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ENERGY SUBSIDY REFORMS, SOCIAL CONTRACT AND POVERTY REDUCTION IN NIGERIA

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ABSTRACT

The study examined the relation among energy subsidy, social contract and poverty in Nigeria covering the period 1999-2022. The study used autoregressive distributed lag (ARDL) model, dynamic ordinary least square (DOLS), and fully modified ordinary least square (FMOLS) approaches to determine the outcome of long-term estimates of the ARDL robustness. The unit root tests shows that the series were stationary at levels I(0) and first difference I(1). Cointegration was established with 2 optimal lag. The results of DOLS and FMOLS show that energy reforms of petrol motor spirit, automobile gas oil, dual purpose kerosene and electricity tariffs have impacted on high level of poverty in Nigeria. The reforms have also affected control variables like inflation and per capital income as inflation erodes the purchasing power of economic agents. The study suggests the need to deepen and implement short-to medium term fuel subsidy removal using market-based pricing as a necessity to protect the poor. This should be complemented by conversion plan from petroleum to natural gas (CNG) vehicles. Strategic policies to strengthen the voice and accountability by the citizens are required. It is essential to trust between government and citizens to strengthen social contract in a manner that improves service delivery, reduce corruption and strengthen institutions which will enhance subsidy reforms more feasible.

Keywords: Energy subsidy, social contract, poverty, ARDL, FMOLS, DOLS
JEL Classification: H20, H30, N77

1. Introduction

Energy reforms especially subsidies have been implemented in some economies in the Middle East and Africa, and more recently in Nigeria (McCulloch, 2023). Essentially, fossil fuel subsidies are targeted at making the products accessible and affordable to the lower income group who may not be able to pay the appropriate price. However, McCulloch and Dom (2019) observed that fuel subsidies approach is costly in nature

and more often leads to wastages because of leakages. Though it is targeted at empowering the poor in the society, subsidies rather benefit the top income quintile more as they net six times more in subsidies than the bottom income quintile. They estimated that middle and low income economies pay over 1% of gross domestic product (GDP) as energy subsidies. Furthermore, International Energy Agency (IEA) (2023) estimated that fossil fuel consumption subsidies across the world was about US$325 billion in 2015 which increased to more than US$800 billion in 2022. This is amount is substantially greater than the total aid in 2022 which stood at US$461 billion.

Since 1999, the government of Nigerian have attempted to various reforms in the energy sector especially fuel subsidies including petroleum motor spirit (PMS), automotive gas oil (AGO) and dual purpose kerosene (DPK) prices which often have been resisted by non-state actors leading to negotiations between government and labour unions. The reforms were usually increasing to a new regulated price instead of introducing a market-based pricing mechanism (McCulloch, 2021). Though previous administration realized that fuel subsidy had fiscal burden on the economy, lack political will to remove it. The Tinubu administration that took over power in May, 2023, took a bold step by removing the subsidy where the petroleum pump price of PMS from increased from an average of N185 to N650. The Fiscal burden of fuel subsidy on the economy could be seen from amount paid as subsidy for PMS in 2022 (US$10 billion which is N4.39 trillion) (NMDPRA, 2023). This amount is more than 4 times the health budget in 2022 (N827 billion). Furthermore, comparing PMS subsidy with health and education budget in 2023 and 2024 show that the subsidy of 2022 was almost what was budgeted for the sectors in the two years (health - 1.17 trillion and education - 1.08 trillion in 2023; and health - 1.33 trillion and education - 1.54 trillion in 2024 (MBP, 2024). The Nigerian government spending on fuel subsidy was crowding out development spending. This is in addition to shrinking fiscal space and bourgeoning public debt of 87.91 trillion as at 3rd quarter of 2023 (DMO, 2023).

As an alternative part of fuel subsidy reform to mitigate the negative or unintended consequences, the Nigerian government with support from development partners like

World Bank announced some measures or palliatives including social investment schemes and cash transfer schemes given to the poorest 20% of the population, conversion plan from petrol- to gas-run vehicles. However, the controversies surrounding both subsidy regime, social investment schemes has raise the question of social contract between government and citizens on delivery of quality service.

While there are studies on effect of fuel subsidy reforms on social contract and poverty (Ozili and Obiora, 2023; McCulloch, Moerenhout and Yang, 2021; Ismail and Xiaoyi, 2015), these studies did not address the dual effect of electricity tariff reforms on the economy. This study seeks to address this gap. Therefore, to achieve the objective of this study, the paper is organized into 5 sections. Apart from section 1 which this part concludes as introduction, section 2 is literature review. Section 3 is methodology. Section 4 is empirical analysis and discussion of findings. Section 5 is conclusion and recommendations.

