

e-ISSN:2582-7219



INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

IN SCIENCE, ENGINEERING AND TECHNOLOGY

Volume 7, Issue 9, September 2024



INTERNATIONAL STANDARD SERIAL NUMBER INDIA

6381 907 438

Impact Factor: 7.521

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International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

Performance Evaluation of Enugu State Manufacturing Sector in Relation to Fuel Subsidy Removal

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ABSTRACT: This study is focused on the performance evaluation of Enugu state manufacturing sector in connection to removal of fuel subsidy in Nigeria. The study employed a quantitative research design to gather insights from industrial enterprises in Enugu state. A sample size of 341managers and senior staffers from 2320 workers in 116 industrial enterprises in Enugu state was determined using the Yamane Taro method. The findings of the study show that the removal of fuel subsidy in Nigeria has caused a large disruption in the operating costs of manufacturing firms in Enugu state. This disruption is essentially as a result of the influence of the subsidy removal on essential elements such as raw material prices, transportation charges, energy costs, and overall operational expenditures. This finding was evident in the overall mean score of 4.42 on a scale of 5.00. Furthermore, the profitability of the enterprises suffered from the subsidy reduction. There was a record of diminished financial performance as evidenced by an overall mean of 4.81. In response, the surveyed firms were struggling to undertake various strategic measures. These measures include cost-cutting initiatives, enhancements in operational efficiency, exploration of alternative energy sources among others. These tactics have not been successfully consolidated as shown by an overall mean score of 3.41. Conclusively, the findings emphasize the far-reaching implications of fuel subsidy removal on both the operating costs and profitability of manufacturing enterprises in Enugu State. The study equally underlines the proactive endeavours of the study to adapt to these problems strategically. In light of these findings, it is proposed that enterprises accord primacy to the study of alternative energy solutions to ameliorating the harmful impacts brought forth by subsidy elimination.

I. INTRODUCTDION

"Fuel subsidy is gone!" This abrupt and short statement made by the President of Nigeria during his inaugural speech on May 29, 2023, ushered Nigeria into a new economic dispensation. Every economic debate ever since the statement was made centres around it because of the ripple effect it has on the Nigerian socio-economic setting. There is no doubt that the end of subsidy regime by the current Tinubu administration has produced a large amount of disruption in the economy of Nigeria [1]. No sooner had he made this statement than the market reacted in a dramatic manner, which led to a threefold spike in the price of petrol as well as subsequent increases in the pricing of other items. Prior to the declaration made by the president, the petroleum subsidy had been a sensitive subject in Nigeria, which had sparked intense debate and scrutiny [2]. These subsidies, which are intended to alleviate the burden of growing energy bills on consumers, have become a contentious issue because they provide respite in the short term while simultaneously straining the finances of the government despite their intended purpose.

Conceptually, subsidy is the amount of money that a government or organization pays to reduce the cost of a product. Thus, the concept of fuel subsidy in Nigeria dates back to 1977 with the passing of the Price Control Act, which propelled the federal government to start paying a percentage of the cost of petroleum products to make it affordable to



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Nigerians [3]. The importance of energy in any economy cannot be overemphasized, thus, the Nigerian government understands that Nigerians cannot prosper if they cannot meet their basic energy requirements. Moreover, Nigeria has been grappling with epileptic electric power supply which has overburdened the productive sector of the economy over the years. As most manufacturers, both small scale, medium-sized, and large scaled manufacturing firms produce their own energy off-grid, the cost of petroleum product has overwhelming impact on their performances. Ideally, a rise in the cost of petroleum product in Nigeria will have a more direct consequence than a similar rice in a different country with stable power supply. Against this background, fuel subsidy has remain a vital but contentious issue in the Nigerian economic setting.

