Institute of Economic Affairs

January 2024

Why Changes in the Global Prices of Crude Oil Mean Little for Kenya

Introduction

Every month, a few days before the Energy and Petroleum Regulatory Authority (EPRA) unveils petroleum prices for the upcoming cycle, it's a common sight to witness members of the public, notable institutions, and figures including political leaders passionately referencing the international crude oil prices. They ardently call on EPRA to reduce fuel prices, asserting that the declining crude oil costs should be reflected. I, too, shared this viewpoint until recently when I changed course for two reasons.

First, for countries like Kenya, which heavily rely on refined oil imports, the price of crude oil is inconsequential. Second, Kenya's Petroleum Price Formula functions on a cost-plus framework, incorporating supplementary costs throughout the value chain. In simpler terms, petroleum products undergo multiple transactions along the supply chain, starting from production to the end consumer. Each participant in the supply and marketing chain accrues certain costs and aims to add a margin, leading to incremental price adjustments at each stage. This is commonly referred to as the pass-through costs process. Therefore, the price of crude oil may have decreased but if the costs of all these other variables increase then the notable savings will not be enjoyed by the consumer at the pump.

To understand, the relevance of crude oil prices primarily applies to two categories of countries. First, to net oil exporters, the price directly influences their product's value, meaning that higher prices translate to increased profits if other costs remain constant, and vice versa. Second, for countries with oil refineries, the cost of crude oil significantly impacts the profit margins of the final product. Therefore, lower crude oil prices, when other costs remain stable, result in higher profit margins, and vice versa[1].

[1]Condense information from previous lectures that lacks accessible links.

Considering this, Kenya lacks oil production capabilities, ignoring the Turkana one which is minimal and the benefits have not been enjoyed locally, and there are no operational oil refineries since Kenya Petroleum Refineries Limited ceased processing crude oil after September 1, 2013. This prompts the question: when Kenyans advocate for fuel price reductions, what factors truly influence the price, and where should advocacy focus lie? In this piece, I aim to elucidate some key factors, supported by relevant data.

The trajectory of fuel pricing in Kenya depends on various factors but in this brief, it highlights four factors, albeit with varying correlations depending on the specific petroleum product. To determine this, I analyzed data from August 2022 to December 2023, as presented in EPRA's press releases on 'Maximum Retail Petroleum Prices in Kenya' for different periods. The analysis encompassed pump prices for Super Petrol, Kerosene, and Diesel for Nairobi County and their respective taxes and levies. The four factors are the prices of crude oil, international Platts prices for these three products, the exchange rate, and the taxes and levies, a total of five variables.