2. Literature Review

Conceptual and Theoretical Issues

Subsidy is an economic phenomenon or policy that government implement with the aim of making prices of goods and services consumed by citizens relative more affordable compared to what the market price would have been in the absence of such policy (Ogbu and Pristine, 2015). Similarly, Kadiri and Lawal (2016) referred to subsidy as reduction in the market price of commodities or services by the government through deliberate policy in a manner that individuals with weak purchasing power or the poor can be able to purchase them at more affordable prices. This is when consumers are made to pay a price which is below the prevailing market price for consumer goods and services.

Agu, Ekwutosi and Augustine (2018) asserts that subsidies requires influence of the market in a manner that prices of consumer goods and services are controlled or fixed by the government. The fixed or control price by the government and the actual market price variation is usually covered or paid by the government. Onyeizugbe and Onwuka (2012) observed that subsidy prices are usually kept below the market prices for consumers and above market prices for producers by the government. This may be in

form of tax reductions or exemption, price control or grants. This simply means that subsidies make consumer goods and services available and affordable for the poor people in the society through government policies. Okwanya, Ogbu and Pristine (2015) asserts that subsidies are aimed at promoting the lower and middle income level of the society to participate in economic activities especially in developing countries like Nigeria. Furthermore, Coxhead and Grainger (2018) argued that subsidy has not been an efficient policy measure as it has not yielded the desired result in resource allocation despite its good intension. It has rather led to inefficiency in resource allocation especially when the price is fixed below the marginal cost of production.

Poverty has been defined using social and monetary indicators. World Bank (2018) defined poverty in terms of number of people living below an international poverty line of US$1.90 are considered as absolute poor in the society. The recent measure relates to multidimensional poverty which is an international measure of acute of poverty covering acute deprivation in health (nutrition and child mortality), education (years of schooling and school attendance) and living standards (cooking fuel, sanitation, drinking water, electricity, housing and assets) that a person faces simultaneously. It complements traditional monetary poverty measures (Rentscher and Bazilian, 2017). The vital role played by energy in Nigerian economy makes energy subsidy an essential policy concern.

Energy subsidies is an integral part of implicit social contract between government and citizens of the country (Moerenhout, Vezanis and Westling, 2017; IMF, 2013). Therefore, by reducing subsidies without commensurate improvement in social welfare protection may be considered as unilateral change in the social contract which may lead to protest and political instability (Skovgaard and van Asselt, 2020; Rajesh, Acharya, Anver and Sadath, 2017; Arze del Granado, Coady and Gillingham, 2012). Conversely, if people perceive that the government is fulfilling its state obligations to the citizens by providing quality services with transparency and accountability by investing the savings realised from fuel subsidy reforms into critical sectors of the economy like health, education and basic infrastructure that directly impact on household, the level of willingness by the citizens to accept

energy subsidy reform, in a manner that improves provision of public goods and services can lead to increase level of support for subsidy reforms and and governance generally (McCulloch, 2019).

The nature of subsidies and subsidy reform makes it a bit complex that makes it difficult to attract the necessary support required from the public (Siddig, Minor, Grethe, Aguiar and Walmslay, 2015). The relationship that emanate from citizens knowledge and support for subsidy reforms is a function of how citizens understand the impact and nature of structural policies, moral concerns and general economic environment (Bassam, Moerenhout and Sen, 2016; Soile and Mu, 2015).

Trust in government generally, seems to determine peoples' support for subsidy reforms (Inchauste and Victor, 2017). The credibility and integrity of government is associated with perception of government's ability to appropriately implement reforms and judiciously redistribute or reinvest savings generated from the reforms (Inchauste, Victor and Schiffer, 2018; Masami, 2016; Coady, Arze del Granado, Eyraud, Jin, Thakoor, Tuladhar, Nemeth, 2012). Nigerian is a country with high degree of trust deficit between government and citizens (Ogbu, 2012), with reform opponents like labour unions and civil right groups always opposed to such as a result of government inability to protect the poor people in the society (Jun and Morgan, 2017; Soile and Mu, 2015).

