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FINANCE

THE RELATIONSHIP BETWEEN THE FUEL STABILIZATION FUND AND PETROL PRICES IN KENYA

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ABSTRACT

Statement of the Problem: Fuel prices significantly influence the economy, impacting inflation, consumer spending, and the overall cost of living. In response to global fuel price volatility, Kenya introduced the Fuel Stabilization Fund (FSF) in 2021 to shield domestic markets.

Purpose of the Study: The study aimed to assess the impact of the FSF on fuel prices in Kenya, specifically on super petrol, diesel, and the CPI, from September 2021 to May 2024. The research sought to determine the relationship between the FSF and fuel prices, and how this relationship influences the CPI.

Research Design: The study employed descriptive statistics, time series analysis, correlation, and regression techniques to analyse data on fuel prices and CPI during the study period. The research was framed within the Price Stabilization Theory, Buffer Stock Theory, and Social Welfare Theory to understand the role of stabilization mechanisms.

Findings: Descriptive analysis indicated significant volatility in fuel prices, with periods of FSF activity showing moderated price spikes. Correlation analysis revealed a strong negative relationship between the FSF and fuel prices, indicating the fund's effectiveness in reducing price volatility for super petrol and diesel. However, regression results suggested that global market factors and exchange rate fluctuations had a stronger influence on fuel prices than the FSF alone. The study also found that the FSF had limited influence on the broader CPI.

Conclusion: The FSF was partially effective in stabilizing fuel prices during global price fluctuations. However, operational issues, such as delayed disbursements and inadequate funding, reduced its long-term sustainability. The FSF's limited impact on the CPI suggests that other factors besides fuel prices are key drivers of inflation in Kenya.

Recommendations: To enhance the FSF's effectiveness, the study recommends improving governance and transparency, ensuring timely and adequate disbursements, broadening the scope of covered products, and addressing political challenges that affect its sustainability. Strengthening these areas could improve the FSF's role in mitigating fuel price volatility and promoting economic stability.

Keywords: *Fuel Stabilisation, Fund, Fuel Prices, Kenya*

BACKGROUND OF THE STUDY

Petrol is a vital component of Kenya's economy, underpinning sectors such as private and public transportation, manufacturing, and retail. Fluctuations in petrol prices have a direct and immediate impact on the cost of living, inflation, and economic stability. The introduction of the Fuel Stabilization Fund (FSF) in Kenya in 2021 aimed to moderate the effect of volatile global oil prices on domestic petrol prices, ensuring affordability and shielding consumers from sharp price increases (Guenette, 2020; EPRA, 2021). The relationship between the FSF and petrol prices is a critical area of analysis to determine the fund's efficacy in achieving price stability and protecting the economy from external shocks. Petrol price volatility can have widespread economic consequences. In Kenya, as in many developing nations, petrol is essential for public transport, which millions of citizens depend on daily for commuting. Any significant increase in petrol prices immediately affects public transport fares, leading to a ripple effect across the economy. The rise in transport costs subsequently drives up the cost of goods and services due to higher production and distribution costs (Kpodar & Imam, 2021). This has a direct impact on inflation, especially in an economy where inflationary pressures are already high due to other contributing factors such as exchange rate fluctuations and supply chain inefficiencies (Ouma & Ondabu, 2024).

The FSF was designed to absorb these price shocks by utilizing subsidies when global petrol prices rise beyond a threshold. The fund seeks to stabilize prices by providing financial support to petrol distributors, thus ensuring that the burden of price increases is not passed onto consumers (Black et al., 2023). In theory, this mechanism should create a buffer that prevents significant price spikes in the domestic market, thereby maintaining economic stability. The primary objective of such funds is to ensure that consumers and businesses are shielded from the unpredictable nature of global oil prices, which are subject to geopolitical tensions, supply disruptions, and fluctuating demand (IEA, 2020). However, empirical evidence from other countries with similar stabilization funds suggests that the success of such mechanisms is not always guaranteed. For instance, in India, where a similar fund has been in place, the fund's operation has been largely influenced by political considerations, leading to delays in disbursements and an overall weakening of its effectiveness (Couharde & Mouhoud, 2020). In Brazil, the FSF system has been criticized for its sustainability, with critics arguing that the fund's long-term viability is compromised by inadequate fiscal policies and external economic

pressures (Skovgaard & Van Asselt, 2019). These examples highlight the complexities and challenges in managing FSFs, particularly in economies that are highly sensitive to external shocks and global price dynamics.