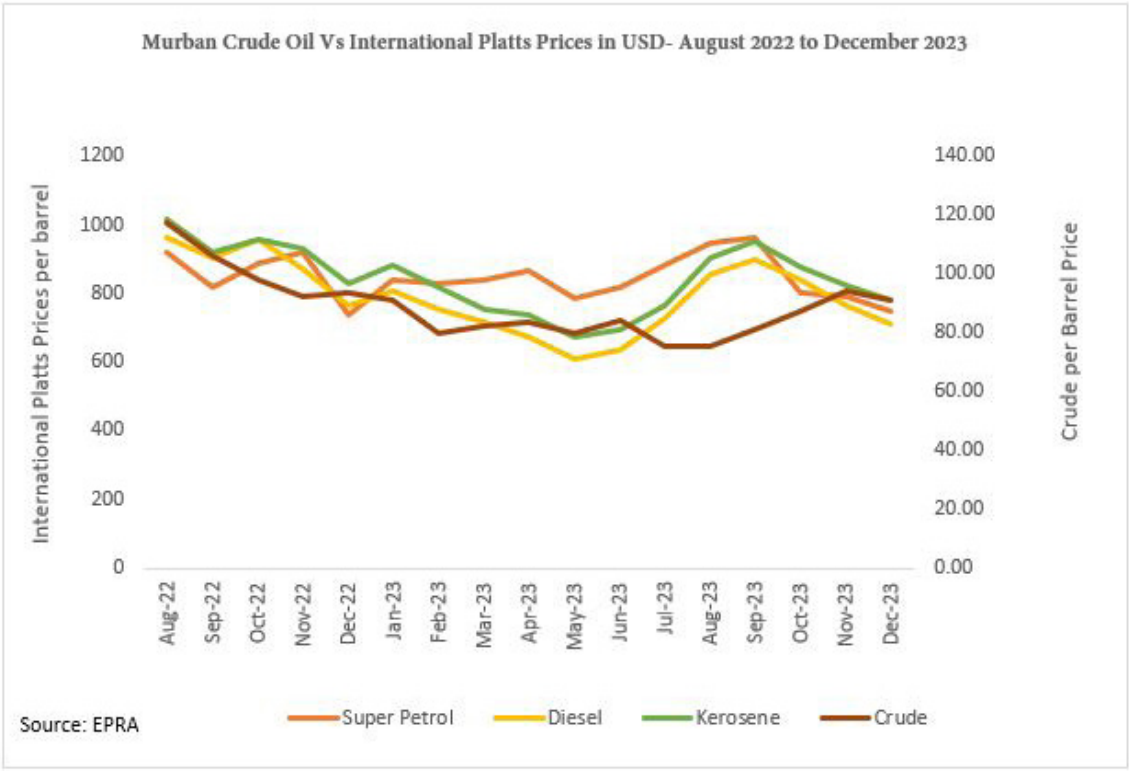
Unravelling the Impact of Tax and Non-Tax Components through Correlation Analysis

Non-Tax Components

1. Crude Oil Prices

Notably, EPRA relies on Murban crude prices in international markets when announcing crude oil prices. Chart 1 below, illustrates distinct International Platts prices for the various refined petroleum products and crude oil prices. It becomes apparent that the fluctuations in crude oil prices do not consistently correlate with changes in International Platts prices. There are instances where crude oil prices have increased while International Platts prices have decreased, indicating a lack of direct influence. This means that there are factors that influence this as crude oil is the primary input into the petroleum refining industry but there are costs such as transporting it from the oil fields to the refineries and the refinery costs which may fluctuate depending on factors of demand and supply.

Chart 1: Murban Crude Oil vs International Platts Prices in USD- August 2022 to December 2023



Weak negative correlations of -0.32, -0.37, and -0.35 were observed between the prices of crude oil and fuel prices in Kenya for Diesel, Kerosene, and Super Petrol respectively, as shown in Table 3. This means that as the price of crude oil tends to increase, the prices of Diesel, Kerosene, and Super Petrol tend to show a weak decrease, and vice versa. In this context, the correlations being close to -0.42 suggest a moderate but not highly influential relationship. It is crucial to emphasize that correlation does not necessarily indicate causation, and there may be additional factors contributing to the observed fluctuations in fuel prices. As previously highlighted in the introduction, the final product undergoes various processes within the supply chain, with each participant adding their respective margins. This underscores the complexity of the supply chain dynamics, suggesting that the price of crude oil may be overshadowed by the cumulative impact of these processes.

2. International Platts Prices

The determination of the Free on-board (FOB) cost is based on the mean of Platts, an international company established in 1909 in New York. Platts specializes in collecting oil trading information from around the world and calculates the average of these trading figures. The resulting numbers are then published and widely utilized by traders globally for negotiating their upcoming cargo in the market.

Access to Platts' information is restricted to subscribers, and the Government of Kenya (GOK) has subscribed to this service. This subscription enables the tracking of these published numbers. Consequently, a trader cannot misrepresent the FOB cost by providing inaccurate figures, as the government has the means to verify and cross-check the information against the Platts averages. This ensures transparency and accuracy in the pricing process, preventing manipulation of FOB costs in the market.

