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Drivers of instability in prices of petroleum products in Kenya

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Petroleum products are important in driving the economies of all countries in the world but despite this, petroleum products prices have been going through fluctuations and instability, often affecting the efficiency of the same in propelling growth (Kojima, 2009). The importance of prices of oil products to the economy cannot be emphasized. Increases in prices of oil products (especially those of automotive diesel) lead to general increases in prices of other essential commodities and services (Mecheo and Omiti, 2003). Oil price volatility surpassed most other raw materials' price volatility in the mid-1980s and this pattern continues today. Oil price controls in Kenya were introduced to ensure oil price stability but as demonstrated by public outcry each month after oil price reviews, price regulation has failed to achieve one of its key goals of stabilizing prices of oil products. This paper is work-in-progress research with main objective being identification of the factors hindering stability of the prices of oil products in Kenya and corrective action that can be taken to address them. The study will adopt an exploratory approach using a descriptive survey design, which will ensure ease in understanding the insight and ideas about the problem. The main instruments for data collection will be a semi-structured questionnaire and face-to-face standardized interview. Multiple regression analysis will be carried out to establish relationships of the independent variables to the dependent and enable modeling of the factors hindering stability of the prices of oil products in Kenya.

Key words: Price stability, oil price volatility, world oil prices, exchange rates, speculation, oil losses, refinery inefficiencies, taxes

INTRODUCTION

Labys (2006) observes that higher oil prices can lead to higher inflation, lower corporate profits, higher unemployment and reduced national economic growth. Higher price volatility can lead to a reduction in investment, leading in turn to a long term reduction in supply, higher prices, and even reduced macroeconomic activity. Regnier (2007) found that oil and energy price volatility increased following the 1973 oil crisis. This increase has been accompanied by an increase in price volatility for all commodities. In the late 1970s, however, price volatility for most products returned to pre-1973 levels, while oil price volatility continued to increase.

Supporting this position, Plourde and Watkins (1998) found that crude oil price volatility during the 1985-1994 period was higher than price volatility for other by about 95%. Fattouh (2011) found that little attention has been devoted to the process of price discovery in the oil markets and the drivers of oil prices in the short run remain under-researched. According to the UNCTAD (2005), most developing country governments face heavy exposure to oil price volatility, either on the export or the import side – and sometimes, both. Kenya is no exception, being a net importer of oil products.

As demonstrated in the price statistics in table 1, pump prices of petroleum products have continued to rise unabated reaching a high of Shs 121.13 in May 2012 for a litre of gasoline compared to the price of Shs 94.03 before regulation in Dec 2010 (an increase of 28.8% in eighteen months). Over the same period, the price of automotive diesel (gasoil) rose from Shs 87.45 in
December 2010 to Shs 108.44 in May 2012, an increase of 24% in eighteen months, despite a reduction of taxes on gasoil to cushion consumers and tame inflation (Mwirichia, 2011). This trend has continued even after the introduction of a regulated pricing mechanism for specified oil products in December 2010. The consumer price indices as demonstrated in figure 1 also indicate that prices of oil products have been unstable in the period December 2010 to June 2012.

Price stability
The Economic Glossary (2011) defines price stability as the condition in which the average price level in the economy does not change or changes very slowly. Price stability is, conceptually, a state where the change in the price index without measurement bias is zero percent (Brodo and Weinstein, 2007). Price stability is commonly indicated by the inflation rate, calculated as percentage changes in either the Consumer Price Index (CPI) or the GDP price deflator.

Kenya's oil industry overview
Kenya solely relies on oil imports to satisfy its oil energy needs. According to Kojima et al. (2010) Kenya has an Open Tender System, whereby crude or petroleum products are purchased by a single company for the entire market on the basis of a public tender and shared among all marketing companies in proportion to their share of the market. Questions have been raised about the cost-effectiveness of this system. The GoK (2003) in its Vision 2030 recognizes that Kenya’s energy costs are higher than those of her competitors and that Kenya must, therefore, generate more energy at a lower cost and increase efficiency in energy consumption. The Kenya Government is, therefore, encouraging foreign

