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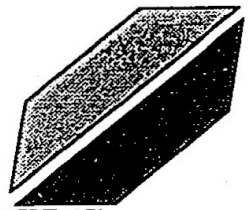

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INCREASE IN PRICES OF PETROLEUM PRODUCTS IN NIGERIA: RECOUNTING THE COSTS AND BENEFITS

ABSTRACT

Frequent changes in prices of petroleum products in Nigeria have been experienced over the past two and a half decades. The crucial position of energy in both production and consumption process in an economy implies that this act of intermittent changes would have some effects on both welfare and macro-economic variables like general price level and output level in the economy. This study has investigated the effects of increased prices of petroleum products, namely premium motor spirit (PMS), household kerosene (HHK), and automotive gas oil (AGO) in Nigeria, relying on aftermath analysis of previous price increases. These price increases have positive influence on the increases of some major price indices with concomitant negative impacts on the welfare and standard of living. The price hike also has negative correlation with production activities in the manufacturing sector, which require some energy inputs for successful operation.

1. INTRODUCTION

Energy market in Nigeria has experienced a long period of crisis since the 1980s. This crisis, which is mostly on the supply side of energy,

Critics on the other hand are often worried about negative impacts like the risk of output losses, inflation, and undesirable effects on the welfare of the poor (Hope and Singh, 1995). It is equally common to stumble on the argument that the domestic prices charged for petroleum products are lower than the break-even prices. To date, questions are still being asked about the issue of petroleum subsidy. For example, it is not clear yet what is the magnitude and extent of the subsidy. Would Nigerians be able to pay full prices of petroleum products in the event of complete deregulation given the present level of income operating in the economy? Has government not indeed been using petroleum subsidy as an easy source of revenue generation from the public whenever it removes from it? While these are questions that ought to induce genuine research interest, the focus of this paper is on the direct partial-impacts on producers and consumers, and overall macroeconomic impacts of previous energy price increases in Nigeria. This study covers the period of 1973 when petroleum product prices were unified across the country to 1999. This period was chosen to capture essentially all occasions of petroleum price increases in Nigeria.

After this introductory section, the paper is arranged into five sections. Section 2 is on theoretical and methodological framework for analyzing petroleum products pricing, while section 3 presents a brief overview of the domestic (end-user) petroleum market and a historical perspective of petroleum price changes in Nigeria. The empirical analysis is contained in section 4. The paper is concluded in section 5 where the policy implications of the study are presented and recommendations offered.

2. THEORETICAL AND METHODOLOGICAL ISSUES IN ENERGY PRICING

Energy plays a dual role of consumption goods and intermediate inputs in production activities. This directly explains the crucial position of energy in the developmental and growth efforts of any economy. There are three

important energy policy decisions. One of them is energy pricing policy1, which has to do with output price. The general belief is that energy-pricing policy is at the core of a country's overall energy policy. Since all sections of people do require some energy for their welfare, energy production and pricing become vital considerations in the understanding of national economic development (Sarkar and Kadekoki, 1987). For commercial energy, which comprises of coal, petroleum, fuel, gas and electricity, energy pricing plays a considerable role in accelerating their exploration for and development of primary fuels.

A number of questions are directly related to the subject matter of energy pricing policy and efficient energy use. These questions include the following:

- of what relevance is the price system to the issue of efficient energy use?
- what are the objectives of energy pricing policy?
- when and how do government intervene in energy pricing?

The price system is essentially a mechanism or device that is often used to allocate scarce goods, services and resources among competing economic agents who are willing and able to buy or sell at the going prices. The presumption behind this conceptualization of the price system is that pricing is happening within the framework of free enterprise, or at worst mixed economies. Given that this presumption is true, the interplay of demand and supply will help to establish a price that will equate demand and supply. In an idealized world of perfect competition, the interaction of many small profit maximizing producers and welfare maximizing consumers is expected to give rise to market prices that will reflect the true economic costs, and hence scarce resources will be efficiently allocated. One theoretic evidence in support of the efficiency of prices that are market determined is that, a Pareto-optimal situation will develop whereby for a given income distribution, no individual can be made better off without making someone else worse off (Bator, 1957; Mishan, 1976). To put pricing in proper context, it represents one of the

1 The remaining two is load forecast decision and investment plan decision.

policy tools available for optimal supply-demand planning and management2. It is most effective as a long-run policy tool. From the viewpoint of economic efficiency, the price indicates to suppliers the consumers' willingness to pay and the use value of energy. To the consumers, price signals the present and future opportunity costs of supply that draws on various energy sources. The strength of the price system to guarantee both static and dynamic efficiency is one of the reasons for the reliance on energy pricing to pursue the objective of energy demand and supply planning.