Given this, the decision to remove fuel subsidy in Nigeria has been perceived by some quarters as a crucial decision that is in the interest of the development of the Nigerian economy [1]. Some scholars have maintained that this decision is necessary to strike a balance between the necessity to maintain low petrol prices and the promotion of sustainable economic growth. In view of this, the purpose of this study is to evaluate the performance of the manufacturing sector in Enugu state in relation to subsidy removal. Obviously, fuel subsidy is of great importance across a variety of sectors, particularly in the areas of transportation and service provision. Although fuel may not be directly engaged in the creation of commodities, it plays a key part in their distribution, consequently influencing their final production costs. In spite of the fact that Nigeria is in possession of four refineries that are owned by the government and have a combined capacity of 445,000 barrels per day, the country continues to rely significant amounts on refined petroleum products that are imported [4]. This reliance on imports has caused Nigeria to be the only member of OPEC that imports more refined fuel than it exports. The commissioning of the private Dangote refinery in 2023 was intended to reduce this need; however, it has failed to resume production, aggravating the problem.

The manufacturing sector in Enugu State confronts considerable issues because of its strong dependency on petroleum products for operations. Despite efforts by successive governments to improve production capacity, the sector continues to struggle [5]. However, the few manufacturing enterprises that do operate in the state play a key role in local industrialization, contributing to employment, innovation, and economic resilience. The decision to remove fuel subsidy has caused uncertainty within this industry, generating questions about its future trajectory. The importance of the manufacturing sector in any economy cannot be overemphasized. Interestedly, countries are often classified based on their manufacturing capacity, with those having advanced engineering and manufacturing capabilities labelled as developed countries, while those with moderate capabilities are considered developing countries, and those with limited capabilities are labelled as underdeveloped countries [6]. This classification underlines the role of manufacturing in global economic dynamics. As non-Western countries like Brazil, Russia, India, China and South Africa (BRICS) progress their technical and industrial capabilities, the world's political economy is changing away from conventional Western supremacy [7].

In view of the foregoing, there is presently an agreement among the Nigerian elites that Nigeria must move form consumption to production to support economic growth. An examination of industrialized economies of the World indicates that that no nation has ever developed beyond its manufacturing capabilities. Thus, the manufacturing sector is the engine of development of any nation or region [8]. However, the performance of the manufacturing sector depends largely on the enabling environment created by the government such as the affordability of production elements like energy. Against this backdrop, the Enugu state manufacturing sector can only survive within the framework of the Nigerian economy, which the unexpected discontinuation of the subsidy system has thrown into panic.

II. REVIEW OF RELATED LITERAURE

Umeji and Eleanya [9] conducted a study titled "Assessing the impact of fuel subsidy removal in Nigeria on the poor in the COVID-19 Era", where the authors investigated how removing fuel subsidies affected the poor in Nigeria during the COVID-19 pandemic. The authors used descriptive research design to examine this. The study found that removing subsidies led to higher transportation costs and increased prices of food and other goods for the poor. However, it also suggested that removing subsidies could benefit the overall economy by reallocating funds to improve infrastructure like healthcare, education, and transportation. This study related to the present research because both explored the



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effects of fuel subsidy removal on the Nigerian economy. While the present study focused specifically on the Enugu state manufacturing sector, the authors' findings emphasized the importance of the research by highlighting how subsidy removal affected vulnerable groups. This prompted an investigation into how the manufacturing sector adapted to decreased sales due to potential consumer constraints.

In a similar vein, Inegbedion, et al. [10] conducted a study titled "Petroleum subsidy withdrawal, fuel price hikes and the Nigerian economy" to examine the effects of partial fuel subsidy removal on the agricultural sector and the overall Nigerian economy. The authors collected secondary data from various sources such as the Central Bank of Nigeria Statistical Bulletins, Petroleum Product Price Regulatory Agency (PPPRA), National Bureau of Statistics, Benue State Agricultural and Rural Development Authority (BNARDA), and FAO. The study utilized the Johansen co-integration model and t-test for analysis. After ensuring data stationarity and conducting robustness checks, the study found that partial fuel subsidy removal had a significant positive impact on the country's GDP, leading to a reduction in the inflation rate. However, it also found that it reduced the life expectancy of Nigerians. Specifically, an increase in petrol price was associated with a 9.8% increase in GDP and resulted in a 0.75% and 1.50% increase in the prices of rice and maize, respectively. In conclusion, the study indicated that higher petrol prices had positive effects on GDP but negative effects on the prices of crop produce. The relevance of Inegbedion, et al.'s work to the present study lies in their shared focus on the impact of fuel subsidy removal on the productive sectors of the Nigerian economy. While their study focused on the agricultural sector, the present study examines the manufacturing sector.

