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ASSESSING THE IMPACT OF DAILY FUEL PRICE FLUCTUATIONS ON PETROL PUMP OWNERS' PERCEPTIONS IN MALAPPURAM DISTRICT

Noor Suhairiya Pazhaya Puthen Veettil

· Student, Department of Commerce, University of Calicut

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ABSTRACT

The deregulation of petroleum prices in India has introduced daily fuel price variations, aligning with international market changes. This study investigates the perceptions of petrol pump owners towards daily fuel price fluctuations in Malappuram District, exploring the implications of this policy on pump operations and customer behaviour. A mixed-methods approach was employed, combining primary and secondary data from 50 petrol pump operators. The results reveal a significant negative relationship between daily price variations and customer numbers, indicating that increased price fluctuations lead to decreased customer purchases. Petrol pump owners face challenges in managing daily price changes, affecting their cash flow, inventory, and profitability. The study suggests implementing fuel price optimization strategies, improving customer communication, and exploring government support options to mitigate these challenges. This research contributes to the existing literature on petroleum price deregulation and provides insights for policymakers, industry stakeholders, and future researchers.

KEYWORDS: Fuel price volatility, Petrol pump management, Dynamic pricing, Business operations, Customer behaviour

1. INTRODUCTION

The price of petroleum products has significant implications on the global economy, and India is no exception. With the deregulation of petroleum prices, the Indian government has introduced daily fuel price variations, aligning with international market changes. This shift is expected to impact various areas, particularly the retailing mechanism and pump operations. Petrol pump owners may face challenges in managing existing stock, ordering quantities, accounting, pricing, and profitability, while also dealing directly with the public, making them vulnerable to reactions from the general public. This study aims to investigate the perceptions of petrol pump owners towards daily fuel price variations in Malappuram District, providing insights into the implications of this policy on pump operations and the broader economy.

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The introduction of daily fuel price variations has sparked debates among stakeholders, with some arguing that it will lead to greater transparency and efficiency, while others claim that it will increase volatility and uncertainty. Petrol pump owners, in particular, are concerned about the impact of daily price changes on their businesses, including their ability to manage inventory, set prices, and maintain profitability. Furthermore, the daily price variations may also affect the relationships between petrol pump owners, oil companies, and consumers. This study seeks to explore these issues in depth, providing a comprehensive understanding of the attitudes and perceptions of petrol pump owners towards daily fuel price variations in Malappuram District. The findings of this study will contribute to the existing literature on the impact of petroleum price deregulation and provide insights for policymakers, industry stakeholders, and researchers.

2. STATEMENT OF THE PROBLEM

The price of petroleum products has significant implications on the prices of many other products and services. Recently, India has adopted a policy to align petroleum prices with international market changes on a daily basis. This shift is expected to impact various stakeholders, particularly retailers, who will face challenges in managing existing stock, ordering quantities, accounting, pricing, and profitability.

Retailers, being the direct interface with end-users, will be most affected by the daily price variations. They will have to deal with customer reactions, manage inventory, and adjust pricing strategies accordingly. This study aims to investigate the perceptions of petrol pump owners towards daily fuel price variations, with a specific focus on Malappuram District.

The research seeks to understand the impact of daily price changes on retailers' operations, customer relationships, and overall business performance. By examining the perceptions of petrol pump owners, this study will provide valuable insights into the effects of the new pricing policy on the retail sector.

3. OBJECTIVES OF THE PAPER

1. To understand petrol pump owners' views on daily fuel price changes.
2. To see how daily price changes affect pump operations and customers.
3. To find out if daily price changes affect how much fuel people buy.

4. HYPOTHESES

• Null Hypothesis (H0)

There is no significant relationship between daily price variations of petrol and the decreasing number of customers.

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• Alternative Hypothesis (H1)

There is a significant negative relationship between daily price variations of petrol and the number of customers, indicating that as daily price variations increase, the number of customers decreases.