There was a correlation of 0.08 and 0.04 between the international Platts prices and the price of super petrol and diesel respectively in Kenya as shown in Table 3. A positive correlation of 0.08 and 0.04 suggests a weak positive relationship between international Platts prices and the price of super petrol and diesel in Kenya. This means that as international Platts prices increase, there is a slight tendency for the price of super petrol in Kenya to increase as well. However, the correlation is weak, indicating that other factors play a more substantial role in determining the price of super petrol

For kerosene, there is a correlation of -0.03 as shown in Table 3. This shows a very low correlation indicating an extremely weak and almost negligible negative relationship between international Platts prices and the price of kerosene. This means that other factors are more influential. Some of the possible explanations can be taxes and levies.

3. Exchange Rate (USD/Ksh)

Another influential factor is the exchange rate between the US dollar (USD) and the Kenyan Shilling (KSH). Notably, EPRA employs exchange rates that differ from those published by CBK as shown in Table 2. In this context, we utilized EPRA's rates and incorporated CBK's rates for comparative analysis. Strong correlations of 0.88, 0.90, and 0.89 were observed between the USD/Ksh exchange rate and fuel prices in Kenya for Diesel, Kerosene, and Super Petrol, respectively using the EPRA exchange rates.

The international trade of petroleum products is conducted in USD, and their purchase involves the application of an exchange rate to convert USD to Ksh. The calculation of landed costs encompasses the addition of FOB to freight and premium, further augmented by the inclusion of the Letter of Credit (LC). To secure sufficient funds during international trading, oil companies typically obtain an LC from a bank, incurring a nominal fee, usually around 1.2% of the freight cost. Historically, the importing OMC used to issue a 30-day LC within the framework of the Open Tender System for the buyer.

In a webinar hosted by the Institute of Economic Affairs on the Oil Import Agreement Between Kenya and the Gulf, EPRA's Director General, Daniel Kiptoo stated that with the introduction of government-to-government arrangements, the LC's duration has been extended to 180 days. This adjustment signifies a prolonged credit period under the new arrangement, offering increased

flexibility to accommodate the specific needs and dynamics of these transactions. Notably, the LC, FOB, and premium values are denominated in dollars per metric tonne, necessitating multiplication by a foreign exchange rate, denoted in USD, to convert them to the local currency. Subsequently, division by a conversion factor is required due to the differing density of these products.

Table 1: EPRA vs CBK USD Rates

Period	CBK Rate	EPRA Rate	Difference
Apr-22	115.40	115.74	0.34
May-22	116.28	116.89	0.61
Jun-22	117.29	118.53	1.24
Jul-22	118.32	119.92	1.60
Aug-22	119.45	120.64	1.19
Sep-22	120.42	123.88	3.46
Oct-22	121.03	124.06	3.03
Nov-22	121.90	124.20	2.30
Dec-22	122.93	128.58	5.65
Jan-23	123.93	130.64	6.71
Feb-23	125.45	133.98	8.53
Mar-23	125.45	139.61	14.16
Apr-23	134.49	138.96	4.47
May-23	137.34	141.39	4.05
Jun-23	139.83	144.48	4.65
Jul-23	141.548	146.07	4.52
Aug-23	144.031	148.98	4.95
Sep-23	146.868	153.25	6.38
Oct-23	149.497	155.64	6.14
Nov-23	152.132	157.52	5.39

Source: EPRA and CBK

When examining the CBK rates, it is observed that the correlation experiences slight fluctuations, differing by a few percentage points. This suggests that if the rates employed are not aligned, the accurate assessment of correlation might not be as significant. To illustrate, in comparison to the EPRA rates, the correlation values for Super Petrol, Diesel, and Kerosene are 0.89, 0.88, and 0.9 respectively. Conversely, when considering the CBK rates, these correlations shift to 0.89, 0.88, and 0.91 which is more or less the same.

Tax Components

1. Taxes and Levies

Petroleum products in Kenya incur two taxes, excise tax, and VAT, alongside various levies, including the road maintenance levy, petroleum development levy, petroleum regulatory levy, railway development levy, anti-adulteration levy, merchant shipping levy, and import declaration levy. The administration of these charges involves specific rates per liter.