The neoclassical economic model demonstrates that the value of present consumption to society will be maximized when the following three conditions relating to static efficiency are met:

(i) Making full use of the nation's energy and non-energy resources.

(ii) Producing the 'right' combinations of energy and non-energy outputs; and

(iii) Using the right combinations of inputs.

"Right" is defined in static efficiency in terms of relative values, where "relative values" are measured by society's willingness to pay for each unit of the good or service. For dynamic efficiency, the economy is expected to be growing at the right "rate", where 'right' connotes society's choice between present and future consumption (Ward, *et al* 1991).

Energy pricing policy has a number of objectives. The following range of objectives have dominated energy pricing policy in both developed and less developed countries:

(a) **Economic and development**

- it requires that pricing policy should promote economically efficient allocation of resources

2 Other tools include physical controls, technical methods, (including research and development), and education and propaganda. See Munasinghe, 1980)

- relative energy prices should also influence the pattern of consumption in the direction of the optimal or least-cost mix of energy sources required so as to meet future demand

(b) **Equity Considerations**

- the provision of cheap energy to lower income groups
- it recognizes every citizen's basic right to be supplied with certain minimum energy needs
- given the existence of significant number of poor consumers and also wider disparities of income, this implies subsidized prices, at least for low-income consumers.

(c) **Macroeconomic Stabilization**

- to generate surplus in the public sector and influence exports and imports to achieve internal and external balance3
- to ensure viability and autonomy of the energy sector such that the energy sector earns a fair rate of return on assets
- to self-finance an acceptable portion of the investments required to develop future energy resources.

(d) **Energy conservation**

- prevention of unnecessary waste
- greater independence from foreign source of energy.

(e) **Environmental protection**

- indirect regulation of energy consumption that can result in environmental degradation, e.g. deforestation, greenhouse effect of emission of carbonated wastes into the

3 This objective is more important in an economy where the energy sector has an extensive fiscal linkage with the rest of the economy. Nigeria is an example of economies where energy, particular the oil sub-sector has strong fiscal linkage with other sectors.

atmosphere, etc.

- encourage the consumption of cleaner energy in households and industries.

(f) **Others**

- price stabilization as a way of insulating consumers from large price fluctuations
- promoting regional development or specific sector development.

In terms of models of energy pricing, the mechanisms through which the prices of energy resources are determined have been subjected to a number of economic criteria. Because the objectives of energy pricing policy are often not mutually consistent, a realistic integrated energy pricing structure is often suggested to permit trade off among them.

The formulation of energy pricing policy is often carried out in two stages. In the first stage, a set of prices that strictly meets the economic efficiency objective is determined based on consistent and rigorous framework. The second stage consists of adjusting these efficient prices (established in the first step), to meet as many of the other objectives as possible. The latter procedure is more ad hoc, with the extent of the adjustments being determined by the relative importance attached to the different objectives. Prominent models of energy pricing include marginal cost pricing, shadow pricing, willingness -to –pay-criterion, full cost pricing, and monopoly/profit maximizing pricing among others.

Neoclassical economics recognizes that "market failures" may prevent static and dynamic efficiency from being achieved. Market failures relate to situations in which markets for particular goods and services fail to meet the conditions of perfect competition. Hence, when markets fail, government is expected to intervene in the economy in a manner that will correct for those failures and which will guarantee the attainment of static and dynamic efficiency.

Government intervention may be viewed as "optimal" when they help restore the conditions needed to achieve economic

efficiency. Interventions which disrupt economic efficiency, or which do not fully restore the conditions for economic efficiency, may be viewed as non-optimal interventions. Unfortunately, government intervention in energy pricing, rather than correcting for the distortions caused by market failures –often worsens the distortions. This provides a basis for the two forms of government failure:

(a) Interventions designed to correct for market failures but which, in practice, turn out to be inappropriate, insufficient, or excessive.

(b) Interventions, which disrupt otherwise efficiently functioning markets.