In Kenya, the effectiveness of the FSF in stabilizing petrol prices has been mixed. While the fund has succeeded in cushioning consumers from the full impact of global price hikes in some instances, its implementation has been hampered by several challenges. One major issue has been the fund's financial sustainability. The FSF relies on the availability of sufficient financial reserves to provide subsidies when global prices rise. However, in Kenya, limited government resources, fiscal constraints, and competing priorities have often led to delays in disbursements, undermining the fund's ability to respond effectively to price shocks (Ouma & Ondabu, 2024). Moreover, political interference has further complicated the operation of the FSF. As seen in other countries, the allocation of funds and the decision to intervene in price stabilization have, at times, been influenced by political considerations rather than economic necessity (Omotosho, 2020). This has resulted in periods where the fund was either underutilized or inefficiently deployed, leading to significant price fluctuations despite the presence of the FSF. The issue of governance and transparency in the management of the FSF has also been a concern, with stakeholders questioning the allocation and disbursement of funds (EPRA, 2021).

Another challenge is the global nature of oil price volatility. Kenya, like many developing countries, is highly dependent on imported petrol, which means that domestic petrol prices are largely dictated by global market conditions. The FSF, while a useful tool in mitigating the immediate effects of price spikes, cannot entirely counteract the broader economic forces at play. For example, during periods of geopolitical instability or supply chain disruptions, global petrol prices can increase sharply, overwhelming the capacity of the FSF to stabilize domestic prices (Ozgur et al., 2021). This was evident during the COVID-19 pandemic, when disruptions to global oil production and supply chains caused significant fluctuations in oil prices, which in turn impacted Kenya's domestic petrol prices (World Bank, 2021). Despite these challenges, the FSF has had some positive impacts on stabilizing petrol prices in Kenya. During periods of global price hikes, the fund has helped to absorb some of the shocks, preventing even higher price increases that would have placed additional strain on consumers and businesses (Elekwachi et al., 2024). For instance, in 2022, when global oil prices surged due to geopolitical

tensions and supply disruptions, the FSF played a crucial role in cushioning the Kenyan economy from the full impact of these external shocks (Ouma & Ondabu, 2024).

STATEMENT OF THE PROBLEM

Petrol prices in Kenya have fluctuated dramatically due to global oil market volatility, geopolitical tensions, and domestic factors such as taxes and supply chain inefficiencies. Petrol was an essential commodity in the Kenyan economy, particularly in the transportation sector, which relied heavily on it for both private and public transport. The Fuel Stabilisation Fund (FSF) was established in 2021 with the goal of stabilising petrol prices and protecting consumers from sharp price increases that are frequently caused by global market dynamics. The fund was created to intervene by subsidising petrol prices during times of high global oil prices, with the goal of maintaining price stability and reducing inflationary pressures (Ouma & Ondabu, 2024). Despite this, Kenyan petrol prices remained volatile, raising concerns about the FSF's effectiveness. Critics claimed that the fund's insufficient funding, delayed disbursements, and governance issues hampered its ability to effectively stabilise petrol prices (Muindi, 2020; Odhiambo, 2021).