Shagali and Yusuf [11] in their study titled "Political economy of fuel subsidy removal in Nigeria: Issues, Challenges and the Way Forward" employed qualitative literature review, utilizing political economy and public choice theories. The authors argued that the Federal Government's removal of fuel subsidy in 2012 violated the state's fiduciary responsibility as outlined in the preamble to the 1999 constitution. It was further asserted that this action demonstrated the government's insensitivity to the social concerns of the citizenry and labelled it as an attempt by the oil cabal to privatize Nigeria. The study concluded that unless the government bases its legitimacy on the support and obedience of the people derived from improved socio-economic performance, the country might face another democratic reversal. Aligbe and Momoh [1] conducted a study titled "Fuel subsidy removal and the political sagacity of the Tinubu administration: Implications and coping mechanisms," which examined the effects of fuel subsidy removal on the Nigerian poor and its overall benefits to the Nigerian economy using a descriptive research design method. The study observed that while the poor would bear the brunt of higher transport fares, increased cost of living, elevated business operation expenses, and heightened financial constraints, the removal of subsidies is deemed beneficial for the economy as a whole, as it allows funds to be redirected towards improving infrastructure, particularly in healthcare, education, and transportation sectors. The study's emphasis on the significant rise in transportation costs nationwide serves as a precursor to investigating how the manufacturing sector copes within its value chain. Hence, there exists a similarity between this study and the present study.

Yunusa [3] conducted a study titled "Fuel subsidy removal and poverty in Nigeria: A literature review" which examined the relationship between fuel subsidy removal and poverty in Nigeria. Using the theory of price elasticity of demand, the study aimed to explore the reasons behind fuel subsidy removal, its socio-economic implications, and proposed measures to mitigate its effects. Through content analysis, the study identified rationales such as private sector participation in petroleum product importation and ensuring petrol availability without queues as reasons for subsidy removal. However, it also highlighted negative impacts like increased cost of living, crime rates, and poverty levels. Similarly, the present study focuses on fuel subsidy removal in Nigeria, although there's a methodological gap between both studies.

A study titled "An examination of the benefits and challenges of fuel subsidy removal on the Nigerian economy in the fourth republic," was conducted by Ikenga and Oluka [2] which assessed the effects of fuel subsidy removal on the Nigerian economy under the newly inaugurated administration of Senator Bola Ahmed Tinubu. Adopting descriptive analysis and qualitative data collection methods, the study found that attempts to reverse fuel subsidy policies by previous administrations led to negative effects on citizens, including increased prices of petroleum products, food items, and transportation. This observed price increase suggests that the manufacturing sector may be grappling with



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the impacts of fuel subsidy removal in Nigeria. Thus, both studies, including the present one, focus on the cascading effects of fuel subsidy removal by the Tinubu administration.

III. METHODOLOGY

3.1 Research Design

This study applies a quantitative research method to analyse the impact of petrol subsidy removal on the manufacturing sector in Enugu state. Many scholars have defined research design, and the bottom line in that research design acts as the blueprint for a study, defining the processes needed to gather and evaluate data in order to address the research objectives [12]. Quantitative research involves collecting numerical data and employing statistical analysis to evaluate correlations between variables. In this study, the researcher seeks to quantify the extent of the impact of fuel subsidy removal on the manufacturing sector in Enugu state, focusing on key economic metrics such as production output and profitability.

3.2 Area of Study

Enugu State is located in south-eastern Nigeria. The state is bordered by Abia, Ebonyi, Benue, Kogi, and Anambra States. Its landscape features rolling hills, plateaus, and valleys, earning it the nickname "Coal City State" due to significant coal deposits. The state experiences a tropical climate with wet and dry seasons, with temperatures ranging from 21°C to 31°C throughout the year. Enugu State is culturally rich, with traditional music, dance, art, and festivals like the New Yam Festival and Mmanwu festival playing a significant role. The state's population is estimated at around 4 million people. A 2023 Ease of Doing Business report showed that Enugu state ranked 26th out of 36 states measured [13]. Thus, it is evident that the manufacturing sector of Enugu state has been grappling with myriads of challenges, hence the need to evaluate their performance in relation to subsidy removal.

