AJLLSE GLOBAL RESEARCH NETWORK

**AMERICAN Journal of Language, Literacy and Learning in STEM Education**
*Volume 01, Issue 07, 2023 ISSN (E): 2993-2769*

# Impact of Fuel Subsidy Removal on Science Education in Nigerian Schools

**Victoria Abiodun Ayo**
Federal University Wukari, Nigeria

**Zainab Abubakar**
Department of Science and Environmental Education, University of Abuja

## Abstract

This paper discussed the impact of subsidy removal on Science education in Nigerian schools. The paper employed the used of secondary data. The secondary data were collected from print resources and online publications. The paper concluded subsidy removal on petroleum product in Nigeria had affected science education generally and specifically, it had led to increment in the cost of science curriculum implementation, affected implementation of teaching and learning of science programme, led to increment in prices of laboratories resources and science instructional materials. Based on these problems identified, the paper recommended that the budget of education should be increase and more priorities should be given to science programme. Science teachers' salaries should be increased and school buses should be distributed to all educational institutions. Government should subsidize science laboratories resources and instructional resources for effective implementation of science programmes in the schools.

**Keywords**: Impact, Science Programme, Subsidy Removal, Schools.

## Introduction

Scholars and international organizations have long advocated for the elimination of gasoline subsidies due to the market distortions that result. In 2012, the Good-luck Ebele Jonathan administration began a partial deregulation of the Nigerian downstream oil sector, or the partial removal of fuel subsidies in Nigeria, but it was unsuccessful due to a few strong political tycoons in the country who insisted that the removal of subsidies would cause a lot of difficulties for Nigerian citizens (Project clue 2023).

Also in 2019, the Buhari administration attempted to eliminate subsidies, but the arrival of the Corona Virus in 2019 (COVID-19) made it impossible. At the time, the Nigerian government was grappling not only with leveling the curve of COVID-19 but also with a drop in revenue at a critical period when funds were needed to combat the spread of the coronavirus in the country. The falling government revenue was caused by the international market collapse of crude oil prices as a result of several countries' efforts to halt the worldwide spread of the coronavirus. As a result, more emphasis was placed on making citizens' lives easier and more worthwhile, hence sustaining the payment of the fuel subsidy (Project clue, 2023).

Recently, the newly inaugurated presidents, led by Chief Bola Ahmed Tinubu, pledged full liberalization of the downstream oil sector or the abolition of all gasoline subsidies in the country. Within 30 minutes of the president's address, not only do fuel prices rise automatically, but so do the costs of transportation, food, and manufacturing. This has generated consternation

among Nigerians because everyone has been affected, either directly or indirectly (Majeed, 2023;Project clue, 2023). The removal of subsidies has affected both public and private institutions.

Financial institutions, health institutions, religion institutions, political institutions, tourism sector, judiciary and educational institutions have been affected (Ogunode & Aregbesola (2023a). It is important to assess the impact of subsidy removal on university administration in Nigeria. Based on this, this paper is aimed to discuss the impact of subsidy removal on science education in Nigerian schools.

**Concept of Subsidy**

There are many definitions of subsidy. According to IMF et al. (2020), subsidies can take various forms, including direct government expenditures, equity infusions, tax incentives, soft loans, government provision of goods and services and procurement on favorable terms, and price supports such as price reduction. Subsidy is any government program that lowers the price of a good or service that is consumed by citizens compared to what the price would have been without the existence of the policy (project clue 2023). Subsidy are provided in diverse formats, according to Haley and Haley (2013) encompassing direct assistance such as cash grants and interest-free loans, as well as indirect support such as tax exemptions, insurance coverage, low-interest loans, accelerated depreciation, and rent rebates. According to project clue (2023) a subsidy is a decrease in the market price of products and services by the government so that people with limited purchasing power can obtain such goods and services. It occurs when the government assists customers in paying a price that is lower than the market price for consumer products.