Governments exercise direct influence, usually through the ownership of energy sources or price controls. Indirect influences occur through such means as taxes, import duties, subsidies, market quotas, taxes on energy-using equipment, and government-guided investments in energy resources.

Two problems are often noticed whenever government intervenes in energy pricing. These are:

(a) the tendency to price energy resources below or above the costs of production and distribution;

(b) the tendency of governments to treat their monopoly public energy enterprises as a direct extension of government, with little differentiation among the ownership, regulatory and management functions.

The extent of these problems and how far they move prices away from efficiency level will depend on the volume of formal and transparent rules that are in place to monitor energy supply and demand relationship.

Given the crucial position of energy in economic activities and the impact of revenue from a resource like petroleum fuel, theory will inform that government intervention in energy pricing is likely to continue unabated, even if governments will need to step on the lofty objective of equity considerations. The ideological inclination of the government will equally affect the extent of intervention to be

expected.

Energy is demanded both for direct use (private consumption) and indirect use (input into production processes). Apart from income, the main determinants of these demands are prices of both energy producing and using sectors. If energy prices increase, the direct use of energy will fall in response. By and large, such effects are observable in private consumption. On the other hand, for energy using sectors energy cost will increase which will ultimately be passed on to consumers4 in the form of higher prices and their demand will get depressed. The resultant framework for analysis in the face of increased energy prices then becomes the standard cost-plus pricing, which has been employed by several empirical studies (see for example, Eckaus *et al*, 1979; Hughes 1986).

Methodologies of analysis used in previous studies on energy price changes and their attendant effects fall into four sub groups (see table 1 below). The last subgroup revolves around the use of narrative, survey and panel approach. This approach is always employed to analyze the pattern of effects generated by intermittent changes in energy price. The need to capture the frequent changes in prices of petroleum products in Nigeria and make some broad generalizations regarding the impacts of such price increases on notable macroeconomic indicators inform our choice of this approach. Hence, simple ratio correlation coefficients and graphical expositions are used to pursue our investigation towards some conclusion. The choice of our methodology is informed purely by the need to have a partial view of the responses of major economic indicators to energy price increases, which can form a basis for further economy-wide analysis. We focus on the petroleum products in Nigeria because of the unique

4 This is the basic assumption in Input-Output analysis. Here, the elasticity of substitution is nil and increase in energy prices is fully reflected in the prices of other commodities.

Table 1: A Taxonomy of Methodological Approaches to the Study of Impacts of Energy Price Changes

Category	Focus and Strengths	Limitations	Examples
Econometric Models	This category of models presents a detailed characterization of one of the energy sub-sectors. The modeling approach is very useful for planning, investment and policy formulation at the most disaggregated level	Excludes interactions and feedback between the economy and the chosen sub sector.	Merklein, 1975; Vartia, 1983; Ogunkola, 1992; Bacon, 1995.
Energy Management Models	This modeling approach seeks, in most cases, to determine the most efficient supply configuration to meet a given level of demand. Models in this category often include simultaneous models (rather than simple regression analysis), process analysis and optimization techniques such as goal programming analysis.	It is often difficult to incorporate energy-economy interactions since the models rely on linear technology. This approach also assumes that energy demand is exogenous and non-responsive to prices, leading to the generation of shadow prices that hardly resemble a real market system.	Marshalla, 1981; Hoffman, 1973; UNIFECS, 1991.
Economy-wide Models	This modeling approach permits a detailed characterization of energy sector and its interactions with the rest of the economy. In effect, it allows for the evaluation of the impact of energy policies on energy and non-energy inputs, government account balances, trade balances and income distribution among others.	Economy-wide models focus exclusively on efficiency to the neglect of equity consideration.	Sarkar and Kadekoki, 1987; Chu and Grais, 1994; Adenikinju, 1995.
Narrative, survey and panel studies	Narrative, survey and panel approach is employed to practically track down responses to intermittent changes in energy prices within the framework of partial analysis. This approach is able to capture both direct and indirect effects of energy price changes.	Isolating the effects of energy price changes from the effects of other factors would always require an extensive modeling exercise, which goes beyond the scope of this approach more so if the interest is to investigate direct and indirect effects of price changes within the framework of general equilibrium.	Emembolu, 1975; Powerlson, 1977; Trent and Pollard, 1983; Freud and Wallich, 1995.