5. METHODOLOGY AND DATABASE

This study employed a mixed-methods approach, combining both primary and secondary data. The population consisted of petrol pump operators in Malappuram district, with a sample size of 50 respondents selected non-randomly. Primary data was collected using a scheduled method, while secondary data was gathered from websites, library books, and previous project reports. The study utilized statistical tools such as pie diagrams, percentage analysis, and chi-square tests to analyse the data. The chi-square test was used to determine the significance of differences between observed and expected frequencies. The database consisted of primary data collected from the 50 respondents, as well as secondary data from various sources. The data was analysed using statistical tools to identify trends and patterns.

6. RESULTS AND DISCUSSION

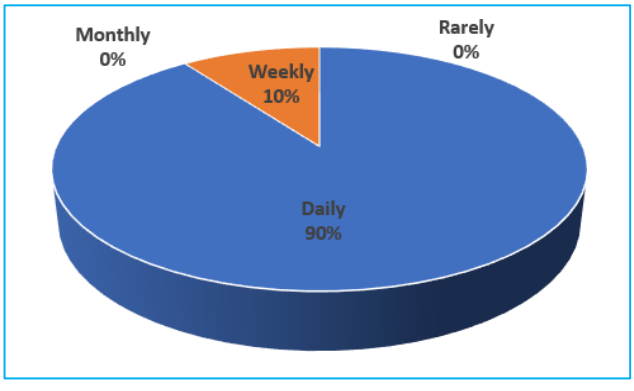
Before presenting the findings, it is essential to understand the context of petrol pump owners in Malappuram District, whose perceptions and attitudes towards daily fuel price fluctuations are analysed below.

6.1 Frequency of Fuel Price Updates

Table 6.1

Sl. No	Options	No. of respondents	Percentage
1	Daily	45	90
2	Weekly	5	10
3	Monthly	0	0
4	Rarely	0	0
Total		**50**	**100**

Figure 6.1



The majority of respondents update fuel price changes daily.

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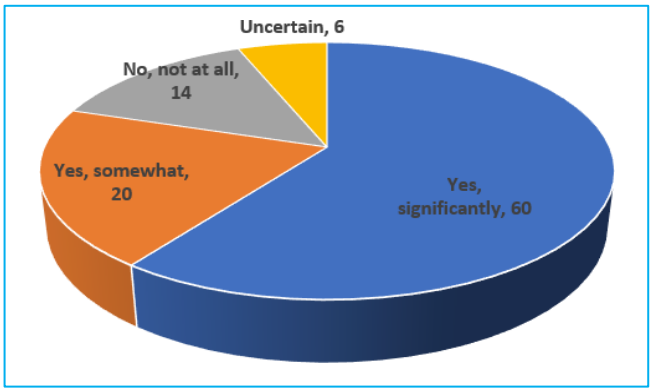
6.2 Impact of Daily Fuel Price Fluctuations on Customer Purchasing

Table 6.2

Sl. No	Options	No. of respondents	Percentage
1	Yes, significantly	30	60
2	Yes, somewhat	10	20
3	No, not at all	7	14
4	Uncertain	3	6
Total		**50**	**100**

Figure 6.2



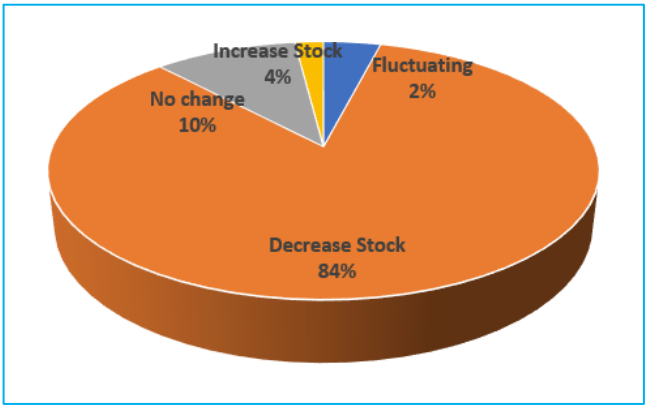
The majority of respondents believe daily fuel price fluctuations significantly affect customer purchasing.