**Concept of Subsidy Removal**

Subsidy removal is the official termination of subsidies on goods and services that are enjoying subsidy before. Subsidy removal is a policy to end subsidy payment on goods and services with a country. Subsidy removal is defined by Ogunode, et al (2023b) as an official elimination of subsidies on products formerly subsidized. Subsidy removal is the decision of the government or institutions to stop payment of subsidies on products or services previously subsidized. Subsidy removal is the stoppage of the subsidy regime in institutions or countries. Subsidy removal is the policy of liberating the prices of goods and services to be regulated by forces of demand and supply (Ogunode et al., 2023). Ogunode & Chukwuemeka, (2023) observed that for instance, when fuel subsidy was still in operation, fuel was being purchased for a price of ₦194 per liter at filling stations owned by Nigerian National Petroleum Corporation (NNPC) and most other major oil marketing companies but immediately after the removal as announced by the President, Commander in Chief of the Armed forces, His Excellency, Senator Ahmed Bola Tinubu on 29th may 2023 during his swearing- in and subsequently inaugural speech, the price of petrol immediately jumped to ₦540 per liter. Presently as at September 2023, the price of the premium motor spirit, otherwise called fuel is being purchased at between ₦600 and ₦ 640 per liter in different states of the federation with the propensity for further hike. This phenomenon of fuel subsidy removal is bedeviled with attendant negative and agonizing consequences to the academic community as far as research endeavor and other worthy activities are concerned. Ogunode et al, 2023b) noted subsidy removal affected financial institutions, health institutions, religion institutions, political institutions, tourism sector, judiciary and educational institutions. It also affected educational programmes such as science education.

**Concept of Science Education**

Aina (2012) viewed science as a body of knowledge characterized by unbiased observation and systematic experimentation. It could be understood as an act of doing comprised various investigative activities and processes regarding developing, controlling and acquiring skills, knowledge, attitude and capacity about the natural factors of the environment. Samba (2010) and Abubakar, Ogunseye, & Ogunode (2021) defined science as the establishment of sustainable development and the way to national financial development and success. A nation regarded as

civilized need to accomplish such status through deliberate and vital scientific education of her citizenry. Science assumes a focal job in contemporary society, with the possibility to improve lives in a large number of ways and advance national development. Access to the products of science at the individual and aggregate levels, anyway lies essentially with those blessed with logical information and abilities. Consequently, science is viewed as the foundation of modern development and the connection among innovation technology and socio economic development (Abubakar et al, 2021; Ekwe, in Iwu and Azoro, 2017).

Science education deals with sharing of science concepts and procedure with people who are not considered customarily to be individual from the empirical researchers; the people could be students, ranchers, advertiser, sales women or an entire network. Science education in Nigeria focuses on the teaching of science concepts, technique for teaching and learning to misconceptions held by learners with respect to science contents (Aiyedun, 2020; Ajemba, Ahmed, Ogunode, & Olatunde-Aiyedun, 2021;Abubakar et al, 2021). The unequal role of science education to accomplishment of educational objectives at all levels of education cannot be underestimated. Okpala (2013) established that government policies stress the development of science education at all levels of education in the National Policy on Education 2004. In honour of the indispensible role of science education to individual and national development, FRN (2013) contends that science education shall emphasis the teaching and learning of science process and principles. It further highlighted the goals of science education as follows, to:

i. cultivate inquiring, knowing and rational mind for the conduct of a good life and democracy;

ii. produce scientists for national development;

iii. service studies in technology and the cause of technological development; and,

iv. provide knowledge and understanding of the complexity of the physical world, the forms and the conduct of life (FRN, 2013). Hence, science education is essential to the development of any nation and each nation must be passionate about it at all levels of learning.

A significant number of the civilized world had the option to accomplish such a great amount in science and technology on account of science education (Kola, 2013; Orji, Ogar & Aiyedun, 2018; Abubakar et al, 2021). Ogunode (2020) and Ogunode & Aiyedun, (2020) noted that education system is a major programme in Nigerian educational system. Therefore, Science education is a fundamental component of a nation's progress and development, serving as a catalyst for advancements in various fields (Abubakar & Olamoyegun, 2023).

**Impact of Fuel Subsidy Removal on Science Education**

Subsidy removal on petroleum product in Nigeria have affected science education, specifically it had led to increment in the cost of science curriculum implementation, affected implementation of teaching and learning of science programme, increment in prices of laboratories resources and increment in prices of science instructional materials.

