
A REVIEW ON RISING OF FUEL PRICES IN INDIA

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ABSTRACT

From June 16, 2017, the Government of India executed its decision to adjust the prices of oil products on a daily basis. The public-sector oil marketing businesses began a daily price adjustment system, as opposed to the prior system for motor gasoline, which was fortnightly. The main point of this article is to determine the pre- and post-effects of variations in petrol prices in India. The research is based on the pricing of gasoline in five major Indian cities: Delhi, Mumbai, Chennai, Kolkata, and Bangalore. The prices of gasoline are examined for the year 2017. In 122 of the 365 days, the pricing were altered. The Mean Adjusted Method is used to determine the Average Abnormal Price (AAP) in petrol prices in five cities using the event research approach. The results of the mean adjusted analysis revealed that the dynamic fuel pricing had a considerable influence from Aug 22, 2017 to Oct 3, 2017. The ruling had no substantial impact on the other days.

KEYWORDS: *Petrol, Oil Products, Fuel, Pricing, Gasoline.*

1. INTRODUCTION

Since June 2017, the Indian government has implemented a new gasoline price scheme nationwide. Fuel prices are now fluctuating on a daily basis, a phenomenon known as variable fuel pricing. This new pricing strategy was first implemented on May 1, 2017 in five cities throughout the nation, including Pondicherry and Vishakhapatnam in the south, Udaipur in the west, Jamshedpur in the east, and Chandigarh in the north. Following the success of the trial initiative in these locations, it was rolled out nationwide on June 16, 2017, to roughly 58,000 gas stations. Fuel prices fluctuate on a daily basis depending on crude oil prices on the worldwide market and foreign currency rates¹. Previously, the Oil Marketing Companies (OMCs), notably Indian Oil Corporation Limited (IOCL), Hindustan Petroleum Corporation Limited (HPCL), and Bharat Petroleum Corporation Limited (BPCL), revised their gasoline rates on the first and sixteenth days of each month. The exchange rates were calculated using the preceding fortnight's average worldwide price as well as the exchange rate.^{[1]–[3]}

Since the past two decades, nations such as the United States of America (USA), Australia, Japan, and Germany have used a dynamic gasoline price strategy. As a result, India's policy shift from a government-controlled to a market-driven system is aimed at bringing diesel and gasoline prices in line with worldwide levels. This move also has the goal of reducing price speculation in India's petroleum industry. The OMCs think that when price adjustments were made on the 1st and 16th of each month, market speculation about whether prices would rise or fall occurred, and consumers acted accordingly. On the other hand, given that prices

fluctuate on a daily basis, speculation is less important.[4]

The primary point of this article is to investigate the pre- and post-effects of dynamic gasoline pricing in India in light of this context. There are two main goals in this article. First, to determine the effect of dynamic fuel pricing on the Indian petroleum sector before and after the policy change; and, second, to determine if there are any problems with anomalous prices caused by the policy change and the reasons behind them. To put it another way, the goal of this research is to see whether there is a substantial difference in the price of petroleum before and after a policy change. Only the prices of gasoline were taken into account in this research. For this, retail gasoline price data is examined, and Average Abnormal Pricing (AAP) is determined using a Return Generating Model (RGM), which is a mean adjusted pricing model for the year 2017.[5], [6]

Determination Of Petrol Prices In India:

Upstream, middle, and downstream are the three main sectors of the petroleum industry from a business standpoint. This retail sale of petroleum is part of the downstream sector, in which crude oil is bought from midstream companies such as GAIL (India), Reliance, and Essar by OMCs such as IOCL, BPCL, and HPCL in India. In addition to crude oil pricing per barrel, these businesses must pay freight and transportation costs. Refineries then turn the oil into gasoline. The OMCs pay the refineries the refinery transfer fee in return for this refining service. The oil is still held by the OMCs at this time. Before selling, OMCs pay excise duty to dealers at a profit. The OMCs also sell this refined oil, which is now in the form of gasoline, to dealers. It is offered for sale at cost plus profit. From this point on, the sellers own the gasoline. Finally, the cost price includes state VAT, dealer's margin, pollution cess and surcharge. Taxes, tariffs, cess, and dealer margins account for more than 57 percent of the retail gasoline price per liter. This is the ultimate retail price of gasoline, and it is accessible at gas stations.[7]