3.3 Sample and Sampling Technique

The population of this study consist of the entire 2,320 staffers and management of the 116 manufacturing companies in Enugu state. The Yamane Taro statistical techniques (outlined in equation 3.1) was employed to estimate an appropriate sample size that would provide adequate precision while remaining feasible within the constraints of the study.

$$n = \frac{N}{1 + N(e)^2} \tag{3.1}$$

where,

n = sample size

N = total population under study

e = error limit (an error limit of 0.05 was used for the study).

Using equation 3.1, the sample size of the study was calculated to be 341 staffers in Enugu state manufacturing companies. Further, an expert sampling technique was adopted to choose managers from 341 manufacturing companies in Enugu state. However, only 325 (95%) copies of the questionnaire were retrieved in valid form, thus statistical analysis was based on this sample size.

IV. RESULTS AND DISCUSSIONS

The distribution of responses on the research question that sought to ascertain the impact of fuel subsidy removal on the operating cost of manufacturing firms in Enugu state Nigeria is presented in the bar chart shown in Figure 4.1. The bar chart was based on a five point Likert scale coded; "SA for Strongly Agree, A for Agree, U for Undecided, D for Disagree, and SD for strongly disagree". The arithmetic mean with standard deviation derived from these responses is presented in Table 4.1. The last column "LA" resents the level of agreement of respondents with each item in the research question.



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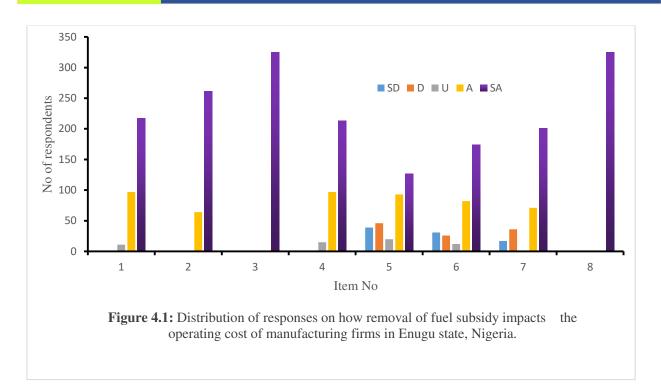


Table 4.1: The impacts of removal of fuel subsidy on the operating cost of manufacturing firms in Enugu state, Nigeria.

S/N	Item	MEAN	StD	LA
1	Fuel subsidy removal has significantly increased the cost of raw material for the manufacturing company.	4.63	0.55	SA
2	The removal of fuel subsidy has negatively affected the energy (electricity, fuel, etc.) cost in the manufacturing company.	4.80	0.4	SA
3	The removal of fuel subsidy has led to a noticeable rise in the transportation costs.	5.00	0.00	SA
4	You have had to adjust the budget significantly due to higher fuel expenses after subsidy removal.	4.61	0.33	SA
5	The removal of fuel subsidy has made it difficult for the manufacturing firm to remain cost-competitive.	3.40	1.86	A
6	The manufacturing processes have become less efficient due to increased fuel costs post- subsidy removal.	3.89	1.65	A
7	Fuel subsidy removal has negatively impacted the ability to invest in new technologies and equipment.	4.02	1.69	A
8	The inflation caused by the removal of fuel subsidy has led to significant increase in the cost of maintaining the machines.	5.00	0.00	SA
	Overall Mean/ Standard deviation	4.42	1.10	A

Evidently, the respondents strongly agreed that the removal of fuel subsidy has significantly increased the cost of raw material for the manufacturing companies in Enugu state, with a mean score of 4.63 and a standard deviation of 0.55. This shows that respondents agree that fuel subsidy withdrawal raises raw material costs. In a similar vein, with a mean score of 4.80 and a standard deviation of 0.4, respondents strongly agreed that the removal of fuel subsidies has negatively affected the energy (electricity, gasoline, etc.) cost of the manufacturing firms. This is a confirmation of the belief of the respondents that fuel subsidy withdrawal has raised the energy expenses of the manufacturing company. Moreover, all the respondents strongly agreed that the removal of fuel subsidies has led to a notable spike in the cost of