**Increment in the cost of Science Education Curriculum Implementation**

Science education curriculum is pivotal to technological revolution in producing capable scientists who could manipulate material resources for technological and national development. Ojo (2017) and Okafor (2018) demanded a revision of Nigeria’s secondary school curriculum in chemistry to accommodate technological revolution in skills acquisition. Ayo and Ahmed (2023b) positioned that curriculum implementation is the execution of planned learning experiences in the educational institutions. The authors identified inadequate funds, shortage of science lecturers, insufficient infrastructure facilities, strike actions, brain-drain and ineffective capacity building programme, and so on as problems plaguing the implementation of science curriculum in Nigerian tertiary institutions. Obviously, there are issues on ground harassing the implementation of Nigerian science education curriculum awaiting an urgent intervention. In spite of these challenges, the recent fuel subsidy removal in Nigeria has worsen the situation as it has led to the cost increment in administering of science education programme in her educational

institutions. Science education is one of the most expensive education programmes because of the nature of human and materials resources required to implement the teaching and learning in the schools. Nwaoga & Casimir (2013) and Ogunode et al. (2023) asserted school administration of most educational institutions has been affected in Nigeria due to subsidy removal. The removal of subsidies has increased the cost of running the schools. Also, Ogunode & Ojochenemi, (2023a) concluded that subsidy removal in Nigeria has led to an increment in the operational cost of running schools across the country. The hike in petrol pump prices affected the general costs of goods and this affected the cost of running educational institutions. Almost everything used daily running of schools has increased.

**Teaching and Learning of Science Education**

Subsidy removal in Nigeria has affected the teaching and learning of science. The teaching and learning of science revolve around the quality of teachers, teaching strategies employed and instructional materials available for teachers to use. The removal of subsidy on petrol has led to increment in the cost of teaching and learning resources in schools. Many Science teachers are affected by the subsidy removal. Science teachers now spend more on transportation fare to teach in schools. Peter (2023) noted that Science teachers in Nigerian schools have been affected by subsidy removal. The cost of movement of science teachers from their respective homes to schools has been increased due to subsidy removal. Ogunode et al (2023a) and Ejiogu, Emeadi, Onyeka, John, Onyejiuwa, Uzoaru, Dangwam, Anyanwu, Abel, & Adeyemi, (2023) asserted that the fuel subsidy removal has led to an increment in school transportation fares. Many school administrators, teachers and students pay more to go to schools in the post-subsidy regime due to increase in transport fares and logistic costs. The implication of the subsidy removal has resulted to reduction in teaching and learning hours of science courses in the schools. Ogunode, & Ukozor (2023c) attested to the fact that subsidy removal on fuel by the government of Nigeria has affected teaching programme of educational institutions especially the science education whose operation of teaching programme partly depend on fuel energy. Consequently, this act has also brought about modification of teaching methods in most tertiary institutions. Most lecturers have changed their mode of teaching to online or virtual training methods to deliver lectures; these methods might not be good enough for science programme that involve practical works. Ogunode, et al (2023c) noted that the increment have forced many academic staff to restructure their lectures to one day or two days per week. The implication of the restructuring by compressing of lectures may affects coverage of scheme of work or syllabus. Other academic staff has opted for virtual teaching.

Removal of subsidy on fuel in Nigeria has affected science teacher's job performance in schools. Ogunode, & Agbade (2023b) maintained that the teacher's job performance is affected by subsidy removal in the schools, and this include science teacher inclusive job performance. Also, Ogunode et al (2023a); Sunday Sun (2023) and Okonkwo (2023) concluded that lecturers who are implementer of teaching programme are also affected by the removal of the fuel subsidy, as they have to pay more for transportation to and from work. Many lectures rely on public transport, such as buses, taxis and motorcycles, which have also increased their fares due to the higher cost of fuel. Some lectures may have to spend more than half of their salaries on transportation alone, leaving little for vital necessities of life such as food, rent and health care and so on.

