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PETROLEUM PRODUCT PRICING (PPP) AND JOB CREATION IN NIGERIA 1980 TO 2011

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ABSTRACT

This study investigates the relationship between petroleum product pricing (PPP) and job creation in Nigeria. To achieve the objective of this paper, relevant secondary data were collected from the Central Bank of Nigeria (CBN) and the national bureau of statistics (NBS) from 1980 to 2011. The secondary data collected from the relevant government agencies in Nigeria were analysed with relevant econometric tests of Pearson Correlation and regression. The results show that there exists a strong relationship between job creation and petroleum product pricing. It was also found that changes in the petroleum product price do cause variation in job creation in Nigeria (R^2 0.732). On the basis of the empirical analysis, the paper concludes that job creation is one of the most important factors to be considered in petroleum product pricing in Nigeria that affects the economic growth of the country and therefore should be properly managed to reduce the level of evasion by petroleum exploration companies in Nigeria. The paper recommends among others, that the government should ensure growth and development of the rural and small-scale urban sectors by encouraging pricing that will boost economic activities and favour job creation.

Keywords: Petroleum Product pricing, Job creation, Pearson Correlation and Regression

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1.0 INTRODUCTION

1.1 Background to The Study

Nigeria is blessed with abundant natural resources of which petroleum products is a major resource. Nigeria is the ninth world producer and sixth world exporter of crude oil. On the domestic economy, the petroleum sector generates over 90% of the country's foreign exchange earnings, and provides employment in various forms to Nigerians (Central Bank of Nigeria Annual Report and Statement of Accounts, 2010). In addition, the tremendous growth in oil earnings has influenced significantly Nigeria's international relations, and sometimes the politics of oil has taken centre stage in the nation's history of international relations in the last few decades. However, with the downturn currently experienced in the oil sector, the reverse has gradually become the case.

The significance of price stability in the economy of any nation cannot be overemphasised. Petroleum pricing constitute a very useful tool for policy making, economic planning, analysis and monitoring because price signals help to understand the degree of economic stability or otherwise in the system. Indeed, purchasing power of incomes can be enhanced simultaneously with lower fuel prices. The price of the petroleum products especially, Premium motor spirit (PMS OR PETROL), Automotive Gas Oil (AGO or Diesel), Aviation Turbine Kerosene (ATK or jet-Al) are strong determinant of the cost of operating and running any business in Nigeria today.

Petroleum products pricing has become a huge challenge in Nigeria, as it has a critical effect on job creation and sustenance of most SME's. It is a fact that unemployment in Nigeria is at an alarming 29.3%, a figure which has risen steadily since the Buhari led government started administering Nigeria some years back. Added to these bad statistics is the disclosure by the National Directorate of Employment (NDE) which puts the number of Nigerian graduates who completed the compulsory National Youth Service Corps (NYSC) within the last five years but have remained unemployed at over 200,000.

Several works has been done to investigate the relationship between the Nigerian economy and petroleum production (Eromosele 1997; Ofikhenua, 1997), however, little or nothing has been

done on the impact of petroleum pricing and job creation in Nigeria. Against this background, this research is carried out to examine the impact of petroleum product price and job creation in Nigeria over the period of 1980 - 2011. The specific objectives are:

1. To find out prices of petroleum prices in Nigeria over the period,
2. To examine the level of job creation in Nigeria during the period,
3. To examine the extent to which petroleum product pricing have affected employment generation in Nigeria.

1.2 Research Hypothesis

The hypothesis below shall be tested.

H_o: there is no significant relationship between petroleum product pricing and job creation in Nigerian between 1980 – 2011.

1.3 Scope of the Study

The study is designed to determine the relationship between the prices of petroleum products and job creation in Nigeria (unemployment rate as proxy). The study covers a period of 31 years, form 1980 to 2011. It provides evidence on the on the situation of petroleum product pricing in Nigeria. The data collected from these observation periods will be analyzed in other to formulate policies that will help organize the sector for rapid economic growth and price stabilization.

This period was chosen as point of concentration because it covers various eras and significant events in the history of petroleum exploration in Nigeria.