6.3 Inventory Management Strategies

Table 6.3

Sl. No	Options	No. of respondents	Percentage
1	Increase Stock	2	4
2	Decrease Stock	42	84
3	No change	5	10
4	Fluctuating	1	2
Total		**50**	**100**

Figure 6.3



The majority of respondents experienced a decrease in stock levels.

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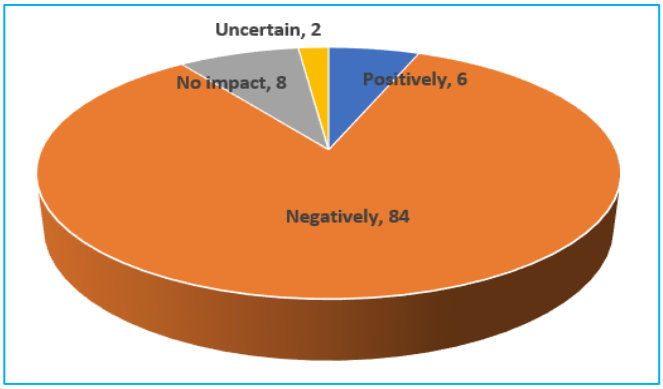
6.4 Perceived Impact of Daily Fuel Price Fluctuations on Customers

Table 6.4

Sl. No	Options	No. of respondents	Percentage
1	Positively	3	6
2	Negatively	42	84
3	No impact	4	8
4	Uncertain	1	2
Total		**50**	**100**

Figure 6.4



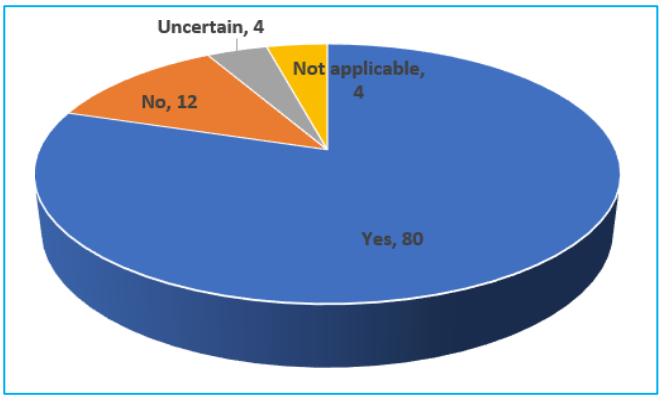
The majority of respondents (42) hold the view that daily fuel price fluctuations have adverse consequences.

6.5 Challenges in Managing Cash Flow

Table 6.5

Sl. No	Options	No. of respondents	Percentage
1	Yes	40	80
2	No	6	12
3	Uncertain	2	4
4	Not applicable	2	4
Total		**50**	**100**

Figure 6.5



A significant majority of respondents struggle with cash flow management.

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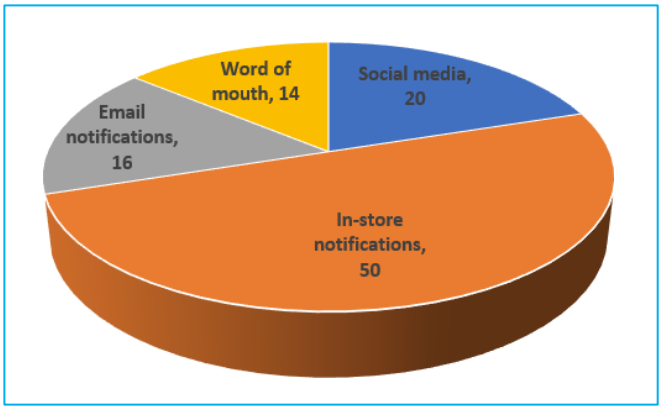
6.6 Communication Channels for Fuel Price Changes

Table 6.6

Sl. No	Options	No. of respondents	Percentage
1	Social media	10	20
2	In-store notifications	25	50
3	Email notifications	8	16
4	Word of mouth	7	14
Total		**50**	**100**