- For instance, 1,000 litres of regular petrol attracts an excise duty of Sh21,522.6, translating to Ksh 21.52 per litre. The same quantity of diesel incurs an excise duty of Sh11,370.99 (Ksh 11.37 per litre), and kerosene attracts Sh11,370.98 (Ksh 11.37 per litre).
- The road maintenance levy is Ksh 18 per litre but excludes kerosene due to its household use.
- The Petroleum Regulatory Levy, a constant figure of Ksh 0.25 per litre, funds EPRA, ensuring it doesn't rely on the exchequer.
- The Petroleum Development Fund stands at a constant Ksh 5.40 for super petrol and diesel, and Ksh 0.40 for kerosene.
- The Railway Development Levy is set at two percent of the customs value of goods.
- An anti-adulteration levy, designed to deter mixing kerosene with diesel, was imposed solely on kerosene, given its past misuse.
- The Merchant Shipping Levy supports the Kenya Maritime Authority.
- The Import Declaration Levy is at about 3.5% of the Cost of Insurance and Freight (CIF).
- The total tax for these products, including the Value Added Tax of 16%, is calculated based on these individual levies and taxes.

With the understanding of the various taxes and levies on all the petroleum products. There is a notable correlation of 0.93, 0.95, and 0.931 between taxes and levies and Kenyan fuel prices for Super Petrol, Kerosene, and Diesel respectively. It is noteworthy that the aggregate figures for total taxes and levies associated with each of these products have demonstrated a consistent increase, primarily propelled by fluctuations in VAT and the Import Declaration Levy. This phenomenon is attributed to the tax and levy component comprising both fixed and variable elements. In this context, fixed taxes exhibit a disadvantageous characteristic during periods of low prices as their impact remains unchanged. Conversely, the variable taxes, often expressed as a percentage, fluctuate with adjustments in the underlying components, either increasing or decreasing in response to upward or downward shifts. This shows a 33.2%, 29%, and 23% increment for Kerosene, Diesel, and Super Petrol respectively in nominal terms as shown in Table 2.

Table 1: Taxes and Levies Fluctuations

Period	Super Petrol	Diesel	Kerosene
August 2022	64.30	52.49	46.64
December 2023	79.09	67.77	62.17
Percentage Change	23%	29%	33.2%

Source: EPRA

Conceptually, the pronounced correlation between tax levies and fuel prices is elucidated by an examination of the VAT computation. When contemplating the dynamics at play, it becomes evident that any escalation in costs across the entire value chain invariably leads to an increase in VAT. Per Section 13(3) of the VAT Act, 2013 as shown below, a detailed examination of the variables in the fuel pricing formula for Super Petrol reveals compliance with the stipulated regulations. The calculation of the taxable value of supply involves meticulous consideration of various components, including Landed costs (Ksh 107.6), storage and distribution (Ksh 4.07), oil marketing companies' margins (Ksh 12.39), Price Stabilization (Ksh 4.94), and other taxes and levies, excluding VAT (Ksh 49.76), resulting in a cumulative sum of Ksh 178.76. Subsequently, applying the 16% VAT to this figure yields Ksh 28.60. When this is added to the initial cost of Ksh 178.76, the total amounts to Ksh 207.36 representing the ultimate cost borne by consumers at the pump. This methodology is consistently applied to determine the pricing for the other two petroleum products as well.

PART V – TAXABLE VALUE

13. Taxable value of supply

(1) Subject to this Act, the taxable value of a supply, including a supply of imported services, shall be—

(a) the consideration for the supply; or

(b) if the supplier and recipient are related, the open market value of the supply.

(2) The taxable value of a supply of mobile cellular services shall be the value of the services as determined for the purposes of the duty imposed under the law relating to excise.

(3) Subject to subsections (4) to (6), the consideration for a supply, including a supply of imported services, shall be the total of—

(a) the amount in money paid or payable, directly or indirectly, by any person, for the supply; or

(b) the open market value at the time of the supply of an amount in kind paid or payable, directly or indirectly, by any person, for the supply; and

(c) any taxes, duties, levies, fees, and charges (other than value added tax) paid or payable on, or by reason of the supply,

reduced by any discounts or rebates allowed and accounted for at the time of the supply.