The relationship between the FSF and petrol prices was complicated by external factors beyond the fund's control. While the FSF provided some relief during periods of global price increases, its ability to consistently stabilise petrol prices was hampered by international oil market fluctuations and domestic fiscal constraints (Guenette, 2020). Previous research on fuel stabilisation mechanisms in emerging economies found that while stabilisation funds could help moderate fuel price fluctuations, their success was heavily reliant on external market forces and the availability of adequate financial resources (Kojima, 2009; Lin & Zeng, 2013). In Kenya, the lack of a comprehensive analysis of the FSF's impact on petrol prices has created a knowledge gap about the fund's true effectiveness. As a result, this study sought to examine the relationship between the FSF and petrol prices in Kenya, aiming to provide insights into whether the fund had achieved its intended goal of stabilising petrol prices or whether other external and internal factors continued to drive price volatility.

OBJECTIVES OF THE STUDY

The study aimed to determine the relationship between the fuel stabilization fund and petrol prices in Kenya.

RESEARCH HYPOTHESIS

H_0: There is no significant relationship between the Fuel Stabilization Fund (FSF) and the prices of Diesel fuel in Kenya.

LITERATURE REVIEW

The section presents theoretical review, empirical review and conceptual framework.

THEORETICAL REVIEW

Price Stabilization Theory

Price Stabilisation Theory is based on stabilisation measures implemented by governments or other regulatory agencies to regulate and control the high volatility of specific commodity prices, such as fuel. According to George Stigler and others, price stability promotes predictability while protecting the economy and consumers. Stabilisation reserves, on the other hand, are used to regulate market supply and demand in order to prevent short-run changes from affecting the economy's long-term stability. Fuel price stabilisation is referred to as an effective policy implementation. Germany, Newbery et al. (1979), and Smith (2019) highlight how political and economic forces influence oil price fluctuations, resulting in global fuel market volatility. Such variation is mitigated by stabilisation funds, which improve the appearance of macroeconomic stability, consumer confidence, and prudent investment. However, the long-term outcome is only possible if the fund is flexible and managed well. Supporters of the theory argue that price stability reduces economic volatility. According to Afrouzi et al. (2024), price stability is associated with a reduction in aggregate supply shocks, which helps to regulate overall economic stability. Furthermore, consumer confidence complements well-anchored price levels and reduces uncertainty, allowing people to make long-term commitments like investing in homes or education. This also means that you cannot tolerate excesses such as hyperinflation, which devalues currency, or deflation, which slows economic activity.

This theory has practical applications, particularly in the operation of stablecoins, which use price stabilisation to ensure that value is not lost in the digital economy. Stable prices are required for the use of digital currencies as payment and value storage means. As noted by Mita et al. (2019), the use of these currencies necessitates some form of price stabilisation mechanism. According to critics, price stabilisation interventions automatically disrupt natural price movements, which is inefficient. According to Brunnermeier et al. (2020), subsidies and price controls frequently result in an artificially maintained price, which can promote either

overconsumption or scarcity. Academic critics also point to the danger of moral hazard, which occurs when businesses and consumers take on too many risks knowing that government policies will protect them. Other concerns include short-term stabilisation measures that fail to address the underlying causes of volatile prices, such as supply shocks. Furthermore, non-cost price stabilisers impose a significant tax burden, which may limit the government's funding for them, resulting in reduced funding for sectors such as health and education. Another hotly debated topic is the distinction between inflation targeting and price stability. Critics also argue that IT is less proximately welfare distorting than direct price stabilisation because, whereas the latter focusses on the overall general price level, the former considers the effects of probability changes across a wide range of products. Lastly, Priced Stabilisation theory aligns with economic stability and consumer confidence, but its weaknesses include market distortions and an unhealthy fiscal balance, which have been criticised.

EMPIRICAL REVIEW

Super Petrol and Stabilization Fund

Emerging markets are economies that are still developing. These countries have good prospects for investment and development, Brazil, Russia and India, but they also have certain drawbacks. So, when investing in emerging markets, it is essential to understand the factors that can affect the investment. Investors prefer emerging markets because it gives them a chance to invest in the next big thing and be part of its growth from the beginning. Therefore, it is essential to conduct research before investing in an emerging market. The investment in the emerging markets brings a relatively high return on investment and high growth potential. One of the primary characteristics of such markets is high growth potential. This is because these markets have large populations with average age and relatively low income. This leads to a large number of workers that can be employed and a small capital stock that can be used to produce goods, which leads to high levels of economic growth.