Figure 6.6



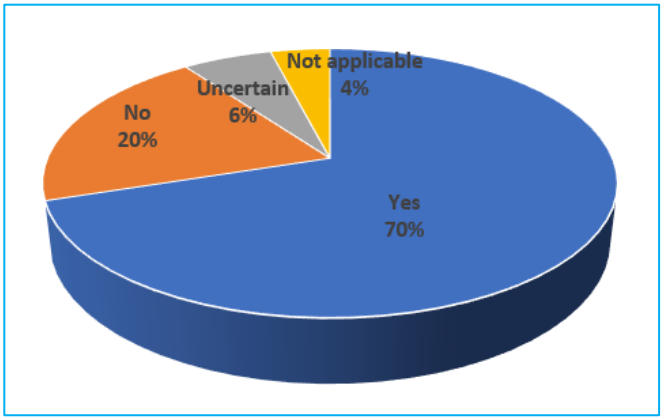
In-store notifications are the most commonly used method among respondents.

6.7 Negative Impact on Customer Loyalty

Table 6.7

Sl. No	Options	No. of respondents	Percentage
1	Yes	35	70
2	No	10	20
3	Uncertain	3	6
4	Not applicable	2	4
Total		**50**	**100**

Figure 6.7



The largest group, think that daily fuel price fluctuations lead to decreased customer loyalty.

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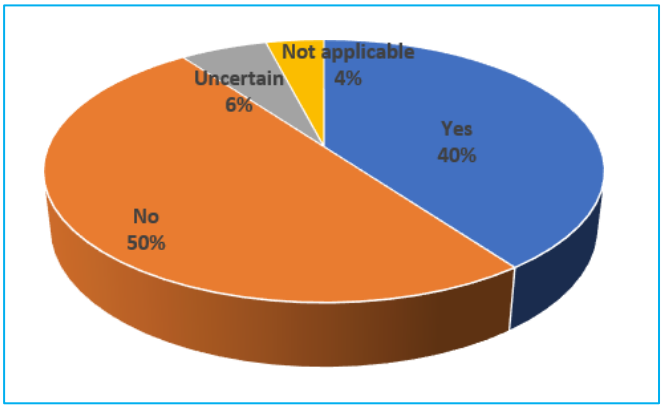
6.8 Adoption of New Technologies

Table 6.8

Sl. No	Options	No. of respondents	Percentage
1	Yes	20	40
2	No	25	50
3	Uncertain	3	6
4	Not applicable	2	4
Total		**50**	**100**

Figure 6.8



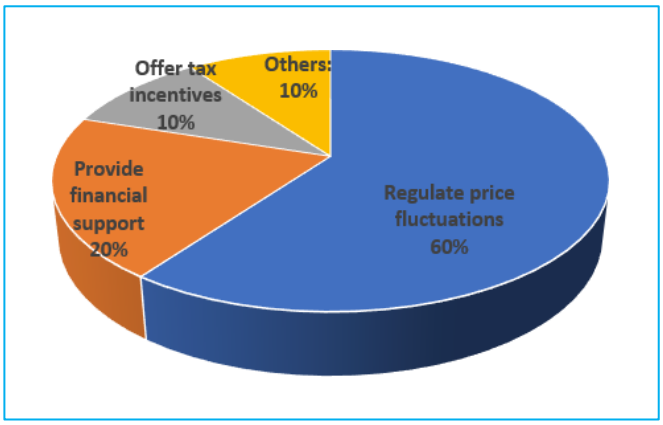
Twenty-five respondents indicated no interest in exploring new technologies.

6.9 Government Support Options

Table 6.9

Sl. No	Options	No. of respondents	Percentage
1	Regulate price fluctuations	30	60
2	Provide financial support	10	20
3	Offer tax incentives	5	10
4	Others:	5	10
Total		**50**	**100**

Figure 6.9



Most respondents (30) believe the government should regulate price fluctuations.