In this context, it is imperative to shift our primary focus towards deconstructing the individual elements, as they constitute the driving force behind the upward trajectory of VAT. Examining these discrete elements is paramount for a nuanced understanding of the complicated dynamics influencing the elevation of VAT and, subsequently, the broader pricing structure.

Nevertheless, it is crucial to compare taxes to factor out general inflation. This entails converting the nominal taxes in August 2022 and December 2023 into real taxes. Given that the subject is petroleum products, the applicable CPI measure is the category encompassing housing, water, electricity, gas, and other fuels, as indicated in the "Consumer Price Indices and Inflation Rates" for the respective months, are 5.6 and 8.3 for August 2022 and December 2023. As earlier noted, the taxes and levies component has some that are fixed while others are variables. Therefore, for the fixed elements it would be proper to adjust them using these CPI data which would make them significantly higher than they currently are.

This adjustment is important as inflation gradually diminishes the purchasing power of money, leading to a situation where the same amount of Ksh buys fewer goods and services over time. The concept of adjusted real taxes takes this into account by reflecting what lump sum taxes would be if they had kept pace with inflation. If the government chooses not to adjust these taxes for inflation, consumers effectively pay the nominal tax amounts. However, since these nominal values haven't increased to counteract the decrease in purchasing power due to inflation, consumers unknowingly bear a higher tax burden. This is because the taxes, remaining at their nominal values, represent a larger share of the reduced purchasing power. Then, the failure to adjust taxes means that the government is not collecting as much as it might have in terms of real purchasing power.

The argument here is not necessarily a call for the government to adjust taxes to match inflation. Instead, it emphasizes the importance of transparency and awareness. Kenyan citizens should be informed about the effects of inflation on real tax liability. Victor Thuronyi, in his paper titled "Adjusting Taxes for Inflation," delineates three effects: erosion of amounts expressed in national currency, erosion of the value of tax obligations, and the effects on the measurement of the tax base. Nevertheless, in a context like Kenya, where citizens are already grappling with various taxes and economic hardships, adjusting taxes might exacerbate their financial strain.

Adjusting taxes for inflation provides a more accurate reflection of the impact of taxes on purchasing power, but it doesn't change the economic reality for consumers. In cases where consumer incomes lag behind inflation rates, paying higher taxes in real terms exacerbates the challenges they face. Therefore, the focus should be on ensuring that both citizens and policymakers are well-informed about the economic dynamics at play.

Table 3 Correlation of Petroleum Product Prices to Various Variables

Petroleum Product	Crude Oil Prices	International Platts Prices	Exchange Rate	Taxes and Levies
Super Petrol	-0.35	0.08	0.89	0.93
Diesel	-0.32	0.004	0.882	0.931
Kerosene	-0.37	-0.33	0.90	0.95

Source: Authors Own Computations

Conclusion

It is crucial to highlight that month-to-month changes in retail prices in Kenya are significantly influenced by factors beyond the fluctuations in crude oil prices and International Platts Prices. The determinants of petroleum product prices in Kenya are primarily shaped by taxes, levies, and the exchange rate. The methodology employed in this analysis effectively decomposed retail prices into tax and non-tax components, revealing that taxation costs exert a substantial impact on changes in retail prices underscoring the importance of recognizing the broader spectrum of influences on retail prices.

Moreover, it is crucial to note that the low correlation between global crude oil prices and Kenya's retail fuel prices is partly due to the nuanced nature of taxes and levies. Kenya's cost-push formula introduces several elements that affect the variable tax components, with some being fixed costs and others variable, contributing to intricate dynamics in the correlation analysis. In conclusion, while the fuel pricing formula's complexity limits a detailed month-to-month breakdown in this post, recognizing the multifaceted influences on retail prices is imperative for policymakers and consumers alike.

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