The government has been using the Administered Price Mechanism (APM) since 2002, in which the government pre-determines prices using a cost plus formula. As a result, depending on their cost of production, the OMCs were entitled for a set return on investment. APM was decommissioned in 2002, and between 2002 and 2010, different partial deregulation methods were adopted. Petrol prices were completely liberalized in 2010 and let to be decided by market forces. The automated pricing system was changed, which affected international market prices and foreign currency rates. The final retail pricing were determined by OMCs, who had the ultimate say.

The government of India implemented a daily price change system on June 16, 2017. Petrol stations currently use a slightly differentiated pricing structure. Various pricing are established at different outlets of the same OMC depending on geography, according to this regulation. Assume that a fuel pump that is closer to the supply station has a cheaper price than one that is farther away. By eliminating political suggestions in price setting, this move helps match gasoline prices with international crude oil prices and improves transparency in the pricing system. Every morning at 6 a.m., the prices at each fuel station are updated.[8]

The pricing of automatic fuel pumps are adjusted centrally, with no extra personnel required. Only approximately 20% of the total 58,000 fuel pumps are automated petrol pumps. Prices for the remaining non-automated fuel stations will have to be manually adjusted every day. The information may be accessed by non-automated fuel stations through customized SMS, emails, mobile apps, and a web site for dealers. Also, for customers, the new pricing are instantly displayed at all gas stations.[9]–[12]

LITERATURE REVIEW:

While there have been many studies on crude oil prices and government actions, there is a scarcity of literature on dynamic fuel pricing in India. Given that today's pricing is a relatively new phenomenon in the Indian petroleum industry, it's understandable that little study has been done in this area. As a result, the study for this article will undoubtedly be a significant addition in this field.

A number of structural indicators indicate that Irish retail gasoline markets are competitive at the national level, with margins that are quite narrow. Still, there is a sense that Ireland's retail transportation fuel market isn't fully competitive, with consumers not benefiting from lower crude oil prices as quickly as they are burdened by higher crude oil prices. According to a study of the changes of refined pricing, wholesale prices, and retail pump prices in Ireland throughout 2008, retail prices respond more rapidly when price pressures are negative than when they are positive. According to a research on the impacts of pricing levels and industrial production, the influence on the economies of the United States and Canada is considerable, with lesser but important effects in Japan, Germany, and the United Kingdom. The price of oil has a significant impact on industrial output in the United States and the United Kingdom, but the reactions in other nations are modest in contrast. According to a research, global oil prices more than tripled in actual terms between 1999 and 2008. As a result, oil-importing nations must spend a significant percentage of their GDP on oil imports. In terms of medians, low-income nations were the most vulnerable in 2008, and their susceptibility increased the most between 1999 and 2008.

Petrol prices in India are rising mostly as a result of rising crude oil and refined product costs on foreign markets, as well as a lack of remuneration for oil firms. The business should have the flexibility to determine gasoline prices in a competitive market, and the government should assist customers by providing subsidies that have no detrimental impact on oil companies when determining market pricing (Dani, 2014). Crude oil and other petroleum products are vital to any economy, and India imports about 100 million tonnes of crude oil and other petroleum products each year. It is commonly observed that the pricing scheme in India is designed in such a way that it provides a system to moderate rising international oil prices while also studying the impact of growth, inflation, and other factors. However, the impact of rising oil prices may vary from country to country depending on their individual demand and supply structures (Aparna, 2013). There was no price regulation on petroleum products until 1939, and from 1939 to 1948, the oil firms were responsible for accounting the goods without the involvement of the government. In 1948, an attempt was made to control prices using the value stock procedure, which was a formula based on import parity that was used to control various costs such as ocean freight, insurance, ocean loss, remuneration, import duty, and other levies charges. This procedure was used until the early 1970s. In 1974, the government established the oil pricing committee, which was chaired by Krishnaswamy. The oil price committee (OPC) abolished import parity and replaced it with an administered pricing system (APM) for petroleum products.