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transportation as evidenced by a mean score of 5.00 and a standard deviation of 0.00. This perfect mean score shows that respondents all agreed that fuel subsidy elimination raised transport prices significantly. Similarly, a mean score of 4.61 and a standard deviation of 0.33 indicated that the respondents strongly agreed that the manufacturing companies have significantly tinkered their budgets due to the rising cost of energy occasioned by the removal of fuel subsidy in Nigeria. Furthermore, the respondents expressed agreement with the notion that the removal of fuels subsidy has made it difficult for the manufacturing companies to remain cost-competitive, with a mean score of 3.40 and a standard deviation of 1.86. While the mean score shows agreement, the relatively high standard deviation suggests significant diversity in respondents' perspectives.

Similarly, respondents agreed with the statement that the manufacturing operations have become less efficient due to rising fuel prices post-subsidy removal, with a mean score of 3.89 and a standard deviation of 1.65. More so, the respondents expressed agreement with the statement that fuel subsidy elimination has badly affected their ability to invest in new technologies and equipment, with a mean score of 4.02 and a standard deviation of 1.69. This suggests that industrial enterprises perceive a considerable barrier to their ability to invest in technical breakthroughs and equipment improvements due to the withdrawal of fuel subsidy. Furthermore, respondents strongly agreed that the inflation induced by the removal of fuel subsidy has led to a large increase in the cost of maintaining manufacturing machines, with a mean score of 5.00 and a standard deviation of 0.00. This unanimity among responders emphasizes the severity of the inflationary pressures encountered by industrial enterprises in maintaining their machinery and equipment. Finally, the overall mean score for all items connected to how removal of fuel subsidy impacts the operating cost of manufacturing firms in Enugu state, Nigeria is 4.42, with a standard deviation of 1.10, showing an agreement (A) among respondents. These findings show the various issues created by fuel subsidy removal on the operational elements of manufacturing enterprises in Enugu state.

Furthermore, the study evaluated how fuel subsidy removal impact on the profitability of the manufacturing firms in Enugu state. The distribution of responses is presented in Figure 4.2 while the statistical analysis is presented in Table 4.2.

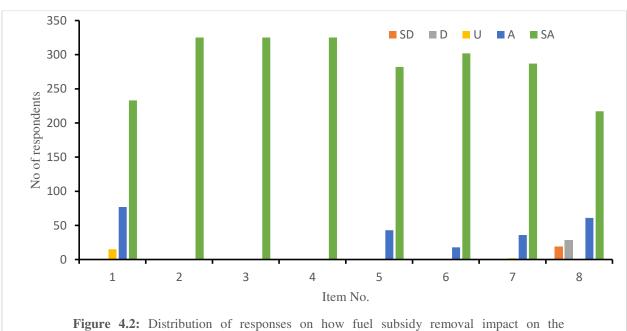


Figure 4.2: Distribution of responses on how fuel subsidy removal impact on the profitability of the manufacturing firms in Enugu state.



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Table 4.2: How fuel subsidy removal impact on the profitability of the manufacturing firms in Enugu state

S/N	Item	MEAN	SD	LA
1	Fuel subsidy removal has negatively impacted the profitability of the manufacturing firm.	4.67	0.56	SA
2	The manufacturing firm's profit margins have decreased since the removal of fuel subsidy.	5.00	0.00	SA
3	The removal of fuel subsidy has resulted in lower net profits for the manufacturing firm.	5.00	0.00	SA
4	The manufacturing firm has faced challenges in maintaining previous levels of profitability post-subsidy removal.	5.00	0.00	SA
5	Fuel subsidy removal has increased the manufacturing firm's operating costs, leading to reduced profitability.	4.87	0.34	SA
6	There is decline in sales revenue because of the removal of fuel subsidy.	4.94	0.23	SA
7	The removal of fuel subsidy has made it harder for the manufacturing firm to generate sufficient profits.	4.88	0.35	SA
8	The removal of fuel subsidy has hindered the manufacturing firm's ability to invest in growth opportunities.	4.15	1.60	A
	Overall Mean/ Standard deviation	4.81	0.63	SA