Corruption has been an impediment to social and economic development and wellbeing especially in developing economies especially in resource rich countries like Nigeria with high level of rent seeking (Ozili and Obiora (2023). Corruption in Nigeria has affected the provision of public goods and services leading to higher levels of socio-economic inequality and poverty (McCulloch, Moerenhout, and Yang, 2021; Ogbonna and Kalu, 2012). The oil sector is notorious for corrupt activities along the fuel supply value chain (Bashir, 2013). In addition, support for reform can also be influenced by a wide range of personal and social characteristics including income (Brian, Chun, Wong and Johannes, 2019), education (Garg et al., 2016), and geographical location (Gabriela, David, and Schiffer, 2018) are crucial factors that explain citizens willingness to accept or reject fuel subsidy reforms.

Empirical Review

There are various studies that have been conducted to determine the impact of reforms especially energy sector reforms on the economy. Ozili and Obiora (2023) analyzed the macroeconomic and microeconomic effect of 2023 fuel subsidy removal in Nigeria using discourse approach. The findings that fuel subsidy removal has led to more financial resources or revenue for the government to invest in other critical sectors of the economy, provide incentive for domestic refineries especially modular refineries to take advantage of produce more petroleum products, channel funds for the development of critical public infrastructure, reduce budget deficit and public debt, and curb corruption associated with fuel subsidy payments. The negative effect include increase in cost of production and inflation, rising levels of poverty and inequality.

McCulloch, Moerenhout, and Yang (2021) examined the impact of energy subsidy on Nigerian economy using representative household survey. The study used knowledge, attitude and practice approach. The findings indicate that people who pay more for fuel or have experience fuel shortages are more likely to support subsidy reforms in the oil sector. Furthermore, people that perceived government not to be transparent or accountable and corrupt or lacks the capacity to implement compensation programs or mitigation measures are more likely to oppose subsidy reforms.

Ismail and Xiaoyi (2015) examined the relationship between domestic petrol prices and the 10 principal economic sectors in Nigeria using quarterly data spanning the period 1990-2013. The study employed a vector error correction model (VECM). The findings show that only agricultural sector, trade sector and services sectors co-move with fuel prices. The for error correction term (ECT) showed that beyond the short run, fuel price remained a significant determinant of the three economic sectors. Unidirectional causality running from mining sector to fuel price was discovered via the standard Granger causality test. The generalized variance decomposition test indicated that some of the sectors are influenced by fuel prices in the longer period.

Nwosa (2012) investigated one-to-one nexus between domestic fuel price and macroeconomic variables in Nigeria covering

the period 1986-2011. The analysis used vector auto-regressive (VAR) and a vector error correction (VEC) models approach. The findings revealed unidirectional causation from domestic fuel price to short term interest rate. While VEC model revealed the existence of causality from domestic fuel price to inflation rate in the long run and in the short run for pair of variables that are integrated of the same order.

Overall, energy reforms especially removal of fuel subsidy has implication for Nigerian economy as it affects the macro and microeconomy in a manner that impact on livelihood and wellbeing of the citizens.

3. Methodology

Model Specification

The theoretical framework and approach adopted in the study is premised on Stefan (2001) analysis of overlapping-generation and endogenous growth models of human capital accumulation where borrowing constrained young individuals. In a small open economy's equilibrium growth path, production, human and physical capital collectively grow at the same rate. Apart from vector of parameters, the optimizing time has borrowing constrained by private households to allocate resources to education, training and skills development. A rise in public debt used to redistribute tax burden from individual's youth to his middle age potentially increases the equilibrium growth rate of the economy and improves the intertemporal allocation of resources.

The model followed the approach by Egungwu (2021) and theoretical suggestion by Stefan (2001). The general empirical model is of the form:

The functional model is specified as:

$$POV_t = f(PMS, AGO, DPK, ELECT) \quad 1$$

The model can further be express for estimation as follows:

$$POV_t = \beta_0 + \beta_1 PMS_t + \beta_2 AGO_t + \beta_3 DPK_t + \beta_4 ELCT_t + \mu_t \quad 2$$

The variables are poverty level (POV) representing the absolute poverty level; petrol motor spirit (PMS) as the price of petrol motor spirit in Nigeria; automotive gas oil (AGO) as price of gasoline; dual purpose kerosene (DPK) as price of kerosene; and electricity tariff (ELECT) as tariff charge on

electricity; while 'μ' is the white noise and 't' is time trend. Aside from energy reform variables, there are also control variables.