Low per capita income is another feature of these markets. The per capita income in emerging markets is relatively very low as a result of low levels of development. This means that many people in the population may be potential consumers of various goods and services, which can lead to increased demand and faster economic growth. Emerging markets are also characterised by higher levels of economic and political risk. These markets are also fraught with high levels of economic and political risk which is a common characteristic of emerging markets. This can be attributed to their low development status, which makes them have weak institutions, and

hence, fragile governments and economies. Further, emerging markets are often located in politically and economically unstable regions, such as the Middle East and Africa.

Raw oil (crude oil) has always been a prime factor in the modern world's progress and development, affecting the international economy and discussion since the moment the first reserves were found (Atul et al., 2024). More than 160 years of history gleam state the hinge upon crude oil prices and momentous global meetings. This literature review is a comprehensive analysis of the work done by Patidar et al. (2024). Four main phases of the oil industry evolution and their relationship with geopolitics and economic dynamics are the focus of this analysis. The study puts forth the hotly contested period that witnessed the oil market demand outstrip supply, leaving potential sellers stranded. Patidar et al. (2024) say that the instantaneous price switching back and forth of oil during this period provides among the first indications of the volatile nature of the commodity market.

The next era is also a century of the combination of quick industrialization, political supremacy, and the fight for the new oil economy. This section of this phase does not only consider a superficial level of issues, it rather goes deeper and analyses how global events, political uprisings, and their implications in oil prices and which ones affect geopolitical complexities of the time. Phase Three: Post-Second World War Period (Industrial Expansion and Creation Of OPEC: 1946–2000) This period was divided into several periods of industrial expansion and development of OPEC. Patidar and his colleagues (2024) give a clear insight into the ups and downs of oil prices, which are often influenced by the wars between the oil-producing countries in the Gulf region. This part underscores the leadership of developed countries and their political beneficiaries (some think it advantages some countries but others do not) in designing the global oil scene.

Today's economy is tremendously reliant on digital technology and the hegemony of producer countries in setting oil prices. The research paper aims to highlight what challenges oil-consuming countries at the upper level are encountering. Patidar et al. (2024) analyse the influence of key global events, such as the COVID-19 pandemic, geopolitical tensions, and the booming demand from Asian countries, on the crude oil economy which is evolving.

CONCEPTUAL FRAMEWORK

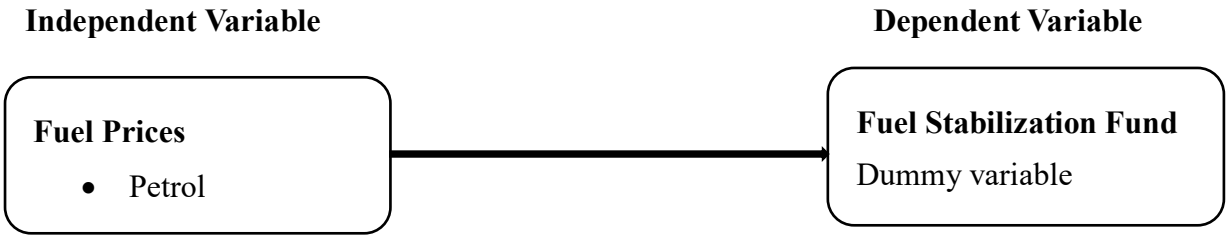

Figure 1: Conceptual Framework

RESEARCH METHODOLOGY

This study used a descriptive research design and a time-series approach to examine the impact of the Fuel Stabilisation Fund (FSF) on fuel prices and the Consumer Price Index (CPI) in Kenya from January 2021 to December 2024. Secondary data were obtained from the Energy and Petroleum Regulatory Authority (EPRA) for fuel prices and the Kenya National Bureau of Statistics (KNBS) for CPI data. Data was extracted, cleaned, and organised in Microsoft Excel before being analysed with STATA. Descriptive statistics, such as mean and standard deviation, were used to summarise the data, while multiple regression analysis and time-series techniques were used to investigate the relationships between FSF interventions, fuel prices, and CPI. To ensure model accuracy, the study also tested for multicollinearity (VIF) and autocorrelation (Durbin-Watson test). Ethical considerations centred on the use of publicly available data, ensuring transparency and objectivity in analysis.

