



The asymmetric impact of economic policy uncertainty on global retail energy markets: Are the markets responding to the fear of the unknown?

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HIGHLIGHTS

- We studied the response of retail energy markets to uncertainty and oil price changes.
- We used the nonlinear ARDL modeling framework.
- We find that rising uncertainty significantly increases retail energy prices.
- There is rockets and feathers effect in all the countries, except Canada.
- Likelihood of rent-seeking exists mainly in diesel and heating oil markets.

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ABSTRACT

Following the paucity of empirical studies on the effects of economic policy uncertainty (EPU) on global retail energy markets and the need to reassess the markets for the prevalence of rockets and feathers effect and rent-seeking behavior by retailers during the Covid-19 pandemic, we studied the asymmetric response of the markets to changes in EPU and crude oil costs. We estimated nonlinear autoregressive distributed lag models over the period 2004 M11–2020 M6 using data for global and domestic EPUs as well as gasoline, automotive diesel, domestic heating oil, industrial fuel oil and crude oil markets. We find that rising uncertainty significantly increases retail energy prices both in the short-run and long-run, especially in UK, Japan and Europe. The asymmetric patterns show that many of the markets respond more to rising uncertainty than declining uncertainty, suggesting the prevalence of the “fear of the unknown”. Our results also showed significant evidence of rockets and feathers effect in all the countries, except Canada. Furthermore, the likelihood of rent-seeking by retailers was observed in the diesel and domestic heating oil markets in Italy, UK, and France. The study concluded that these findings have important policy implications, particularly as they relate to consumer welfare, antitrust policies and stability of the policy environment.

1. Introduction

In the last two decades, the global economy has witnessed several uncertainty-inducing events. Examples of such events include: the 2007–2009 Global Financial Crisis, also known as the Great Recession; the escalating global trade disputes, especially the trade tensions

between the United States and China that degenerated in 2018 and 2019; the BREXIT vote and the subsequent negotiations between the United Kingdom and the European Union; the March 2020 oil price war between Russia and Saudi Arabia; the European sovereign debt crisis; the COVID-19 pandemic that crippled economic activities globally; and the ongoing Russia-Ukraine war that has led to the imposition of

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sanctions on Russia by many countries, especially European countries.¹ These events not only led to unprecedented increase in global economic uncertainty, but also reignited the concerns of economic researchers and policymakers about the effects that rising economic policy uncertainty may have in the economy. At a general level, economic policy uncertainty may be explained in terms of a situation in which there is little or non-existence of knowledge regarding the future path of an economy or in terms of the risk of changes in prevailing economic policies that define the parameters or the process of decision-making by economic agents like firms and households [2–4]. Thus, an important consequence of economic policy uncertainty is that it makes economic agents to operate without clear direction when planning their economic affairs. In other words, uncertainty creates and sustains the “fear of the unknown” among economic agents, which often results in wasting of time and money, overlooking of promising opportunities, and triggering of various forms of anti-competitive behaviours in the economy.

An important feature of most of the foregoing uncertainty-inducing events is that they led to sharp movements in global crude oil prices. For instance, while the 2007–2009 Global Financial Crisis and the Covid-19 pandemic led to huge declines in crude oil prices, the ongoing Russia-Ukraine war triggered a massive increase in global crude oil prices. Since crude oil is the main input material in the production of several retail energy products (i.e. petroleum products), such as gasoline, diesel, domestic heating oil, and industrial fuel oil, it follows that rising economic policy uncertainty may have also impacted on these retail energy markets.² In fact, the extant literature has recognized economic policy uncertainty as an important factor that can adversely affect any economy, since it can induce economic agents to take actions that may be detrimental to the overall economy [5,6]. Thus, a natural question that emerges is how economic policy uncertainty may have affected global retail energy markets. To see this, let us consider both the supply side and the demand side of the markets.

On the supply side, Gulen et al. [7] explain that firms are highly sensitive to uncertainty shocks while making their routine business decisions. Recent experiences have shown that uncertainty induces retail energy firms to reduce their investment in inventory or hoard their products or adjust their prices upwards in anticipation of further rise in uncertainty. This is because prices can change rapidly during periods of high uncertainty and as a result, sales proceeds may not be adequate to replenish the inventory. Azqueta-Gavaldón et al. [8] showed that investment in France, Germany, Italy and Spain respond significantly to uncertainty shocks, while Ma et al. [9] and Lee and Boomsma [10]

emphasized that pricing in electricity markets is sensitive to uncertainty shocks. Thus, if a retailer is unable to pass price increases to consumers, may be due to fixed-price contracts with the consumers, such a retailer will likely go out of business due to bankruptcy. This price adjustment pattern has been witnessed in many advanced economies, especially in Europe. According to Sheppard et al. [11], the UK retail energy sector was thrown into crisis in the second half of 2021 when it became obvious that many firms were in danger of quickly going out of business as prices surged well above levels they could pass on to customers. Europe has also witnessed many energy retailer bankruptcies as they were unable to pass soaring prices to consumers [12]. Thus, uncertainty can alter the decisions of retail energy firms in terms of product supply and pricing, suggesting that economic policy uncertainty may have sizable effects on global retail energy markets.