Source: Authors' construction based on the literature.

role of the oil sub-sector in Nigerian economic growth and development.

3. An Historical Overview of Domestic Petroleum Products Markets in Nigeria

In Nigeria, the mixture of ownership among the multi-national corporation, government (through the Nigerian National Petroleum Corporation-NNPC) and the indigenous private investors dominates petroleum retail markets in Nigeria. The multinational corporations control the upstream investments with the NNPC increasingly becoming an important investor. The downstream investments in the industry are dominantly in the hands of the NNPC that owes solely the refineries, pipelines and product storage depots all over the country. Both the NNPC and the multinational companies such as Total Nigeria Ltd. and African Petroleum Ltd. of which the NNPC has some shares control these wholesales of the end products. The purely retail business in the streets is where indigenous business interests dominate. This ownership structure has remained so due to the high risk and huge capital requirements in the up-stream business and relatively lower risk and capital involvement at the lower stream activities in the industry.

Petroleum refinery and distribution constitute the main structure of down-stream petroleum market in Nigeria. The NNPC owns all the four refineries (2 in Port Harcourt, one each in Warri and Kaduna) in Nigeria. It obtains crude oil from the government at the payment of ₦20 per barrel as at 1993 and processes it into various products supplied to the domestic markets.

Prior to 1973, petroleum products in Nigeria were treated as private goods, such that the private oil companies were responsible for determining the domestic market prices of petroleum products. In the case of pump-price of premium petrol per gallon Garba, (1996) informed that it ranged from 44 kobo in Lagos to 70 kobo in Maiduguri. In Port Harcourt, the price was 53k even though, that was the place where the only refinery in Nigeria was located then. The Gowon administration enforced the uniform pricing of petroleum

products throughout Nigeria at the ruling price in Lagos, which incidentally was the lowest in the country. By this unification of petroleum product prices alone, a room was created for a differential subsidy, whereby the difference between the Lagos price and prices at different locations in the country, became the extent of the subsidy. For example, the residents of Port Harcourt enjoyed a subsidy of 9 kobo per gallon of gasoline.

Ever since this unification in 1973 fixation of petroleum prices in the domestic energy market has remained the pre-occupation of the Federal Government. At the moment, the organ of government that is charged with the responsibility of proposing price changes to the Central/Federal Government is the Ministry of Petroleum Resources. Final approval remains with the Federal Government.

In practical terms, Ojo and Adebusuyi (1996) observed that the accepted price structure is often influenced by five factors. These are: the country's development programmes, the revenues for the producers and marketers, income and levels of the price in the economy, the fuel prices assumed to be affordable for the public, and other socio-political considerations. Relying on these factors, the government determines the price for refined petroleum products at the pump, the price of crude sold to the refineries, as well as the negotiated margin for distributors and marketers.

In theory, the prices of petroleum products should be derivable from international crude oil prices, but the interaction of factors identified earlier often influence product price determination, more than the international crude oil prices do.

Between 1985 and 1999, Premium Motor Spirit (PMS) otherwise known as petrol has its price adjusted about seven times.[5] One important explanation for these price adjustments was the need to narrow down the gap between domestic petroleum price and the international price of crude oil. In addition to this explanation, Iwayemi (1993) revealed that the reviews were often consequent upon the fiscal crises that government needed to respond to, particularly,

5 Except for 1988 and 1989, prices of Household Kerosene (HHK) and Automotive Gas Oil (AGO) were adjusted whenever PMS' price was adjusted

between the period of 1978 and 1986. Table 2 below shows the price adjustment since 1973 to 1999.