Science students are not also spared in this tragedy of fuel subsidy removal because they are badly affected. Bamidele (2023) asserted that the increase in the price of fuel has worsened the state of students who have to depend daily on transportation to school. It makes life more difficult as most of them depend on their parents for monetary aid, while the parents themselves are grappling with the situation to source for their livelihood daily. Also, Okonkwo (2023) and Ogunode, et al 2023b) observed that students are another group that is affected by the removal of the fuel subsidy, as they must pay more for transportation to and from school. Many students depend on public transport or private vehicles to get to school, which have become more expensive due to the higher cost of fuel.

**Increment in Prices of Laboratories Resources**

Science as a study of natural phenomena requires material resources for practical activities which permits and encourages discovery and creativity. Science faculty accepts electronic technology as a potentially effective tool to expand and enhance instruction. However, **t**he costs of acquiring laboratory resources have gone high in the market due to fuel subsidy removal. Many educational institutions cannot afford to buy adequate laboratories reagents and chemicals due to increment in their prices, although with no increment in the school funding. Subsidy removal on fuel had led to increase in the prices of laboratory resources like microscope, test tubes, beakers, measuring cylinder utensil, magnifying glass, volumetric flasks, Bunsen burner, dropper, Pasteur pipette, thermometers, tongs, brushes, weighing balances, wash bottles, spatulas , spring balance, Newton meter, burette, **watch glass**, funnel, **litmus and filter papers and so on. Also,** chemical reagents used in the laboratories for practical activities such as caustic potash, caustic soda, chlorine, citric acid, iodophors, lysozyme, ozone, peroxyacetic acid and so on. Also, f*lammable liquids such as* methanol, ethanol, acetone, xylene, toluene, ethyl acetate, tetrahydrofuran, ethyl ether, benzene, Dimethylformamide, to mention a few have increase in prices leading to shortage in supply to the laboratories.. A laboratory reagent can be described as a *substance used to measure, detect, or create other substances during a chemical reaction* conducted in laboratories. Peter (2023) and Ogunode & Aregbesola (2023d) increment in the prices of laboratories resources have led to problem of inadequate in many educational institutions and tis as impact on quality of teaching and learning of science.

**Increment in Prices of Science Instructional Resources**

Subsidy removal has led to increment in the prices of science instructional materials across the country. Science instructional materials are organized resources designed for the implementation of science programme in schools. Science instructional materials are planned and constructed facilities structured and meant for the teaching and learning of science education in educational institutions. Similarly, Abubakar and Olamoyegun, (2023) defined Science instructional resources as resources used by the science teachers to make teaching and learning of science programme simple and easy to understand. Teaching learning resources are all the things used by the teacher during teaching to aid understanding and make teaching successful and effective. They include, modern textbooks, equipment, consumables like chemicals and reagents, models, charts, flannel board, magnetic board, film strips, slides, projector, radio set, tape recorders, posters, television, computer and video, textbooks, chalkboard, pictures, diagrams, as well as the physical learning environments. Subsidy removal has led to increment in the prices of science instructional materials are a major issue of concern. Okonkwo, (2023); Azrearchconsult (2023) and Ogunode et al (2023a) noted that subsidy removal of fuel products in Nigeria has led to an increment in the price of instructional materials /resources. Subsidy removal affected by the petrol price hike is the prices of commodities in the market moving up high. The prices of various instructional materials have gone up due to the removal of subsidies, hence, insufficient supply of these materials in our institution of learning. It is a well-known fact that the quality of education a student receives largely depends on the quality of teaching/learning resources provided of which has been jeopardized by the recent increase fuel subsidy removal. The outcome has affected the deployment of the instructional resources for the implementation of teaching and learning of science education in the Nigerian schools.

**Conclusion and Recommendations**

This paper examined the impact of subsidy removal on science education in Nigerian schools. The paper concluded subsidy removal on petroleum product in Nigeria has affected science education implementation. Also, subsidy removal had led to increment in the cost of science education curriculum implementation, affected implementation of teaching and learning of science programme, led to increment in prices of laboratories resources and science instructional materials.

Based on this problem identified, the paper recommended that the budget of education should be increased and more priorities should be given to science programme. Science teachers' salaries should be increased and school buses should be distributed to all educational institutions to aid movement of teachers and students. Government should subsidize science laboratories resources and instructional resources for effective implementation of science programme the schools.