The ARDL Bounds Test Approach to Co-integration

The ARDL Bounds test technique of co-integration was based on ordinary least square (OLS) estimation approach with conditional unrestricted error correction model (UECM) as developed by Pesran, Shin & Smith (2001). The application of this technique is to determine whether long run relationship exists among variables that enable the estimation of long and short run coefficients. The dynamic error correction model (ECM) is derived from ARDL method through a simple linear transformation, where the ECM integrates short run dynamics with long run equilibrium while still maintaining the long run information. Equation (3) is model as a conditional ARDL to implement the bounds testing procedure (Pesaran & Shin, 1995). This is presented in the following form:

$$\Delta POVt = \alpha_0 + \sigma_1 POV_{t-1} + \sigma_2 lnPMS_{t-1} + \sigma_3 lnAGO_{t-1} + \sigma_4 lnDPK_{t-1} + \sigma_5 ELECT_{t-1} + + \sigma_6 COV_{t-1} + \sum_{j=0}^{k} \varphi_{1j} \Delta POV_{t-j} + \sum_{j=0}^{k} \varphi_{2j} \Delta lnPMS_{t-j} + \sum_{j=0}^{k} \varphi_{3j} \Delta lnAGO_{t-j} + \sum_{j=0}^{k} \varphi_{4j} \Delta lnDPK_{t-j} + \sum_{j=0}^{k} \varphi_{5j} \Delta lnELECT_{t-} + \sum_{j=0}^{k} \varphi_{6j} \Delta lnCOV_{t-j\ j} + \varepsilon_t \quad 3$$

The long-run and short-run parameters of equation (4) would be estimated once a cointegration relationship has been established. Hence, the error correction model can be used to capture the speed of adjustment of human capital development model. This model is expressed below:

$$\Delta POV_t = \varphi_i + \omega_i lnPMS_{t-i} + \vartheta_i lnAGO_{t-i} + \gamma_i lnDPK_{t-i} + \sigma_i lnELECT_{t-i} + \nu_i lnCOV_{t-i} + \delta\ ecm_{t-1} + \varepsilon_t \quad \text{----------} \quad 4$$

Where: ecm_{t-1} is the error correction term lagged for one period and 'δ' is the coefficient for measuring speed of adjustment.

3.2 Method of Data Analysis

The ARDL approach to cointegration makes it possible whether the variables are I(0) or I(1). The study applied augmented Dickey Fuller (ADF) and Phillip-Perron (PP) unit root tests to determine the order of integration. The F-test was used to conduct the bound test to determine the long run relationship. Equation 4 shows the ARDL specifications of equations 3. The model is estimated using ARDL, fully modified ordinary least square (FMOLS) and dynamic ordinary least square (DOLS) to ensure robustness in the short and long run. The FMOLS estimators is corrected for the endogeneity and serial correlation with long run association among varisbles. The DOLS comparatively has better sampling properties and is unbiased than FMOLS.

The critical values were obtained as suggested by Narayan (2005) tables which allows for small sample estiamtion for a non-standardized distribution that depends on whether the variables are I(0) or I(1), or whether the ARDL model has a constant or trend. It suggested that the computed F-statistics must be greater than the upper bound critical values and the null of no cointegation is rejected. For a lower computed F-statistics compared to the upper bound critical values, the result failed to rejected the null of no cointegration. This provide for the estimation of short run and long run coefficients of the cointegrated equations.

3.3 Nature and Sources of Data

Our model is based on annual data covering the period 1999-2022. Much of the data on energy reforms and pricing (current pricing of the products) are extracted from Nigerian National Petroleum Corporation Limited (NNPCL), National Bureau of Statistics (NBS), and International Energy Agency (IEA). The data on control variables like inflation and per capita income were source from Central Bank of Nigeria (CBN) and World Bank World Development Indicators (WDI). The variables of government efficiency and control of corruption were obtained from World Governance Indicators.

4. Empirical Analysis and Discussion of Findings

4.1 Descriptive statistics

Table 1 presents descriptive statistics of the variables of the study. The mean, median,

standard deviation, Variance, minimum, maximum, Skewness and Kurtosis were used to describe the nature and spread of the data. It shows that institutional quality variables range from 0.019 to 4.48. The values are below 5 and by implication all six variables of institutional quality and energy subsidy reforms are at the lower level or below the mid value considered to be within the average level. Nigeria needs to improve the quality of service delivery given the fact that the economy is considered to be at high risk for the values lower than 50%. The poverty level with mean value of 0.892 is considered to be relatively high.