On the demand side, consumers of retail energy products may respond to rising uncertainty in several ways. For instance, consumers can respond to increasing uncertainty by postponing consumption of retail energy products to future periods and by increasing their saving rate or work hours in order to generate additional income to cushion the effects of increases in the prices of retail energy products during periods of rising uncertainty [14,15]. These consumption behaviours will likely affect the demand and pricing of retail energy products since they will result in either contraction or increase in demand. Furthermore, consumers may also respond to rising uncertainty by engaging in panic-buying of products. For instance, when the British Petroleum announced that it would be rationing fuel deliveries due to a shortage in the aftermath of Brexit, many consumers rushed to petrol stations to fill their tanks and jerry cans, thereby creating long queues of panic-buyers [16]. Under such circumstance, consumers that have low opportunity cost of time can spend hours in the fuel queues, while those that have high opportunity cost of time can go elsewhere and buy at higher prices.³ Hence, uncertainty can influence the behavior of consumers of retail energy products in terms of product demand and pricing. This further indicates that economic policy uncertainty may have considerable effects on global retail energy markets.

Theoretically, some channels through which uncertainty may impact the economy have been documented. The theory of precautionary-savings explains that when households are faced with uncertainty, they delay consumption and/or supply more hours of work as a precautionary measure against uncertainty [17–19]. The theory of real-options explains that uncertainty induces firms to be more cautious when making decisions that are costly to reverse, and this leads to delays in decision-making of firms as they wait to obtain more information that could help in better decision making [21–24]. The theory of risk-premium effects explains that uncertainty increases the cost of financing debt by raising the default probability and, hence, the risk in the financial market. As a result of the increase in default risk, banks and other lenders will charge higher rates of interest, thereby increasing

¹ Apart from the global economic policy uncertainty that results from these global/regional uncertainty-inducing events, countries across the globe also witness uncertainty-inducing events at national level. For instance, the United States has witnessed domestic economic policy uncertainty events like the September 11 attack, the near tight presidential elections, the debt-ceiling dispute, disagreements over changes to the tax system that made it harder to predict policies, and other major fights over fiscal policies, among others. In Canada, the meeting of G7 in Quebec that ended with a threat by Trump on Canada's dairy policies and new automobile tariffs, the anticipation of Italy to veto Canada-EU free trade pact, the ban on Alberta wheat by Japan, and Trump's unpredictable anti-trade agenda that posed a serious threat to open economies like Canada may have triggered increased domestic economic policy uncertainty. Thus, economic policy uncertainty (EPU) may be categorized into global EPU and domestic EPU. The Policy Uncertainty Group develops and publishes the indices for both global EPU and the domestic EPU for countries around the world at <https://www.policyuncertainty.com/index.html>.

² In electricity markets, Ma et al. [9] demonstrated that economic policy uncertainty significantly drives up volatility spillovers, while Lee and Boomsma [10] acknowledged the influence of uncertainty in the future pricing of electricity. Aliabadi et al. [13] also emphasized the fact that risk aversion level considerably influences the behaviour of firms in electricity markets. Thus, the influence of uncertainty is not limited to the retail markets for petroleum products.

³ Nigeria, which is a member of the Organization of the Petroleum Exporting Countries, presents a stark reality of how economic policy uncertainty can affect retail energy markets. Due to lack of domestic refining capacity, the country depends almost entirely on imports to meet its petrol requirements and its Federal Government pays a subsidy on each liter of imported petrol. When the government removed this subsidy on January 1, 2012, the retail price of the product immediately doubled. However, following nationwide protests by citizens, the government restored the subsidy. Since then, whenever there were rumors that government was going to remove this subsidy, retailers always adjust their prices upward swiftly. This situation has persisted till date. This price adjustment pattern starkly shows that the retail petrol market is responding sizably to uncertainty surrounding the subsidy economic policy in the country. Thus, economic policy uncertainty could be quite important in predicting future retail energy prices. It should be noted that the problem of subsidy abuse is not limited to developing countries like Nigeria. Recent evidence of subsidy abuse by economic agents in the European Union can be found at Teichmann et al. [20].