**References**


1. Abubakar, Z. & Olamoyegun, S.O. (2023). Adequate Funding Panacea for Development of Science Education Programme in Nigeria Educational Institutions. Best Journal of Innovation in Science, Research and Development, 02(7), 494-504
2. Abubakar, Z., Ogunseye, A.A & Ogunode, N.J. (2021). Administration of science programme in Nigerian public secondary schools: problems and way forward. *Central Asian Journal of Literature, Philosophy and Culture*, 02(11), 58-65
3. Aina, J. (2012). Challenges and Prospects of Primary Science Teaching in Nigeria. *Continental J. Education Research*, 5 (2): 32-37. https://doi:10.5707/cjeducres.2012.5.2.32.37
4. Ajemba, H.E., Ahmed, F.M., Ogunode, N.J. & Olatunde-Aiyedun, T.G. (2021). Problems facing science teachers in public secondary schools in Nigeria and way forward. *International Journal of Discoveries and Innovations in Applied Sciences*, 1(5), 118-129. http://openaccessjournals.eu/index.php/ijdias/article/view/280
5. Ayo, V. A. & Ahmed, F. M. (2023b). Implementation of Science Curriculum in Nigerian Tertiary Education: Problems and Way Forward. *International Journal on Integrated Education* (*IJIE*) *Volume 6*, Issue 4, 22-31. Retrieved from https://journals.researchparks.org/index.php/IJIE
6. Azrearchconsult (2023) Impact of subsidy removal on education. https://azresearchconsult.com/impact-of-subsidy-removal-on-education/
7. Bamidele, O. P. (2023). Fuel subsidy removal is hampering the educational sector. Retrieved July 2, 2023, from https://tribuneonlineng.com/fuel-subsidy-removal-is-hampering-educational-sector/
8. Ejiogu, E., Emeadi, A., Onyeka, S., John, T., Onyejiuwa, G., Uzoaru, S., Dangwam, J., Anyanwu, G., Abel, L. A., & Adeyemi, E. (2023). *Fuel subsidy removal: Parents in dilemma as primary, and secondary schools close for a long vacation*. Retrieved July 2, 2023 from https://sunnewsonline.com/fuel-subsidy-removal-parents-in-dilemma-as- primary-secondary-schools-close-for-long-vacation/
9. Federal Republic of Nigeria (2013).National Policy on Education. Lagos: NERDC press Hurd, D. (2010). Teaching Science Contextually. The Cornerstone of Tech Prep. CORD Communications, Inc. United States of America.
10. IMF et al. (2022). Subsidies, Trade, and International Cooperation. OECD Publishing, Paris, https://doi.org/10.1787/a4f01ddb-en
11. Iwu, R. U. & Azoro, A. V. (2017). A study on the barriers to participation of females in science, mathematics and technology education in Imo State the way forward. *Academic Journal, 12(17)832-838.*
12. Kola, A. J. (2013). Importance of Science Education to National Development and Problems Militating Against Its Development. *American Journal of Educational Research*, 1(7)225-229.
13. Musa, T. (2023). *Subsidy removal and educational institutions*. Press Abuja.

14. Majeed, B. (2023). Fuel Subsidy is gone — Tinubu declares. https://www.premiumtimesng.com/news/top-news/601239-fuel-subsidy-is-gone-tinubu-declares.html

15. Ogunode, N.J. & Aiyedun, T.G. (2020). Administration of science programme in Nigerian higher institutions: issues, challenges and way forward. *Middle European Scientific Bulletin*, 6, 94-99.

16. Ogunode,N,. J. & Agbade, O,. P. (2023b). Impact of subsidy removal on school administration, Teachers Job performance and students' academic performance in Secondary schools In Nigeria. *International Journal on Integrated Education*. 6, 9 (Sep. 2023), 20-24.