Table 1: Descriptive statistics

Variable	Obs.	Mean	Median	Max	Min	Std. Dev.
POV	28	0.892	0.135	0.9893	0.5670	0.099
PMS	28	0.927	0.563	8.621	0.365	1.550
AGO	28	4.783	2.953	4.216	2.367	0.971
DPK	28	3.911	3.138	4.045	3.004	1.526
ELECT	28	3.296	3.313	4.483	2.559	0.422
GEX	28	3.428	3.391	4.375	3.063	0.265
INF	28	3.166	3.249	3.78	2.56	0.28
PCI	28	1.196	0.62	3.876	0.019	1.138
GOE	28	6.593	2.443	10.351	2.978	0.935
COC	28	0.953	0.155	2.269	0.937	1.009

Results of unit root tests

The stationary test using ARDL Bounds testing results is presented in Table 2. Pesaran, Shin & Smith (2001) observed that for variable integration on the ARDL technique, variables must be stationary at I(0) or I(1). We utilized Dickey and Fuller (1981; 1979) and Phillip-Perron (1988) tests. The result shows that the variables are integrated at level I(0) and at first difference I(1) and exhibit long run linear combination

Table 2: Results of unit root tests

Variables	ADF		PP	
	At Level	At First Difference	At Level	At First Difference
POV	−2.119	−3.893*	−2.065	−5.187**
PMS	−1.994	−3.219**	−1.217	−3.833***
AGO	−1.618	−4.113**	−1.918	−4.306***
DPK	−1.587	−5.284***	−1.959	−4.697*
ELECT	−2.019	−4.630*	−1.482	−6.239***
GEX	−2.532	−5.821***	−2.527	−5.704***
INF	−2.072	−4.845***	−3.696***	−6.919**
PCI	−2.524	−9.914***	−2.025	−10.309*
GOE	−1.318	−2.899*	−1.667	−3.899*
COC	−3.557***	−7.929*	−2.545	−6.710***

Notes: *, ** and *** indicate significance levels at 10%, 5% and 1% respectively.

Bound test

The order of integration is at different levels [I(0) and I(1)], where we applied bounds test. Table 3 provides results of the bound test where the computed *F*-statistic of 15.25397 is greater than the lower and upper critical bound value at 10%, 5% and 1%, respectively, thus indicating the existence of a long-run relationship among the variables.

Table 3: Bounds test result

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	15.25397	10%	2.51	3.63
K	4	5%	3.47	4.19
		2.5%	3.93	4.78
		1%	4.12	5.03

Source: Authors Computation using E-view 10

Lag selection criterion

The study conducted a VAR lag order selection criteria test to determine the optimal lag. The results in Table 4 suggested 2 optimal lag for the study.

Table 4: Optimal lag selection criteria

VAR Lag Order Selection Criteria						
Lag	LogL	LR	FPE	AIC	SC	HQ

0	-289.826	NA	0.015067	9.994098	10.17016	10.06283
1	30.07810	574.7428	6.89e-07	-0.00265	1.053728	0.409719
2	41.17313*	18.05293*	1.12e-06*	0.468707*	2.405395*	1.224712*
3	79.16586	55.37923	7.59e-07	0.028276	2.845276	1.127919
4	120.9975	53.88478	4.71e-07	-0.54229	3.155025	0.900994
5	168.4381	53.06916	2.58e-07	-1.302986*	3.274639	0.483934
* indicates lag order selected by the criterion						

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Source: Authors Computation using E-view 10

Estimation and robustness test

To evaluate the sensitivity of the findings, the study employed fully modified ordinary least square (FMOLS) and dynamic ordinary least square (DOLS) to measure the robustness of the outcome of long-term estimates of the ARDL approach. The results are presented in Table 5 and Table 6 respectively.

The results in Table 5 on FMOLS show that petro motor spirit (PMS), automotive gas oil (AGO), dual purpose kerosene (DPK), and electricity tariff (ELECT) are statistically significant in influencing poverty. This signifies that energy subsidy reforms should be done in a manner that is accompanies with schemes to address unintended consequences including poverty related issues. The findings is supported by Egungwu (2021), McCulloch

(2019), Coxhead and Morgan (2017), and Kadiri and Lawal (2016).