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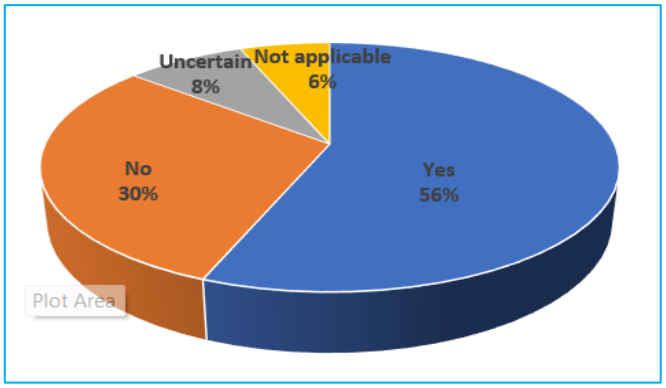
6.10 Impact on Business Investment

Table 6.10

Sl. No	Options	No. of respondents	Percentage
1	Yes	28	56
2	No	15	30
3	Uncertain	4	8
4	Not applicable	3	6
Total		**50**	**100**

Figure 6.10



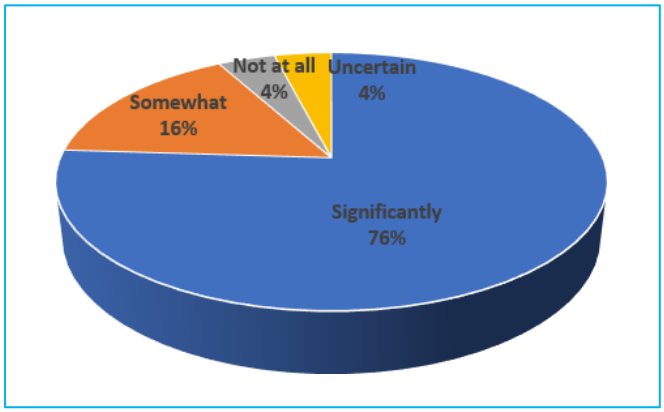
Twenty-eight respondents stated that daily fuel price fluctuations have reduced their ability to invest.

6.11 Impact on Future Planning

Table 6.11

Sl. No	Options	No. of respondents	Percentage
1	Significantly	38	76
2	Somewhat	8	16
3	Not at all	2	4
4	Uncertain	2	4
Total		**50**	**100**

Figure 6.11



Daily fuel price fluctuations have a significant planning impact, according to 38 respondents, the majority.

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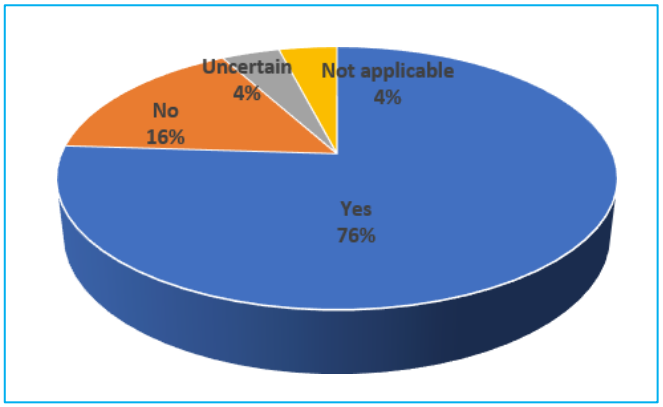
6.12 Challenges in Managing Inventory

Table 6.12

Sl. No	Options	No. of respondents	Percentage
1	Yes	35	70
2	No	6	12
3	Uncertain	5	10
4	Not applicable	4	8
Total		**50**	**100**

Figure 6.12



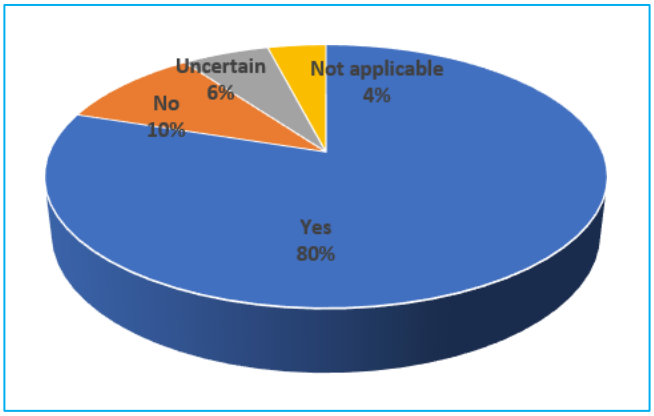
Most respondents (35) report difficulties managing inventory.