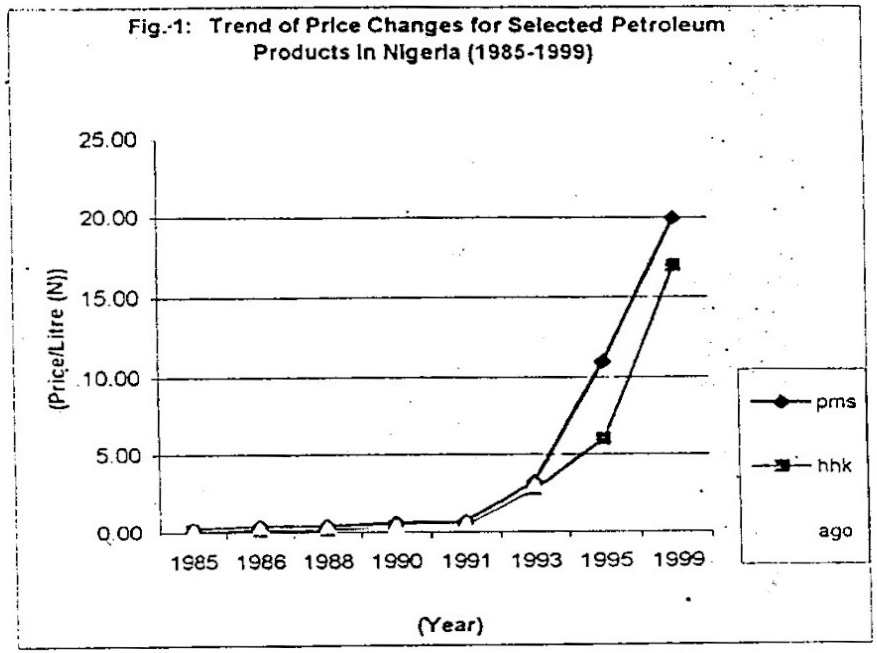
Table 2: Nigeria's Official Prices for Petroleum Products (1973-1999)

Date	PMS (Kobo/Litre)	HHK (Kobo/Litre)	AGO (Kobo/Litre)
1973-78	9.5	8.1	8.8
1979-81	15.3	10.5	11.0
1982-85	20	10.5	11.0
1986	20	10.5	29.5
1987	39.5	10.5	29.5
1988	42.0	15	35
1989	60	15	35
1990	60	40	55
1992	70	50	55
1993	325	275	300
1994	1100	600	900
1999	2000	1700	1800

Source: NNPC Annual Statistical Bulletin (various issues).

From table 2, it is evidently clear that prices of petroleum products in Nigeria have been on the increase over the years. Figure 1 reveals more explicitly that the trend which has been positive, became an upsurge one as from 1993 when the prices rose from 70k, 50k and 55k to N3.25, N2.75 and N3.00 for PMS, HHK and AGO respectively. The rise would have been more alarming if the initial announcements of N5.00, N4.50, N4.75 were not met by general disapproval leading to intermittent protests in major commercial centres in Nigeria.

Figure 2, shows the percentage price changes, with that of household kerosene taking the lead, when last the prices were adjusted



(December 1998). Economics informs that 'everything depends on everything else', it must be expected that, these frequent and upsurge in prices of petroleum products will necessarily affect principal macroeconomic indicators in the economy. An important question to ask is this: What are the macroeconomic effects of increase in prices of petroleum products, going by aftermath of previous price changes?

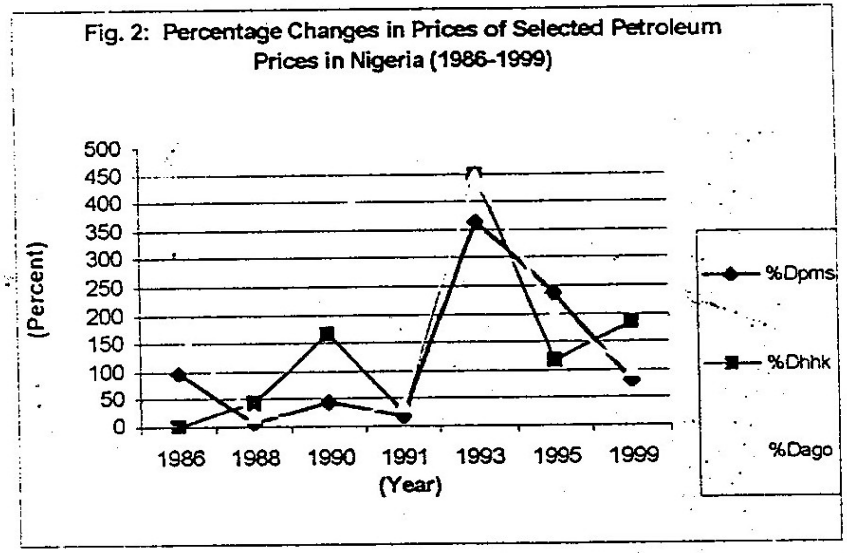
4.0 EFFECT OF INCREASE IN PETROLEUM PRICE

Although energy market could easily be mistaken to be relatively impacting on the economy just because of the relative size of the energy sector in the GDP, the effect of the sector is more far reaching than such erroneous conclusion. There are basic reasons why energy impact in the economy may be greater than its direct contribution to the GDP. The reason is that energy is a basic factor input in the nation's production process. A basic minimum amount of energy input

is required in every production process. Energy is thus a complementary input to non-energy factors and the economy cannot do without it. Energy input provides the fuel that turns the wheels of production process both in the market sector (business) and the non-market sector (household and non-monetized).