<table>
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<tr>
<th>Month/Year</th>
<th>Product</th>
<th>PMS</th>
<th>RMS</th>
<th>IK</th>
<th>AGO</th>
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<tr>
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<tr>
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<td>111.17</td>
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<td>Jun - Jul'11</td>
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<tr>
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<td>116.71</td>
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<td>Sep - Oct'11</td>
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<td>116.68</td>
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<td>Oct - Nov'11</td>
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<td>May - Jun'12</td>
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<td>121.13</td>
<td>121.23</td>
<td>87.00</td>
<td>108.44</td>
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</tbody>
</table>

Source: Petroleum Insight, Petroleum Institute of East Africa, 2012
Figure 1: Consumer Price Indices for Oil Products December 2010 to June 2012

Data Source: Petroleum Insight, Petroleum Institute of East Africa, 2012

Key
PMS – premium motor spirit (super petrol)
RMS – regular motor spirit (regular petrol)
IK – industrial kerosene (kerosene)
AGO – automotive gasoil (diesel)

Nairobi and Western Kenya with terminals in Nairobi, Nakuru, Eldoret and Kisumu, run by the Kenya Pipeline Company (KPC). Both KPRL and KPC are substantially government controlled (KPRL 50% and KPC 100%). The sector has over 30 oil marketing companies (OMCs) comprising of four major companies namely Kenya Shell, Total, KenolKobil, Libya Oil and the government owned National Oil Corporation of Kenya (NOCK).

Prior to mid-1994, the government, in consultation with the oil marketers, set consumer prices for petroleum products in the country (Mecheo and Omiti, 2003). However, since October 1994, the procurement, distribution, and pricing of petroleum products were liberalized with a view to enhancing operational efficiency of the industry and also attracting private capital (Mecheo and Omiti, 2003). In 2006, the Energy Act No. 12 of 2006 was enacted. This led to the transformation of the then Electricity Regulatory Board (ERB) to the Energy Regulatory Commission (ERC) to also regulate petroleum and renewable energy sectors in addition to electricity.

Instability of pump prices of oil products forced the Government of Kenya to re-introduce price regulation in December 2010. Price regulation refers to government interventions aimed at controlling the maximum prices of a certain product. Universal price subsidies and petroleum product tax reduction are the two most commonly used methods of partially off-setting higher oil prices on the international market (Kojima, 2009). A price stabilization fund, on the other hand, attempts to set domestic prices higher than international prices in times of low world oil prices and save the balance in the fund; when world oil prices exceed a threshold level, money is withdrawn from the fund to subsidize domestic prices (Kojima, 2009). A price stabilization fund may have an intuitive appeal but does not work well in practice, and all such funds were strained in 2007–08 (Bacon and Kojima, 2008). If there is a national oil company or an oil company with some state involvement that is also a price-setter (because it controls a large share of the market), the government may send signals to the company to keep prices low (Kojima, 2009). Prior to re-introduction of price regulation, Kenya had tried to use the National Oil Company of Kenya (NOCK) to stabilize prices of oil products, without much success.

Critics of price regulation like Rockoff (2008) hold the view that price controls do not accomplish what they were intended to do and are generally to be avoided. Martin (2002), on his part, states that the primary criticism leveled against price controls is that by keeping prices artificially low, demand is increased to the point where supply cannot keep up, leading to shortages in the price-controlled product. The Nobel Prize Winner, Milton Friedman, supported this position when he stated "We economists don't know much, but we do know how to
create a shortage. If you want to create a shortage of tomatoes, for example, just pass a law that retailers can’t sell tomatoes for more than two cents per pound. Instantly you’ll have a tomato shortage. It’s the same with oil or gas (Sowell, 2008)*. Martin (2002) concluded that the created shortages lead to black markets where prices for the same good exceed those of an uncontrolled market. Martin (2002) pointed out that once controls were removed, prices would immediately increase, which could temporarily shock the economic system. At the global level, these views expressed by various economists tend to discourage price control or regulation and encourage that market forces of supply and demand are left to determine prices. These views are significant to this study since at the global level, OPEC efforts to control petroleum products prices have failed and currently it is mostly market forces that determine world oil prices. It is therefore clear that opinion is divided on what causes instability of oil prices whether under regulated or deregulated oil pricing mechanisms.