6.13 Impact on Business Profitability

Table 6.13

Sl. No	Options	No. of respondents	Percentage
1	Yes	40	80
2	No	5	10
3	Uncertain	3	6
4	Not applicable	2	4
Total		**50**	**100**

Figure 6.13



Most respondents (40) believe daily fuel price fluctuations have affected their business's profitability.

Chi-Square Test

Relationship between Effect on Fuel Purchase and Impact on Customers

Null Hypothesis (H0): The effect on fuel purchase and impact on customers are independent.

Alternative Hypothesis (H1): The effect on fuel purchase and impact on customers are related.

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Effect on Fuel Purchase	Impact on Customers				
	Always	Negatively	No impact	Uncertain	Total
Yes, significantly	0	30	0	0	**30**
Yes, somewhat	3	7	0	0	**10**
No, not at all	0	5	2	0	**7**
Uncertain	0	0	2	1	**3**
Total	**3**	**42**	**4**	**1**	**50**

Computation of calculated value

O	**E**	**(O-E)**	**$(O-E)^2$**	**$(O-E)^2/E$**
0	1.8	-1.8	3.24	1.8
3	0.6	2.4	5.76	9.6
0	0.42	-0.42	0.1764	0.42
0	0.18	-0.18	0.0324	0.18
30	25.2	4.8	23.04	0.91
7	8.4	-1.4	1.96	0.23
5	5.88	0.88	0.7744	0.13
0	2.52	-2.52	6.3504	2.52
0	2.4	-2.4	5.76	2.4

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0	0.8	-0.8	0.64	0.8
2	0.56	1.44	2.0736	3.7
2	0.24	1.76	3.0976	12.9
0	0.6	-0.6	0.36	0.6
0	0.2	-0.2	0.04	0.2
0	0.14	-0.14	0.0196	0.14
1	0.06	0.94	0.8836	14.73
Total				83.19

Test Results:

- Calculated Chi-Square Value: 83.19
- Degrees of Freedom (Df): 6 (calculated as (r-1) × (c-1) = (4-1) × (4-1) = 6)
- Level of Significance (α): 5%
- Table Value (χ^2): 12.59

Note:

Since the calculated chi-square value (83.19) is greater than the table value (12.59), we reject the null hypothesis (H0) at the 5% level of significance.

This suggests that there is a significant relationship between the effect on fuel purchase and the impact on customers. The alternative hypothesis (H1) is supported, indicating that the variables are related.

7. CONCLUSION AND SUGGESTIONS

The survey responses and chi-square test result reveal that daily fuel price fluctuations have a significant impact on petrol pump owners and customers. Specifically, the findings indicate that daily fuel price fluctuations affect the quantity of fuel purchased by customers and have a negative impact on customers. Additionally, petrol pump owners face challenges in managing daily fuel price fluctuations, experiencing difficulties in managing cash flow, inventory, and profitability.

The main suggestions to address these challenges include implementing fuel price optimization strategies, improving communication with customers about fuel price changes, and exploring government support options such as regulating price fluctuations or providing financial support.

Further research is needed to explore the underlying factors contributing to the impact of daily fuel price fluctuations on petrol pump owners and customers. Some general suggestions for future research

include investigating the effectiveness of different fuel price optimization strategies, examining the impact of daily fuel price fluctuations on customer loyalty and retention, and analysing the role of government policies and regulations in mitigating the effects of daily fuel price fluctuations.

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