1.4 Significance of the Study

Petroleum product pricing in Nigeria requires special attention because of the nature of the demand and supply center, as the core move of the nation's economy. It affects many other aspects of the nation's economy and the rate of unemployment which is a macroeconomic issue. This work will expose the problems associated with pricing of petroleum products in Nigeria to economic planners and contribute to the efficiency of the petroleum product pricing agency and policy makers. It will facilitate the validation of existing studies on the topic and serve as basis for further research on the study area. Finally, the empirical result of this study will suggest

several points of interest for researchers, policy makers, planners and marketers of petroleum product in the country.

2.0 LITERATURE REVIEW

2.1 Theoretical Literatures

"The theory of price behavior comprises mainly the economic problems involved in explaining the distribution of petroleum products for consumption overtime and the coinciding price pattern" (Gordon, 1976). "Price behavior in terms of level and frequency of change varies in terms of market structure"…and since "models of petroleum products often assume a technically competitive market structure" (Okpechi, 1991) showed that a price determination under perfectly competitive market conditions will so exist. This is so because, most of the times, the price fixed for a particular petroleum product is based on the that given by the price regulating body, and any station selling above the price will have lower demand. Furthermore, it is important to note that the pricing of petroleum products in Nigeria especially the prime motor spirit "Petrol" is largely influenced by the Nigerian government and policies, especially in terms of subsidy and the removal.

Furthermore, Petroleum products are characterized by seasonality in production and marketing pattern as a result of OPEC decisions and policy. Seasonality in demand may arise due to the level of economic activity at a particular economic period. Seasonal price behavior as described by Tomek and Robison (1992) arises from the seasonality of supply.

2.2 Empirical Literatures

Literature on petroleum product pricing and job creation reveals that very few people have earlier examined and researched into the study. This work will review deeply the work of (Tinuola, 2002). (Tinuola, 2002) looked at the effect of incessant price increase of PMS on commercial vehicles. Ten major items which affects commercial vehicle owners and operators during fuel scarcity period were presented to the respondent to make their selection based on how they perceive each statement item. About 94.33% of the respondents agreed that price hike of petroleum products leads to increase in transport fare in Ondo State. About 91.33% of the respondents agreed that price hike of Petroleum products (PMS) leads to increase in the price of

agricultural products, and 89.76% agreed that price hike of PMS leads to failure of most businesses.

Ofikhenua, (2011) goes further to argue that the cost of doing business will respond to the trend of petrol prices. Due to the recent removal subsidy and price hike, Businesses in the past few years have been relocating to Neighboring countries, with Ghana as the major beneficiary he said. The Manufacturers' Association of Nigeria (MAN) reports that 834 industries closed in 2010.

3.0 METHOD OF STUDY

Quasi-experimental design will be suitable for this study. This is so as the data required for the study are secondary data making it impossible for manipulation, control and randomization. This study therefore adopted a quasi- experimental research design. The data for this study was obtained from secondary sources. They were collected from the various issues of the Central Bank of Nigeria's (CBN's) Statistical Bulletin, National Bureau of Statistics, and the National Directorate of Employment.

3.1 Model Specification

A linear regression model which that intends to show the functional relationship between job creation and petroleum products pricing shall be specified also. While unemployment rate (as a proxy for job creation) shall be the dependent variable, the prices of premium motor spirit (PMS) and automotive gas oil (AGO) as the independent variables. The functional relationship between unemployment rate and petroleum products pricing can be expressed as follows:

$$UMP=f(PMS, AGO) \quad 3.1$$

Mathematically, the functional relationships above can be stated as follows:

$$UMP= \alpha_0 + \alpha_1 PMS + \alpha_2 AGO + \mu_t \quad 3.2$$

Where,

UMP = Unemployment rates.

PMS= Prices of premium motor spirit

AGO = Prices of automotive gas oil

α_0 is the constant or intercept; μ_t is the unexplained variation caused by other variables not included in the model.

