.733	0.871	0.001
Green innovation (use of solar panels)	3.91	0.756		

SPSS Correlation Analysis Output (2024).

The result on Table 3 presents the correlation analysis between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities. The result shows a p-value of 0.001 and correlation coefficient of 0.871. The result shows a p-value less than 0.05 being the level of significance; therefore, rejecting the null hypothesis and accepting the alternative hypothesis. Therefore, the correlation coefficient between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities is statistically significant. Therefore, there is a significant relationship between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities.

Ho_2: There is no significant level of correlation between fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities.

Table 4: Correlation analysis between fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities.

Item	Mean	Standard Deviation	Correlation Coefficient	P-value
Fuel subsidy removal	4.09	0.827	0.791	0.001
Liquefied Petroleum Gas (LPG) conversion	3.78	0.805		

SPSS Correlation Analysis Output (2024).

The result on Table 4 presents the correlation analysis on the relationship between fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities. The result shows a p-value of 0.001 and correlation coefficient of 0.791. The result shows a $p - value \leq 0.05$ level of significance, thereby rejecting the null hypothesis and accepting the alternative which states that there is a significant level of correlation between fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities.

Findings

After the data analysis, the study found that:

1. There is a significant relationship between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities.
2. There is a significant level of correlation between fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities.

Discussion of Findings

The fact that fuel subsidy removal encourages management of health facilities to go for solar panels as shown on Table 1 indicates that there is need for adaptability and adoption of critical turn-around strategies when organizations are confronted by uncontrollable factors in their external environment. This is despite the fact that solar panels are only expensive in the short run but sustainably benefits the health-facilities in the long run compared with the cost of fuel as the same Table 1 shows. The implication is that the fuel subsidy removal provokes strategic thinking in the organizations thereby creating room for green innovations. Njoku, Udo-Orji and Adioha (2024) examined green innovation as a predictor of stakeholders' satisfaction in Deposit Money Banks in Owerri. They found that there is a significant relationship between use of solar panels(USP) and employee satisfaction; there is significant level of correlation between use of solar panels(USP) and customer satisfaction. The study concludes that green innovation predicts stakeholders' satisfaction in Deposit Money Banks in Owerri. This agrees with the findings in this present study.

Given that fuel subsidy removal makes it more feasible for health facilities to embrace Liquefied Petroleum Gas (LPG) conversion as shown on Table 3 indicates that efficiency and environmental preservation are key achievements facilitated by the fuel subsidy removal. It is therefore not surprising that the Table 2

indicates that management considers Liquefied Petroleum Gas (LPG) conversion as more efficient in the new fuel regime. LPG is therefore very environmentally friendly as it exposes the environment to less pollutions. Njoku, Onuegbu and Ugo (2024) investigated solar power and eco-friendly conferences as correlates of air and land pollution in listed beverage firms in Imo and Abia States. The objectives of the study were to examine the relationship between use of solar panels and reduced air pollution as well as assess the extent to which eco-friendly business conferences influence the reduction of air pollution and land pollution in the listed beverage firms. It was a survey research. The study finds that there is a positive and significant relationship between: use of solar panels and reduced air pollution; use of eco-friendly business conferences and reduction of air pollution; and use of eco-friendly business conferences and reduced land pollution in the listed firms. It was concluded that solar power and eco-friendly business conferences are correlates of air and land pollution in listed beverage firms in Imo and Abia States. The finding in their study agrees with the findings in this present study.

Conclusion and Recommendations

Conclusion

This study concludes that fuel subsidy removal is a correlate of organizational agility in Owerri-Based health facilities and organizations that desire sustainability and agility embrace divergent thinking always. With fuel subsidy removal, health facilities in Owerri adopt the use of solar panels thereby using green innovation strategy as a response behavior to the new fuel regime in the country. Also, the removal of fuel subsidy by the President Tinubu-led Federal Government serves as a catalyst to the use of LPG conversion in the health facilities in Owerri. The study therefore submits that any health facility that relegates agility and indeed survival and sustainability patterns to the background over the removal of fuel subsidy by the Federal Government of Nigeria risks both poor accessibility to power supply for its operations and corporate collapse.

Recommendations

Based on the findings, the researcher made the following recommendations:

i. The management of the various health facilities in Owerri should not see the removal of fuel subsidy as a punishment or anti-economic policy but an opportunity to be innovative with renewable and sustainable energy options.
ii. Management of health facilities should leverage on the fuel subsidy removal to create energy-based partnerships for seamless growth and stability in medical operations.

Contribution to Knowledge

The researcher further infers that this study contributes to knowledge by providing empirical literature and by bridging research gaps on the relationships between fuel subsidy removal and green innovation (use of solar panels) in Owerri-Based health facilities; fuel subsidy removal and Liquefied Petroleum Gas (LPG) conversion in Owerri-Based health facilities. The study adds to the body of existing knowledge in the area of fuel subsidy regimes in Nigeria and in the area of organizational agility. Indeed, it provides the foremost empirical cum visible study on fuel subsidy removal as it relates to agility of health facilities in Owerri, Nigeria.

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