The first issue examined, which sought to ascertain whether the removal of fuel subsidy has negatively affected the profitability of the manufacturing firms, the respondents reported a mean score of 4.67, indicating a high level of agreement. This implies that the majority of respondents believe that the elimination of fuel subsidies has really had a detrimental effect on the profitability of their manufacturing enterprises. The standard deviation of 0.56 shows a relatively low level of variability in responses. Similarly, on whether the profit margins of the manufacturing firms have deteriorated since the removal of fuel subsidies, the respondents supplied a mean score of 5.00, indicating unanimous agreement. This implies that all respondents firmly believe that the profit margin of their manufacturing firms have deteriorated as a result of fuel subsidy removal. In a similar vein, the respondents unanimously agreed strongly with a mean score of 5.00 that the removal of fuel subsidies has resulted in lower net earnings for their manufacturing firms. This shows that all participants strongly believe that their manufacturing enterprises have witnessed a fall in net earnings following the elimination of fuel subsidy. More so, on whether the manufacturing firms have encountered difficulty in maintaining past levels of profitability post-subsidy withdrawal, the respondents also supplied a mean score of 5.00, indicating universal agreement. This shows that all respondents strongly believe that their manufacturing enterprises have had difficulty in preserving their former levels of profitability following the termination of fuel subsidy.

Furthermore, the respondents agreed that fuel subsidy removal has increased the operating costs of the manufacturing firms, leading to diminished profitability, as evidenced by a mean score of 4.87, indicating significant agreement. Similarly, on the question of whether the manufacturing firms have suffered a reduction in sales revenue as a result of the removal of fuel subsidy, the respondents supplied a mean score of 4.94, indicating significant agreement. Furthermore, the respondents strongly agreed that the removal of fuel subsidy has made it tougher for manufacturing firms to make sufficient profits, as shown by a mean score of 4.88. This implies that the majority of respondents firmly believe that the removal of fuel subsidy has really presented issues for their industrial enterprises in earning sufficient profitability. The standard deviation of 0.35 suggests a moderate level of agreement among respondents, with limited fluctuation in responses. Also regarding the issue of how the removal of fuel subsidy has impacted the ability of the



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manufacturing firm to invest in growth possibilities, respondents scored a mean score of 4.15, indicating agreement. This suggests that the majority of respondents feel that the ability of their manufacturing firms to invest in development possibilities has been restricted as a result of fuel subsidy elimination.

Lastly the study examined the strategies that Enugu state manufacturing firms deployed to cushion the impact of fuel subsidy removal. The distribution of responses in presented in figure 4.3. While Table 4.3 presents the statistical analysis in this regard.

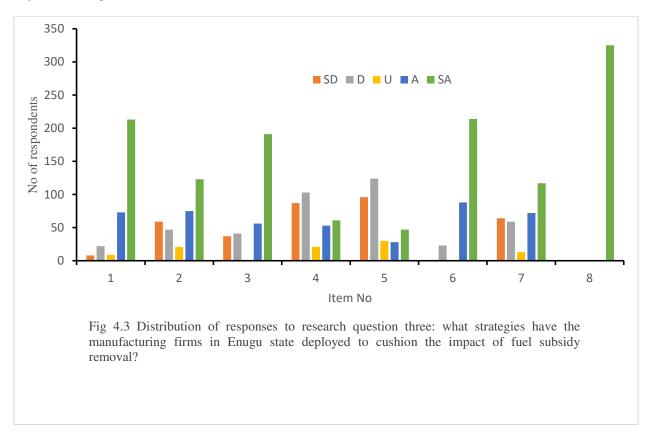


Table 4.3: Strategies that Enugu state manufacturing firms deployed to cushion the impact of fuel subsidy removal