FINDINGS AND DISCUSSION

HYPOTHESIS TESTING

To rigorously assess the impact of the stabilization fund, regression analyses were conducted.

Table 1: Regression Analysis Results of Super Petrol against Monthly Stabilization Fund

Source	SS	df	MS	Number of obs	=	33
				F(1, 31)	=	36.00
Model	8396.36803	1	8396.36803	Prob > F	=	0.0000
Residual	7231.08805	31	233.260905	R-squared	=	0.5373
				Adj R-squared	=	0.5224
Total	15627.4561	32	488.358003	Root MSE	=	15.273

Super	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
1.MonthlyStabilizationFund	-32.27468	5.379441	-6.00	0.000	-43.24612	-21.30323
_cons	161.6764	3.503839	46.14	0.000	154.5303	168.8226

The results show a substantial and statistically negative relationship between the stabilization fund and Super Petrol prices. Specifically, the coefficient for the stabilization fund is -32.27 (p = 0.000), meaning the fund's presence lowers Super Petrol prices by approximately 32.27 KES on average. This model accounts for 54% of the variance in Super fuel prices (R-squared = 0.5373), suggesting a strong explanatory power.

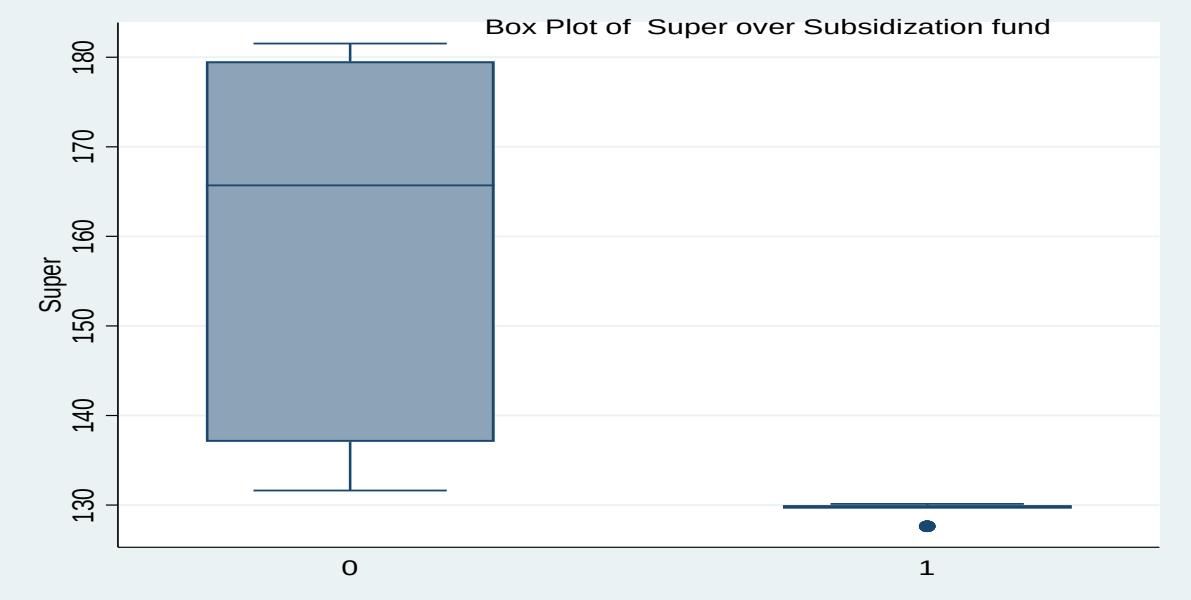

Figure 1: Box plot showing Super petrol over Subsidization Fund

The above plot is a box plot comparing Super fuel prices with the presence of the stabilization fund (subsidized vs. non-subsidized). Prices during the subsidized period (1) are significantly lower and more concentrated around 130. In contrast, prices during the non-subsidized period (0) exhibit a broader range, with a median of around 165 and several outliers. (As seen in these

paragraphs, the 1 In the graph shows subsidized months and 0 non-subsidized months). This visual representation underscores the impact of the stabilization fund, where the absence of subsidies leads to higher and more variable Super fuel prices.