17. Ogunode,N,. J. & Chukwuemeka, O,. R. (2023). Impact of fuel subsidy removal on research programmes of tertiary institutions in Nigeria. *International Journal of Inclusive and Sustainable Education*, *2*(8), 34–40. Retrieved from https://inter-publishing.com/index.php/IJISE/article/view/2475

18. Ogunode, N,. J., Somadina, I,. S & Johnson. E. (2023). Impact of subsidy removal on universities stakeholders (Vice Chancellors, Academic Staff & Non-Academic Staff and Students) In Nigeria. *Best Journal of Innovation in Science, Research and Development*, *2*(9), 60–68. Retrieved from http://www.bjisrd.com/index.php/bjisrd/article/view/566

19. Ogunode, N,. J. & Aregbesola. B.G. (2023d). Impact of subsidy removal on Nigerian Educational System. *Middle European Scientific Bulletin*, *39*, 105-116. Retrieved from https://cejsr.academicjournal.io/index.php/journal/article/view/1865

20. Ogunode, N,. J. & Ojochenemi, U,. B (2023a). Impact of subsidy removal on educational institutions in Nigeria. *Electronic Research Journal of Social Sciences and Humanities*, 5 (III) 94-101

21. Ogunode, N,. J. & Ukozor, C,. U. (2023c) Impact of Subsidy Removal on Tertiary Education on Nigeria. *European Journal of Higher Education and Academic Advancement 1(5)*,42-51

22. Ogunode, N.J. (2020). Investigation into the Challenges Facing Administration of STEM Education in Gwagwalada Universal Basic Education Junior Secondary Schools in FCT, Nigeria *International Journal of Research in STEM Education* (IJRSE), 2, (1), 59-75

23. Ojo, T.O. (2017). *Effects of IT-Integrated Teacher Demonstration and Guided Discovery on Chemistry Students' Conceptual Knowledge, Problem Solving Skills, Acquisition of Basic Science Process Skills and 21st Century Skills.* A PhD dissertation, University of Lagos, Nigeria.

24. Okafor, N. (2018). Effects of explanations and integration of ideas pedagogy on secondary school chemistry students' acquisition of basic science process skills in Nigeria. *Journal of Research in National Development, 16*(2), 33-42.

25. Okonkwo, O. (2023) Explainer: How fuel subsidy removal affects you. https://nairametrics.com/2023/06/01/how-fuel-subsidy-removal-affects-smes-employees- and students-in-nigeria/?amp=1

26. Okpala, P.N. (2013) *Reforms in Science, Engineering and Mathematics Education.* An Educational Evaluation, National Examination Council office, Minna.

27. Oladejo, M.A., Olosunde,G.R., Ojebisi,A.O. & Isola,O.M. (2011). Instructional materials and students' academic achievement in physics: some policy implications. *European Journal of Humanities and Social Sciences*, 2(1), ISSN 2220-9425.

28. Olatunde-Aiyedun, T.G., & Ogunode, N.J. (2021a). School Administration and effective teaching methods in Science Education in Nigeria. *International Journal on Integrated Education*, 4 (2), 145- 161. 10.13140/RG.2.2.11502.54080

29. Olatunde-Aiyedun, T.G., & Ogunode, N.J. (2021b). Shortage of professional science and environmental education teachers in Nigeria. *Asian Journal of Science Education*, 3 (1), 111.https://www.researchgate.net/publication/350819014_Shortage_of_Professional_Science_and_Environmental_Education_Teachers_in_Nigeria

30. Orji, N.O., Ogar, S.I. & Aiyedun, T.G. (2018). Influence of jigsaw-based learning strategy on academic achievement of upper basic students' in Basic Science in Etim-Ekpo of Akwa Ibom State. *Abuja Journal of Arts and Social Science Education (AJASSE)*, 1(1)1-12.

31. Project Clue. (2023). *Subsidy removal and how it affects academic research in Nigeria*. Retrieved July 2, 2023, from https://projectclue1.medium.com/subsidy-removal-and-how-it-affects-academic-research-in-nigeria-dddf415e33e8

32. Samba, R.M.O. (2010). Trends in development of science mathematics education in Nigeria since independence and vision 20:20:20. *Lead paper presented at the 6th National Conference School of Sciences.* Ankpa: Kogi State College of Education.

33. Sunday Sun. (2023). *Fuel subsidy removal: Parents in dilemma as primary, and secondary schools close for a long vacation*. Retrieved July 2, 2023 from https://sunnewsonline.com/fuel-subsidy-removal-parents-in-dilemma-as-primary-secondary-schools-close-for-long-vacation/