S/N	Item	MEAN	SD	LA
1	The manufacturing firm has implemented cost-cutting measures to offset the impact of	4.28	1.38	A
	fuel subsidy removal.			
2	You have explored alternative energy sources to reduce reliance on petroleum products	3.19	1.94	U
	post-subsidy removal.			
3	The manufacturing firm has renegotiated contracts with suppliers to secure better pricing	3.74	1.89	A
	terms after subsidy removal.			
4	You have diversified the product offerings to mitigate the effects of fuel subsidy removal	2.05	1.99	D
	on specific market segments.			
5	The manufacturing firm has invested in technology upgrades to improve operational	1.64	1.85	D
	efficiency post-subsidy removal.			
6	The manufacturing firm has implemented workforce training programs to enhance	4.38	1.29	A
	productivity amidst subsidy removal.			
7	You have explored partnerships and collaborations with other firms to share resources	3.00	2.02	U
	and mitigate costs post-subsidy removal.			



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S/N	Item	MEAN	SD	LA
8	The manufacturing firm has adjusted pricing strategies to maintain competitiveness in the	5.00	0.00	SA
	market post-subsidy removal.			
	Overall Mean /SD	3.41	1.67	U

The data reveals that respondents generally agreed that their manufacturing firms have implemented cost-cutting measures to mitigate the effects of fuel subsidy removal. The mean score of 4.28 indicates a significant level of agreement among participants regarding the implementation of such measures. This suggests a proactive response from manufacturing firms to adapt to the changing economic setting resulting from the subsidy removal. However, when considering the exploration of alternative energy sources to reduce reliance on petroleum products post-subsidy removal, the responses were more varied. The mean score of 3.19 falls within the undecided range, indicating a lack of consensus among respondents. This suggests that while some manufacturing firms may have considered alternative energy sources, there is less certainty or agreement regarding the extent to which such exploration has been pursued.

More so, the respondents generally indicated agreement that their manufacturing firms have undertaken renegotiation of contracts with suppliers to achieve better pricing terms subsequent to the removal of fuel subsidy. This is supported by a mean score of 3.74, signifying an overall agreement with this statement. In contrast, the respondents expressed disagreement regarding the diversification of product offerings to mitigate the impact of fuel subsidy removal on specific market segments. The mean score of 2.05 indicates a tendency towards disagreement with this statement. Additionally, the standard deviation of 1.99 suggests considerable variability in responses. Furthermore, the analysis reveals divergent perceptions regarding the investment in technology upgrades to improve operational efficiency postsubsidy removal, with a mean score of 1.64 indicating a disagreement among respondents. Conversely, there is a strong consensus, with a mean score of 4.38, suggesting that manufacturing firms in Enugu state have implemented workforce training programs to enhance productivity amidst subsidy removal. Moreover, the findings indicate mixed sentiments regarding the exploration of partnerships and collaborations with other firms to share resources and mitigate costs postsubsidy removal, as reflected by a mean score of 3.00, indicating indecision among respondents. Conversely, there is a strong consensus, with a mean score of 5.00, suggesting that manufacturing firms in Enugu state have adjusted pricing strategies to maintain competitiveness in the market post-subsidy removal. This underscores the proactive measures taken by these firms to adapt to changing market conditions and sustain their competitive edge in the aftermath of subsidy removal.

V. CONCLUSION

This study has given thorough insights into the many consequences of fuel subsidy removal on Enugu state manufacturing sector. The empirical findings underline a tangible impact on the operational setting. There is a demonstrable rise in operating expenses and a corresponding reduction in profitability subsequent to the removal of fuel subsidies. These conclusions resonate with earlier studies in that it matches with the general discourse on the negative consequences of subsidy reforms on industrial sectors. Furthermore, the study exposes the adaptive responses of manufacturing firms, which have strived to navigate the complex post-subsidy environment through diverse strategic initiatives. These efforts include cost-cutting measures, study of alternative energy sources, and renegotiation of supply contracts, among others. While these strategies do not exhibit impressive resilience, they also underline the requirement for adaptive capacity and proactive planning within the manufacturing sector to withstand external shocks. In a broader perspective, the findings of this study contribute to the ongoing policy discourse concerning subsidy changes and their implications for economic sectors.

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