Table 3 depicts the relationship between selected petroleum product prices and the consumption responses on these items, and between those prices and some indices of prices in the economy. Three petroleum fuel products prices were selected namely premium motor spirit (PMS), automotive gas oil (AGO) and household kerosene (HHK). Generally, each of the energy items selected has demand curve that is conformable to economic theory of negative relationship between own price and quantity demanded. This is captured by negative price-consumption correlation coefficients of –0.771, -0.244 and –0.839 for PMS, AGO and HHK, respectively. The cross-price effect of these fuels is also an interesting report about the

Fig. 2: Percentage Changes in Prices of Selected Petroleum Prices in Nigeria (1986-1999)



rigidities in Nigerian economy. These three fuels are observed to be complementary such that increase in the price of PMS will lead to

general fall in the consumption of all other fuel. Although such complementary could exist, joint movement in the prices of these products as observed in Nigeria in period under study may explain the observed relationship. Thus, given unilateral increase in the prices of these products, the quantities demanded are bound to fall jointly giving an empirical but misleading evidence of complementarity. The truth is, however, that joint review of the prices of fuels does not allow the consumer any substitution opportunity but leads to a general fall in consumption of these products. Given the positive relationship between fuel consumption and standard of living observed in economic theory (Hogan and Manne, 1979), it means review in petroleum prices has negative effect on consumption and standard of welfare in Nigeria.

The conclusion of negative welfare arising from the impact of increase in petroleum price is reinforced by the relationship between prices of those items and general price levels. Table 4 provides some information on how prices of the petroleum items affect rural and urban prices of food, accommodation, household, and transportation. Generally, prices of petroleum products feed back positively, through various price transmission processes, to other prices in the country. This perhaps can help to explain why the effects of hike in prices of petroleum products produce closely similar effects on rural and urban price indices though urban prices are higher. For example, relationship between the price of the three-selected petroleum products and prices of other consumable items selected is found to be positive. The correlation coefficients in respect of PMS price and cost of transportation are 0.93 and 0.92 for urban and rural transportation respectively. Similar coefficients in respect of price of HHK to prices of household goods and other services stood at 0.94 for both urban and rural dwellers. There is a temptation at dismissing that the relationship between petroleum product prices and accommodation price index for instance is spurious. However, landlords and estate managers are sensitive to the price increases in other sectors such as food market and transportation resulting from petroleum price review, and so respond by hiking their rents.

Table 4: Petroleum Product Prices and Other Price Indices

	PMS Price	HHK Price	AGO Price	Inflation rate	Aggregate CPI (urban)	Aggregate CPI (rural)	Food (urban)	Food (rural)	Accomm odation (urban)	Accommo dation (rural)	House-hold Goods (urban)	House hold Goods (rural)	Transporta-tion (urban)	Trans tion (r
PMS Price	1													
HHK Price	0.995	1												
AGO Price	0.9997	0.997	1											
Inflation rate	0.534	0.565	0.543	1										
Aggregate CPI (urban)	0.929	0.925	0.928	0.393	1									
Aggregate CPI (rural)	0.918	0.914	0.918	0.374	0.999	1								
Food (urban)	0.932	0.931	0.932	0.407	0.999	0.998	1							
Food (rural)	0.919	0.916	0.919	0.386	1.000	0.9998	0.999	1						
Accommodation (urban)	0.893	0.884	0.891	0.341	0.985	0.988	0.977	0.986	1					
Accommodation (rural)	0.889	0.879	0.887	0.366	0.979	0.983	0.970	0.981	0.998	1				
Household Goods (urban)	0.943	0.940	0.943	0.439	0.989	0.986	0.993	0.987	0.955	0.951	1			
Household Goods (rural)	0.943	0.939	0.942	0.433	0.993	0.990	0.995	0.991	0.964	0.961	0.999	1		
Transportation (urban)	0.933	0.927	0.932	0.395	0.997	0.996	0.993	0.996	0.993	0.989	0.979	0.985	1	
Transportation (rural)	0.923	0.914	0.921	0.356	0.997	0.998	0.994	0.997	0.992	0.988	0.983	0.988	0.998	