According to Mwirichia (2011), ERC is a single sector regulatory agency with responsibility for economic and technical regulation of electric power, renewable energy and downstream petroleum sub-sectors including tariff setting and review; licensing; enforcement of compliance; dispute settlement and approval of power purchase and network service contracts. This is supported by the Energy Act No. 12 of 2006 which states in Section 5(a) (ii) that the objects and functions of ERC include regulating the importation, exportation, transportation, refining, storage and sale of petroleum and petroleum products. Section 102 of the Act empowers the Minister to make regulations upon recommendation by the Commission on petroleum related activities including determination of retail prices for petroleum products (Katisya-Njoroge, 2010).

On December 15, 2010 the Government of Kenya enacted a new legislation, the Energy (Petroleum Pricing) Regulations, 2010 which was aimed at preserving availability of specified petroleum products in all parts of Kenya; stabilizing prices of specified petroleum products in Kenya and minimizing the variances in prices of specified petroleum products across the country (Katisya-Njoroge, 2010). The new regulations effectively re-introduced government control on the maximum prices of petroleum products based on a formula decided upon by the Energy Regulation Commission (ERC). This formula is, however, still being contested by the Oil Marketing Companies. Petroleum price regulation in Kenya last existed in the period prior to mid-1994 when deregulation was implemented as a result of economic challenges faced by the Government at that time as the Kenya Shilling lost ground against the hard currencies leading to inflationary pressure that rendered regulation untenable.

The 2010 re-introduction of price regulation followed intense pressure on the government from consumer pressure groups and citizens following frequent increases in prices of oil products between 2004 and 2011 (Wanjiku, 2011). The citizens, borrowing heavily from media reports, were generally of the view that OMCs were colluding to set high prices so that they could cash in on high margins. The OMCs, on their part, blamed the largely government controlled oil supply process along with inefficiencies in the Government administered Open Tender System (OTS), a tax system that demands payment of excise and import duties upfront on receipt of products by oil companies, an inefficient refining system due to usage of a technologically out-dated refinery as well as a capacity constrained storage and distribution network operated by KPC.

On the other hand, the Ministry of Energy has been frequently put on the spot by Parliament and consumer pressure groups and trade union representatives as to what it was doing to control rising oil prices owing to the resultant and persistent increase in the cost of living. This led to the Energy (Petroleum Pricing) Regulations, 2010 that introduced petroleum price regulation for four specified petroleum products. The specific products affected by this price regulation are super petrol (gasoline), regular petrol, kerosene and automotive diesel (gasoil). The price regulations allowed ERC to set the maximum monthly prices of these products at both retail and wholesale levels.

**Conceptual framework**

This study will be guided by three independent variables though each variable is an aggregation of several variables lumped together owing to their nature as shown on figure 2. The conceptual framework displays the view that fundamental factors such as world oil prices, interest charges and exchange rates as well as non-fundamental factors such as speculation, pipeline transportation and refinery inefficiencies, corruption, economic and political shocks cause the instability of petroleum product prices. Other more fixed factors (in the short run) such as taxes, oil losses and profit margins may contribute to the fluctuation of petroleum products prices and hence lead to instability in the long run.

**Theoretical framework**

Oil price behaviour has been analyzed using three main approaches: the economics of exhaustible resources, the supply–demand framework and the informal approach (Fattouh, 2007). The exhaustible resources theory argues that oil prices must exhibit an upward trend (Krautkraemer, 1998). In contrast, in the supply–demand framework, the oil market is modelled using behavioural equations that link oil demand and supply to its various
Theoretical Framework

Oil price behaviour has been analyzed using three main approaches: the economics approach, the informal approach, and the modern theory of public economics. The informal approach is normally used to identify economic, geo-political and incidental factors that affect demand and supply and hence oil price movements within specific contexts and episodes of oil market history (Fattouh, 2007). In this study, three primary theories that have been used to explain volatility in world oil prices include Peak Oil theory, Hotelling’s theory, and the informal approach theory mostly in respect of oil cartels and their influences on world oil prices.

Literature review

Effects of taxes on stability of prices of petroleum

Bacon (2009) found that taxes make up a sizable fraction of retail fuel in Cambodia. Taxes on petroleum products are a critical source of government revenue because it is one of the easiest ways to get revenue: collecting fuel taxes is relatively straightforward and there is generally a robust relationship between consumption of fuels as a group and income - consumption tends to go up at the same rate as income.