A priori expectation: $\alpha_1>0$ and $\alpha_2>0$

4.0 DATA ANALYSIS AND INTERPRETATION

4.1 Trends in Unemployment rate and Petroleum Products Pricing

The trends in unemployment rates and prices of oil prices will be analyzed on the basis of their fluctuation pattern, the maximum, the minimum and the average during the period 1990 to 2011. Tables 4.1 and 4.2 shows the data collected for this study a descriptive statistics for the collected data respectively.

From table 4.1 Unemployment rates in Nigeria between 1990 and 2005 fluctuated steadily. It was only between 2005 and 2011 that it maintained a steady rise from 11.9% in 2005 to 23.9% in 2011. From table 4.2, unemployment rate averaged 10.4%. The maximum unemployment rate was 23.9% in 2011; while the minimum was 1.90 in 1995.

Table 4.2 shows that prices of premium motor spirit (PMS) exhibited an increasing trend between 1990 and 2011. Though there were periods when the price was stable (e.g between 1992 and 1994); the price of PMS increased steadily between 2001 and 2010. Tables 4.2 shows that the average prices of PMS between 1990 and 2011 was approximately 2400 kobo; while maximum and minimum prices during the period under review were 7500 kobo and 60 kobo respectively.

The prices of Automotive Gas Oil (AGO) as shown in table 4.2 was, though increasing, characterized by majorly steady prices for at least two years between 1990 and 2007. The trend later changed between 2008 and 2011 when fluctuation became the trend from 9900 kobo in 2007 to 16950 kobo in 2008 and then 11550 kobo in 2010. Tables 4.2 shows that the average prices of AGO between 1990 and 2011 was approximately 5627 kobo; while maximum and minimum prices during the period under review were 16950 kobo and 60 kobo respectively.

Table 4.2: Descriptive Statistics of Variables

	UMR	PMS	AGO
Mean	10.44545	2400.227	5627.273
Maximum	23.90000	7500.000	16950.00
Minimum	1.900000	60.00000	600.0000
Observations	22	22	22

Note: UMR stands for Unemployment Rate; PMS stands for prices of Premium Motor Spirit; and AGO stands for Prices of automotive gas oil.

4.2 Result and Interpretation of the Unemployment Rate Model

Table 4.3: Unemployment Rate Model

Variables	Coefficient	t-statistic	Probability
C	-18.42674	-1.959179	**0.0649**
LOG(PMS)	2.519106	2.072765	**0.0520**
LOG(AGO)	**1.403972**	**0.709879**	**0.4864**

$\mathbf{R^2}$ = 0.678770, $\overline{R}^2$ = 0.644957, **F – Statistic** = 20.07385, **Dw** = 0.899580

Interpretation

The R-Squared value of 0.6788 shows that the explanatory variable explains 67.88% of changes in the dependent variable. It remained strong even after adjusting for the degrees of freedom (as the Adjusted R-Squared stood at 64.50%). This means that in Nigeria, the variables chosen were strong in explaining unemployment rate.

The coefficient of prices of premium motor spirit (PMS) is 2.52. This is a good performance in terms of a priori expectation as it is a positive value. This implies that a positive relationship exists between the price of premium motor spirit and unemployment rate. The coefficient was also found to be statistically significant as evidenced by an examination of the t-statistic value (2.07) and the corresponding probability value (0.05). The result can be interpreted that as the price of premium motor spirit increases by one percent, unemployment rate increases by 2.52 percent in Nigeria.

The coefficient of the prices of Automotive Gas Oil (AGO) is 1.40. This is a good performance in terms of a priori expectation as it is a positive value. This implies that a positive relationship exists between the prices of automotive gas oil and unemployment rate. The coefficient was also found to be statistically insignificant as evidenced by an examination of the t-statistic value (0.71) and the corresponding probability value (0.48). The result can be interpreted that as the price of automotive gas oil increases by one percent, unemployment rate increases by 1.40 percent in Nigeria.

The analysis of variance (ANOVA) test confirmed that the entire model is statistically significant with the F-ratio (i.e 20.07) greater than F-table.

The Durbin-Watson statistic (i.e 0.899) didn't fall within the acceptable range in applied research of no autocorrelation (between 1.9 and 2.5). Thus, the model is thus not free from autocorrelation.