Table 3: Petroleum Product Prices, Consumption and Price Indices Responses

	PMS Price	HHK Price	AGO Price	Oil Revenue	PMS Consumption	HHK Consumption	AGO Consumption	CPI (aggregate)	CPI food	CPI Accommodation	CPI HH Goods	CPI Transportation	Inflation rate
PMS Price	1												
HHK Price	0.994	1											
AGO Price	1.000	0.997	1										
Oil Revenue	0.878	0.888	0.880	1									
PMS Consumption	-0.771	-0.756	-0.768	-0.840	1								
HHK Consumption	-0.841	-0.839	-0.840	-0.906	0.930	1							
AGO Consumption	-0.240	-0.270	-0.244	-0.266	0.000	0.107	1						
CPI (aggregate)	0.923	0.919	0.922	0.976	-0.913	-0.941	-0.160	1					
CPI food	0.920	0.918	0.920	0.978	-0.914	-0.943	-0.166	0.9998	1				
CPI Accommodation	0.928	0.922	0.927	0.964	-0.916	-0.934	-0.135	0.998	0.997	1			
CPI HH Goods	0.938	0.934	0.938	0.976	-0.874	-0.915	-0.186	0.994	0.994	0.994	1		
CPI Transportation	0.937	0.930	0.936	0.966	-0.912	-0.937	-0.143	0.998	0.997	0.998	0.994	1	
Inflation rate	0.534	0.565	0.543	0.445	-0.132	-0.286	-0.610	0.389	0.394	0.376	0.437	0.377	1

Note:

a *CPI*-here, and in other Tables means, Consumer Price Index (or Indices); and *CPI aggregate* (or Aggregate CPI) is the composite CPI, this applies to other Tables

b *HH Goods* in this and other Tables means, Household goods other purchases.

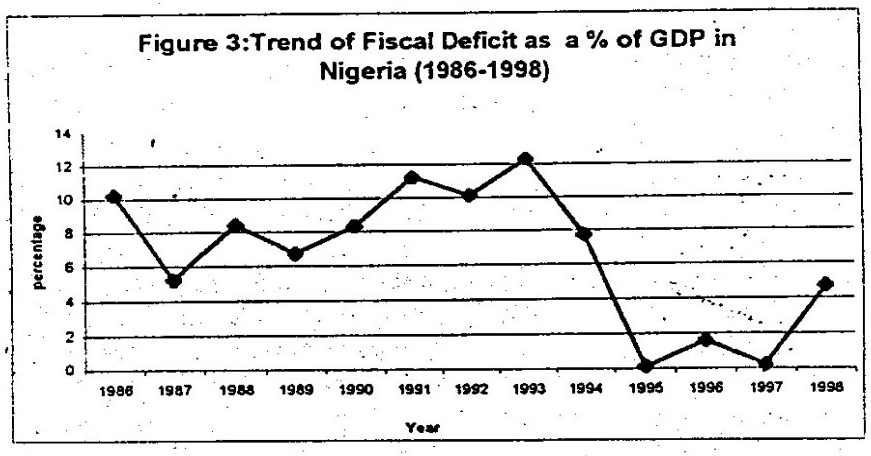
Source: the coefficients of correlation in Table 2, 3 and 4 are computed with data from the following sources:

(i) Prices and quantities of petroleum products are drawn from the NNPC *Annual Statistical Bulletin* (various years)

(ii) Other price indices are collected from the CBN *Statistical Bulletin* (various years)

The relationships observed in table 5 talking about the rate of change in prices of petroleum products and consumption level also support our findings in table 4. It is noted that the inference obtained in table 4 earlier on does not change; only the weight of the effects of price changes on the other variables under consideration becomes lighter. Nevertheless, the general price level feeds from increases in energy prices leading to high level of inflation.