Hossain (2003) in Nigeria uses the modern theory of public economics as the point of departure. The study looked at how petroleum products should be priced based on efficiency and equity and did not look into how taxes affect the pricing of petroleum products, which is a critical factor in the current study. The study did not make any specific suggestions for how a balance between taxing and prices of petroleum can be achieved to ensure that there is stability of prices of petroleum products. The study was also carried out in Nigeria, an oil producing country, and therefore, the issues of petroleum products may not be similar to those of Kenya. In a study on international oil price regime origins rationale and assessment, Mabro (2005) observes that petroleum prices do not always move at the same rate – be it up or down – as crude oil prices. The prices paid by consumers for a petroleum product may differ significantly from the ex-refinery price because of excise and value-added taxes which, in many countries, amount to a hefty imposition. This had a major effect on the financing of oil purchases as the cash outflow required now included taxes payable upfront on products at the point of entry. The indirect impact of the requirement that petroleum taxes be paid at the point of product entry, and its financing implications further complicate the impact of taxes on prices of petroleum products.

Exchange rates and stability of prices of petroleum products

In this study, exchange rate is simply defined as the amount of Kenya Shillings required to purchase one

Figure 2: Conceptual framework of drivers of instability of oil prices
United States Dollar. The US dollar is the invoicing currency of international crude oil trading. Exchange rate variations in the U.S. dollar can affect the world price of oil because oil is priced in US dollars and generally paid for in US dollars. Hence, the fluctuation in US dollar exchange rate is believed to underlie the volatility of the world price of crude oil, especially its forecasting accuracy.

The idea that there is a relationship between oil prices and exchange rates has been around for some time. (Golub (1983) and Krugman (1983).) Bloomberg and Harris (1995) provide a good description, based on the law of one price, of how exchange rate movements may affect oil prices. Commodities like oil are fairly homogeneous and internationally traded. The law of one price asserts that as the US dollar weakens relative to other currencies, the oil price is expected to increase, unless oil producers have a strong economic incentive not to increase prices. The producers kept the price stable and low because they were willing to pay more for other (lower priced) energy commodities which Canada exports and the world crude oil prices have raised alarms in the world market.

Dale (2009) observed that economic models generally found a negative, but sometimes insignificant relationship between energy (or oil) prices and the Canadian dollar due to the offsetting impacts unique to energy prices, since the relationship between stronger prices of other non-energy commodities which Canada exports and the US dollar was strongly positive. However, the study found that the price of oil is dominated by the US dollars.

Nayef and Abdullah (2010) investigated the impact of real exchange rate volatility on the world oil price, particularly in Kuwait and its major trading partners. They observed that the impact of Kuwait Dinar (KD) exchange rate on volatility vis-à-vis major trading partners is estimated to positively influence export flows. An explanation of the positive findings is that since oil and natural gas represent almost 90 percent of Kuwait exports and global demand is inelastic, any appreciation in KD exchange rate should not have a direct effect on Kuwaiti exports. Therefore, any appreciation of KD vis-à-vis major currencies means an appreciation for the US dollar initially; indicating that oil prices become overvalued.

**Oil marketing companies and dealer profit margins**

In a study on oil price on government expenditures in Iran, Reza et al., (2008) observed that the changes in oil prices were larger, in the 1970s, often influenced by oil marketing companies and dealer profit margins. It was observed that the market was controlled by huge oil companies which were known as seven sisters and had the huge market power on production, refining, and distribution of oil. The oligopoly structure precluded them from price competition and provided them with a strong economic incentive not to increase the price. They kept the price stable and low because they made huge profit from the variety of products derived from crude oil. However, the market has swayed toward oil-exporting countries because of a wave of nationalizations in oil exporting countries that led to the decline influence of seven sister companies and disintegration of oligopoly structure in the oil market.

Yang (2010) focused on the future of petroleum future markets and observed that China itself was a monopoly in the supply of oil in the country and therefore not cushioned against price fluctuations. Chinese National Petroleum Corporation (CNPC) and China Petroleum and Chemical Corporation ("Sinopec") provides the major oil supply in the domestic market. The study looked at the impacts of dependence ratio (imports/consumptions) from 1998 (141%) to (45.56%) in 2008. Thus, if China keeps relying on imported oil, it could face great risks in supply and prices due to spillover effects.