2. METHODOLOGY

This research is carried out using empirical analysis based on secondary data sources. The information was gathered from the IOCL website. To determine the average anomalous fuel price changes, the Mean Adjusted Pricing Method (MAPM) is employed. The research is focused on India's five major metropolises: Delhi, Chennai, Bangalore, Kolkata, and Mumbai. The gasoline costs were studied from January 1, 2017 to December 8, 2017, with the pre-event period spanning January 1, 2017 to June 1, 2017 and the post-event period

spanning June 16, 2017 to December 8, 2017.

Mean Adjusted Pricing Model:

The mean adjusted return model uses the mean of city i's gasoline prices as the anticipated price. It's computed as follows:

$$AP_{it} = P_{it} - P_t$$

Here, AP_{it} is Abnormal Price of city i and day t.

P_{it} is price of petrol of city i and day t.

P_t is simple mean of petrol price of city i daily price.

Average Abnormal Price:

Abnormal Price is found to segregate the effect of event from its average price of a particular time interval. AAR is calculated as below

$$AAP_t = \sum_{i=1}^N \frac{AP_{it}}{N}$$

AAP_t is Average abnormal Price at day t N is number of cities, here 5.

$$t = \frac{AAP_t}{S.E.}$$

Test Statistics:

The T statistics is calculated to test the significant impact of dynamic fuel pricing on petrol prices, the level of significance of AAP from January 1, 2017 to December 8, 2017. T-statistics is calculated with 4 degrees of freedom and at 5, 2.5, 1 and 0.5 per cent level of significance.

Alpha with respective t-values

A	T-Value
5%	2.132
2.50%	2.776
1%	3.747
0.50%	4.604

Standard Error calculated as

$$S.E. = \sqrt{\sum \frac{(AP_{it} - AAP_t)^2}{N - 1}}$$

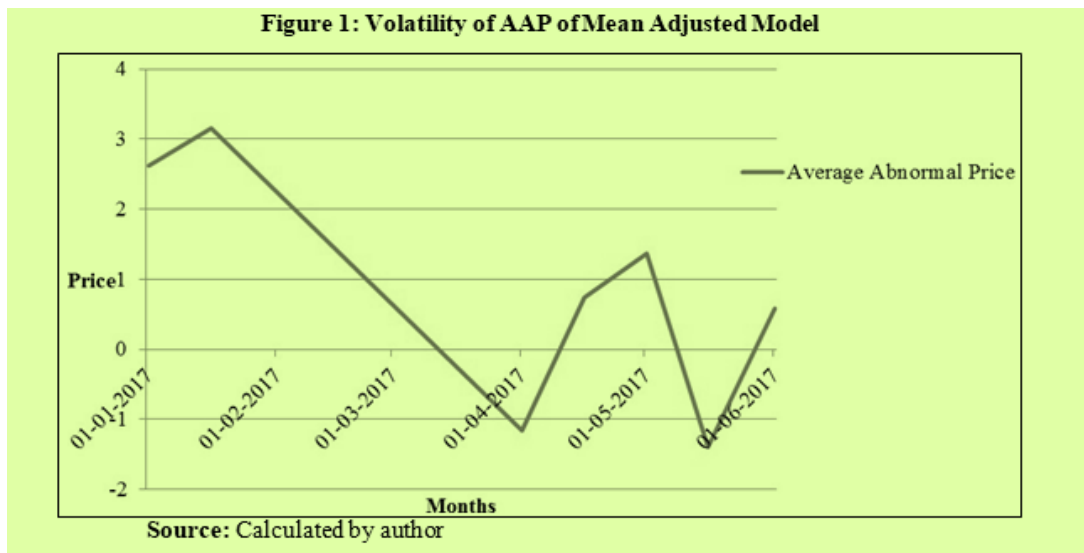
RESULTS AND DISCUSSION:

Pre Dynamic Fuel Pricing

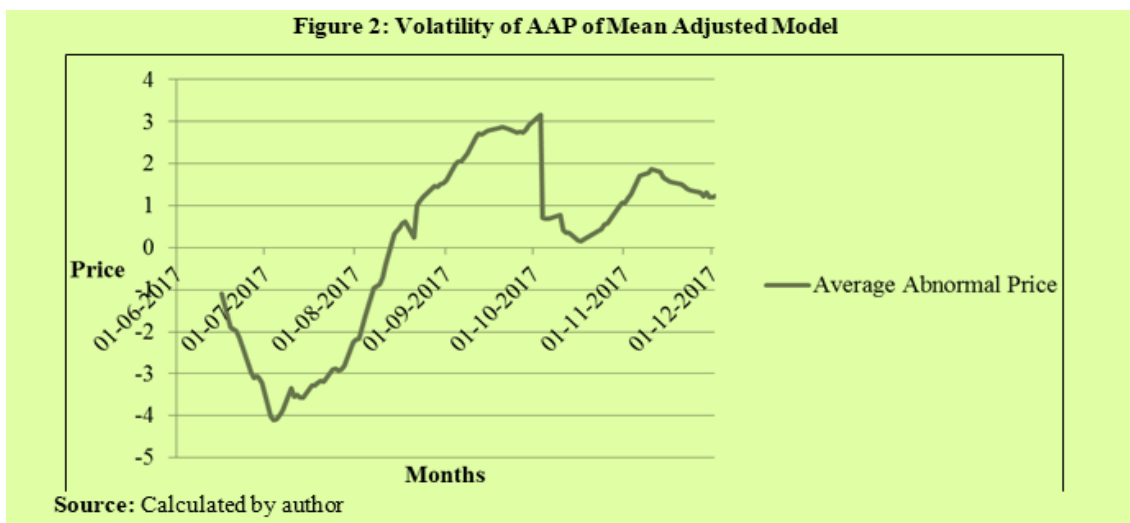
Date	Average Abnormal Price	T-statistics
01-01-2017	2.617424897	1.108168329
16-01-2017	3.159424897	1.331218221
01-04-2017	-1.164575103	-0.084057392
16-04-2017	0.735424897	0.426512654
01-05-2017	1.361424897	1.234941253
16-05-2017	-1.400575103	-1.416154844
01-06-2017	0.581424897	0.454103938

AAP of Mean Adjusted Model

The T-test is performed with a threshold of significance of 5% and four degrees of freedom. At a 95% confidence interval, the t-value is 2.132. As a result, any t-value higher than 2.132 indicates that the null hypothesis is rejected and that there is a substantial price fluctuation, indicating that there was no anomalous price fluctuation previous to the dynamic fuel pricing strategy.



Post dynamic fuel pricing:



RESULTS AND DISCUSSION:

Pre Dynamic Fuel Pricing The T-test is done with 5 percent

3. CONCLUSION

Despite the fact that several petroleum experts were sceptical about the impact of dynamic fuel pricing in the Indian market, the study found no abnormalities in petrol prices after June 16, 2017, as a result of the implementation of dynamic fuel pricing. Although an anomaly was discovered in the study between August 8, 2017 and October 3, 2017, this anomaly was primarily caused by external influences. The hurricane caused an increase in the world market of 18% to 20%, which led to an increase in the domestic market. As a result, it can be concluded that the Indian market's behavior has not changed significantly as a result of the dynamic fuel pricing policy. The study's limitation is that it only looked at the first six months after the dynamic pricing policy was implemented for research. Furthermore, the study only looked at five metropolitan cities, which may not represent the entire picture of pricing policy. Consumers were thrown into chaos when prices increased in August, September, and October. The implementation of dynamic fuel pricing led consumers to believe that the price of gasoline had increased, which is not the case. The true cause was an ecological imbalance brought on by hurricanes IRMA and Harvey, as discussed in the study.

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