Correlation coefficient for change in oil revenue and change in petroleum products' prices indicates a negative relationship for two of the petroleum products namely PMS and AGO. The values are –0.9 and –0.26 for PMS and AGO, respectively. The value for HHK is positive: 0.31. However, the sum of all the coefficients gives a negative value of –0.04 suggesting that the general relationship between price increase and revenue mobilization objective is negative. The extent to which price hike in respect of petroleum products in Nigeria can be justified using revenue mobilization argument (as often projected by the government) is therefore highly limited and lacking in



evidence.

It is equally interesting to note that even for years when prices of PMS, HHK, and AGO were increased, the fiscal balance of the government remained at deficit. For example in 1993 when the hike

Table 5: Changes in Petroleum Product Prices and Other Price Indices

	D PMS[a] Price	D HHK Price	D AGO Price	D Oil Revenue	D PMS Consum-ption	D HHK Consum-ption	D AGO Consum-ption	D Mfg[b] Output Index	D Mfg Capacity Utilization	D CPI (aggregate)	D CPI food	D CPI Accommod-ation	D CPI HH Goods	D CPI Transporta-tion	D Inflati rate
DPMS Price	1														
DHHK Price	0.812	1													
DAGO Price	0.960	0.792	1												
D Oil Revenue	-0.094	0.309	-0.258	1											
D PMS Consumption	-0.190	0.223	-0.100	0.174	1										
D HHK Consumption	0.152	0.179	0.350	-0.300	0.475	1									
D AGO Consumption	0.755	0.815	0.811	0.030	-0.184	0.137	1								
D Mfg Output Index	-0.826	-0.519	-0.840	0.460	-0.042	-0.384	-0.370	1							
D Mfg Capacity Utilization	-0.780	-0.528	-0.591	-0.159	0.246	0.165	-0.261	0.685	1						
D CPI (aggregate)	0.721	0.573	0.524	0.353	-0.538	-0.474	0.534	-0.332	-0.818	1					
D CPI food	0.673	0.598	0.500	0.400	-0.554	-0.493	0.635	-0.203	-0.683	0.977	1				
D CPI Accommodation	0.907	0.651	0.758	0.082	-0.332	-0.111	0.500	-0.732	-0.962	0.874	0.778	1			
D CPI HH Goods	0.716	0.457	0.498	0.238	-0.463	-0.391	0.298	-0.504	-0.956	0.932	0.832	0.938	1		
D CPI Transportation	0.684	0.452	0.456	0.305	-0.436	-0.389	0.266	-0.463	-0.953	0.926	0.826	0.923	0.997	1	
D Inflation rate	0.044	0.189	0.124	0.060	-0.398	-0.213	0.642	0.383	0.380	0.177	0.376	-0.156	-0.176	-0.200	

Note: a. All D's used before each of the variable in this Table mean, "change in". b Mfg means, "manufacturing".

was the highest (see figure 2), the deficit level stood at the highest level of –12.3% of the GDP (see figure 3). Nevertheless, it is safe not to over stretch the relationship between deficit and the hike in petroleum product prices beyond the level of mere observation. The fact is that fiscal balance is not entirely a function of level of revenue. It is likely that more factors relating to extravagance, lack of budget discipline, and balance of payments position would be more relevant to the understanding of the trends of fiscal balance in Nigeria.

5.0 CONCLUSION

This paper has focused on the examination of the effect of increase in petroleum product prices in Nigeria. Attention was placed on three of the products namely premium motor spirit otherwise known as petrol (PMS), household kerosene (HHK) and automotive gas oil otherwise known as diesel (AGO). Our findings suggest that previous increases in prices of these energy products have impacted negatively on their consumption, general price level in the economy and hence had direct implications on the standard of living of the populace. To the extent that the elasticity of substitution for these products is very close to zero if not zero, particularly PMS and AGO, it is implied by the findings of this paper that caution should be exercised along the line of incessant and frequent change in prices of these products. It is appreciated that pricing should be used to foster efficient utilization and allocation of petroleum products. Yet, it is equally true that other laudable objectives that pricing policy alone can not achieve exist and which must be taken into account if an average Nigerian is not to be priced out of the petroleum product market given the exiting level of income in the economy. This again suggests that attempts at deregulating the prices of petroleum products must not be done without first removing government controls of factor prices, including salaries and wages, which would guarantee affordability of the high petroleum product prices in the economy.

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