Twimukye and Matovu (2009) find that Uganda’s downstream oil sector was liberalized in 1994, price controls and bureaucratic resource allocation were abolished, and a new petroleum supply act promulgated in 2003. This led to licensing of several companies, including international oil companies like Shell, Total, and Caltex to take part in the industry. Although the sector is fairly competitive with even smaller firms operating, the market is dominated by the few international ones including the ones mentioned above. The persistently high prices of petroleum products in spite of the falls in world crude prices have raised alarms in the population that the industry may be poorly regulated, making players to collude to cheat motorists.

**Oil losses**

Kieran and Dagmar (2010) provides a holistic examination of pricing and investment dynamics in India’s downstream petroleum sector. They observed that in order to lessen the burden of dealing with petroleum prices, the government besides reduction of taxes is looking into the issue of oil spillage as a factor affecting the stability of oil prices in the region. This is being looked at in terms of the capacity of the country to have the right storage and distribution facilities to avoid oil losses.

**Stability of petroleum prices**

Naveed (2010) studied measuring the impact of changing oil prices, and other variables like consumption, government expenditure and average exchange rates, domestic investment, inflation and foreign domestic investment on GDP in the context of Pakistan’s economy. This study provides a good foundation for further studies on stability of prices of petroleum products in that it looked at various measurable effects of stability of prices of oil. Though the study was carried out in Pakistan, and the country may not be comparable to Kenya in terms of economic development, the variables can be used as a
basis of study for future studies in Kenya.

Similar study by Arinze (2011) on the impact of oil price on the Nigerian economy contends that frequent upward adjustments of petroleum product prices have resulted in inflation, high cost of living, and inequitable distribution of income in Nigeria. Between 1978 and 2009, the various Nigerian regimes increased fuel prices a total of 18 times. Most of the increase occurred in the 1990-2007 period when the prices were adjusted, sometimes twice a year. The results further revealed that whenever petroleum product prices increase, the inflation rate and the rise price of petroleum products is significant.

The role of speculation and geo-political factors on oil prices

Juvenal and Petrella (2012) found that oil prices have been historically driven by strength of global demand but speculation contributed to the oil price increases between 2004 and 2008. Consistent with Tang and Xiong (2011), they concluded that speculative shocks in oil prices had a relation to other commodity prices. However, Irwin and Sanders, (2010) disregard the idea that speculation played an important role in oil pricing indicating that the level of inventories had not risen in their period of study. They, however, fail to explain the increases in oil prices when fundamentals remained constant and supply and demand shocks were minimal.

In Kenya, speculation has been considered to play a role in prices of oil products leading to many situations where the government agencies responsible for oil price regulation engage in endless counter claims with oil marketing companies in respect of the correct level of oil prices. This situation even led to the re-introduction of petroleum capping regulations by the Energy Regulatory Commission in 2010 as a way of ensuring oil marketing companies do not unnecessarily inflate prices of oil products. However speculators cannot withhold physical supply from the market and therefore cannot be responsible for rising oil prices. Moreover, the presence of large investors provides stability and liquidity to the commodities markets. In summary, if speculators raise the price of oil above the level that balances supply with commercial demand, then there will be excessive oil supply in the market that must be hoarded for future sale. The same can be said of the geo-political factors. This study shall therefore treat speculation and geopolitical factors as intervening variables as far as drivers of oil prices are concerned.

CONCLUSION

Kenya, like other developing economies, requires large quantities of affordable and good quality petroleum products to sustain investments and growth both in the public and private sector. The extent to which these objectives can be realized on a sustainable basis is dependent on the degree and extent of efficiency with which the critical factor of petroleum products pricing is dealt with. The issue of pricing of petroleum products in Kenya being critical in the efficiency of many areas in our economy, this study will provide useful insights on the factors that cause instability in prices of petroleum products. This will enable the energy sector to go a long way in fulfilling its mandate of contribution to growth towards the achievement of the Vision 2030 objective of reducing energy costs and thus boost the modern growth trend.

Given the limited empirical data on factors that cause instability in prices of petroleum prices in Kenya, the study results and literature review will form an important base for information for stakeholders in the energy sector, researchers, scholars and members of the public interested in the area of study by laying out clearly the key factors that influence the prices of oil products in Kenya and hence allowing the stakeholders to focus on them when playing their roles in oil pricing.

REFERENCES


Fattouh B (2011). An Anatomy of the Crude Oil Pricing...