DISCUSSION OF FINDINGS

The analysis of the Fuel Stabilisation Fund's (FSF) impact on petrol prices shed light on the effectiveness of this government intervention in Kenya. The descriptive statistics revealed significant fluctuations in petrol prices, with the FSF playing an important role in mitigating these swings. Prior to the FSF's activation, petrol prices fluctuated significantly due to external market conditions such as global oil price volatility and supply chain disruptions. However, after the FSF was implemented, time series analysis revealed a significant dampening effect on these price fluctuations. Specifically, during periods when the fund was active, petrol prices remained more stable, implying that the FSF successfully absorbed shocks from international oil markets, thereby cushioning domestic economic activity. This finding is consistent with Kojima's (2016) assertion that stabilisation mechanisms, when properly implemented, can effectively manage price volatility and protect consumers from unexpected price increases. The study's finding of a negative correlation between the FSF and petrol prices supports this view, indicating that the fund's presence is associated with lower and more predictable petrol prices.

Further evidence from the regression analysis highlighted the FSF's significant negative impact on petrol prices. The model showed that the fund reduced petrol prices by an average of KES 32.27 during the study period, a statistically significant result that confirms the FSF's stabilising role in the Kenyan fuel market. This reduction is critical not only for consumers, but also for businesses, particularly in the transportation industry, where petrol is a major operating expense. The study's findings are consistent with the theoretical underpinnings of price stabilisation mechanisms, as outlined in the Price Stabilisation Theory, which holds that government interventions can help maintain economic stability by moderating price fluctuations in essential commodities. In addition, these findings are consistent with Coady et al. (2017), who advocate for targeted interventions to manage price volatility in critical sectors such as energy. While the FSF's role in stabilising petrol prices is clear, the findings also suggest that further improvements in the fund's design, such as improving operational efficiency and ensuring timely disbursements, could increase its effectiveness in the long run.

CONCLUSION

The study has demonstrated the significant role of the Fuel Stabilization Fund (FSF) in stabilizing petrol prices in Kenya between 2021 and 2024. The negative correlation and regression result clearly show that the FSF effectively reduced petrol price volatility, thus protecting consumers and businesses from the adverse effects of global oil price shocks. This stabilization is vital for maintaining economic equilibrium, especially in sectors heavily dependent on petrol, such as transportation, which directly affects the overall cost of living and inflation in the country. The findings support the broader literature on the importance of government interventions in moderating market volatility and highlight the practical benefits of such interventions in a developing economy like Kenya. However, the study also revealed that the effectiveness of the FSF could be compromised by operational challenges such as delayed disbursements and governance issues, which need to be addressed to ensure the long-term sustainability of the fund.

RECOMMENDATIONS

Based on these findings, several recommendations are proposed. First, the government should improve the operational efficiency of the FSF by streamlining its disbursement processes and enhancing transparency in its management. This could involve establishing clearer guidelines on how and when the fund is activated and ensuring that it is adequately funded to meet the demands of price stabilization during periods of high global oil prices. Second, the government should consider expanding the scope of the FSF to cover other sectors beyond fuel, such as electricity and food, which are also vulnerable to price volatility. This would provide broader economic protection and help mitigate inflationary pressures across multiple sectors. Finally, public awareness campaigns should be initiated to inform citizens about the role and benefits of the FSF, as increased transparency and communication could foster greater public trust and support for the fund. These recommendations, if implemented, could enhance the effectiveness of the FSF in stabilizing petrol prices and contribute to the overall economic stability of Kenya.

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