Table 5: Estimation results of fully modified least square

Variables	Specified models			
	PMS	AGO	DPK	ELECT
	(1)	(2)	(3)	(4)
POV	0.002** (−3.920)	1.065*** (2.092)	-0.132** (−4.562)	1.653** (−3.545)
GEX	-0.009* (-2.231)	3.834 (0.806)	1.457 (1.065)	-1.112* (2.453)
INF	-1.338** (3.072)	-0.014*** (2.774)	-2.449 (1.450)	1.007** (4.231)
PCI	−0.784** (−2.991)	0.998 (1.562)	−2.783*** (−4.533)	−1.666* (−2.382)
GOE	−1.190* (−2.656)	−0.016 (−1.270)	−2.720*** (−4.557)	0.671 (1.694)
COC	2.678* (4.103)	0.675*** (3.392)	0.034 (0.459)	1.879** (3.569)
C	1.444** (2.076)	3.672*** (6.793)	2.893** (2.976)	1.989*** (3.967)

. Note: *, **, and *** indicate the significance level at 10%, 5%, and 1% respectively. Numbers in the parenthesis indicate the t-statistic.

The results in Table 6 show the estimates of the DOLS where petrol motor spirit (PMS), automotive gas oil (AGO), dual purpose kerosene (DPK), and electricity tariff (ELECT) significant determinants of poverty and inflation in Nigeria. it also impact on government efficiency (GOE) and control of corruption (COC). The findings are supported by McCulloch (2023, 2021), Agu, Ekwutosi and Augustine (2018), and Masami (2016).

Table 6: Estimation results of dynamic ordinary least square

Variables	Specified models			
	PMS	AGO	DPK	ELECT
	(1)	(2)	(3)	(4)
POV	-1.991** (-5.649)	-1.092** (4.992)	0.723* (3.746)	0.934*** (4.006)
GEX	−0.013* (−2.936)	−0.028*** (−4.712)	0.761*** (3.506)	−0.683** (−3.435)
INF	1.273 (0.358)	1.204*** (3.231)	0.987 (0.793)	0.859** (2.493)
PCI	1.285 (0.943)	2.069** (3.108)	1.992 (1.345)	2.794 (1.920)
GOE	−0.112** (−3.715)	−0.324* (−3.759)	-2.667* (−2.099)	2.901 (1.793)
COC	−0.357* (−3.683)	1.193** (3.001)	−0.692 (−1.590)	0.903 (1.451)
C	−2.731** (−6.756)	0.334** (2.950)	8.087* (4.836)	-8.773*** (3.822)

. Note: *, **, and *** indicate the significance level at 10%, 5%, and 1% respectively. Numbers in the parenthesis indicate the t-statistic

Diagnostic test

The diagnostic tests result is presented in Table 7. It shows no evidence of serial autocorrelation. Therefore, the Breusch-Godfrey null hypothesis of no serial Autocorrelation is accepted. The Breusch-Pagan-Godfrey test shows no evidence of Heteroskedasticity. Furthermore, the Ramsey RESET for model specification indicates that

the model has no evidence of any misspecification.

Table 7: Diagnostic test

Test	Results	Prob
Ramsey RESET Test	0.021743	0.5023
Heteroskedasticity Test	0.345729	0.4669
Breusch-Godfrey LM Test	1.091212	0.2554

Source: E-views 10 Output: Author's Computation

5. Summary and Recommendations

The study examines the relation among energy subsidy, social contract and poverty in Nigeria spanning the period 1999-2022. The study employs autoregressive distributed lag (ARDL) model, dynamic ordinary least square (DOLS), and fully modified ordinary least square (FMOLS) approach to measure the impact and robustness of the outcome of long-term estimates of the ARDL. The series were stationary at levels I(0) and first difference I(1). Cointegration was established with 2 optimal lag. The results of DOLS and FMOLS show that fuel reforms in petrol motor spirit (PMS), automobile gas oil (AGO), dual purpose kerosene (DPK) and electricity tariffs have impacted on high level of poverty in Nigeria. The reforms have also affected control variables like inflation and per capital income as inflation erodes the purchasing power of economic agents.

The study suggests that Nigeria government should as a matter of necessity deepen the implementation of market-based pricing in the short to medium term. This should be complemented by mitigating measures of its impact on the lower and middle income group like conversion plan from petroleum to natural gas (CNG) vehicles. Strategic policies to strengthen voice and accountability are required to support reforms. At the same time, wider measures to build trust between government and the governed is essential to enhance social contract, improve the quality of service delivery, and control of corruption will make subsidy reforms more feasible.

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