4.3 Summary of findings

We can therefore summarize the result of the analysis thus: (i) the prices of PMS and AGO conforms to a priori expectation; but only PMS was found to be statistically significant; (ii) the R-squared is strong even when adjusted for degrees of freedom; and (iii) there is an indication of a violation of one econometric assumption as there is a sign of autocorrelation. Though this result is not perfect as it violate the autocorrelation assumption, it can be useful for forecasting purposes and even policy formulation.

5.0 SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

The analysis presented above established some stylized facts about petroleum product pricing and job creation in Nigeria. Evidence from the analysis of PMS and AGO Price and unemployment linkage shows bi-causal relationships in all the cases and positive correlation. The results also show that in accordance with the general expectation that an increase in petroleum product price leads to reduction in employment (particularly, where there is no compensating increase in overall demand.

For most part of the period of analysis, unemployment and petroleum product pricing moved in the same direction. For instance Petroleum Product prices were relatively higher between 1990 and 1996 than what obtained in the 1980s, and the unemployment rate increased up to 1995. The wide gap between unemployment and PMS Price between 1991 and 1996 tends to suggest that PMS Price and unemployment were correlated during the period.

The regression analysis also seems to suggest an inverse relationship between unemployment and petroleum products pricing, thus supporting a positive linkage between unemployment growth and higher petroleum product prices. However, it is difficult to use this type of analysis to determine the direction of causality between the variables, hence one cannot clearly show which of the theoretical postulates holds in the Nigerian situation. This, therefore, informs the use of causality tests.

5.2 Conclusion

The dynamics of the linkage between petroleum product pricing and the job creation in Nigeria is of crucial importance. In most of the cases, the areas most seriously affected by unemployment were those who depended on PMS and AGO for business.

Job creation has emerged as the single most critical economic challenge facing the world today. Anxiety over employment problems and pessimism over the prospects for resolving them prevail in many parts of the world. the task of creating sufficient new jobs to overcome unemployment, underemployment and problems of low pay ranks as the primary challenge for economic and social policies in developed and developing countries at all levels of development across the globe.

In Nigeria, like in other parts of developing world, there is growing concern over the slow pace of employment growth. The reasons for this may be attributed to the prevailing policy inconsistencies and petroleum product price instabilities in the nation. It is therefore incumbent on the government to make necessary adjustments so as to maintain a balance between the

optimum benefit for the petroleum marketers and the consumers for a better economic development

5.3 Recommendation

Some policy implications are discernible from the findings. Since more employment means better pricing, which in turn implies a greater demand for locally produced basic consumption goods, it is imperative for government to ensure growth and development of the rural and small-scale urban sectors by encouraging pricing that will boost economic activities. This should consider, very seriously, encouraging people to establish more small scale enterprises which have the propensity to create more jobs and higher incomes.

A complementary policy of subsidy factor-price and promoting labour-intensive technologies of production may be required. As a corollary to this, industrial policy can be directed at supporting industries with high growth potential that depends on petroleum products in order to combine the benefits of better pricing with the net generation of new jobs. Appropriate incentive structures should be designed for investors participating in this programme.

One major finding is that petroleum product pricing and unemployment are directly related. This suggests the need for policies to enhance job creation. Critical among these include:

Recent developments in the issue of job creation have shown that most of the Investment in Nigeria that are of good progress do not rely on electricity but power generation machines that makes use of either PMS or AGO. In fact, there exist most firms that totally rely on generators. Thus, there is the need to put in place systematic pricing methods that will favour this group of people.

The institutionalization of adequate penal and reward system is a sine-qua-non to improved job creation. Sequel to this is the need to adopt a satisfactory pricing policy. This pricing policy should meet certain requirements deemed commensurate with the levels of demand put forward by these firms.

_Government should create appropriate enabling environment to promote a sustained effective aggregate and appropriate demand and pricing in order to maintain the required level of domestic production and at the same time favour the firms. Therefore, there is need for the government to set price floor and price ceiling for the products,

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