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Paper Authors

B. SANTHOSH KUMAR, DR.D.PRANATHI



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IMPACT OF PETROL PRICES ON CONSUMER CONSUMPTION DURING COVID-19

***B. SANTHOSH KUMAR **DR.D.PRANATHI**

*Assistant Professor, Department of Business Management, CMR Technical Campus, Hyderabad. E-mail id: blm.santhoshkumar@gmail.com

**Associate Professor, Department of Business Management, CMR Technical Campus, Hyderabad. E-mail id pranathi.cmrtc@gmail.com

Abstract:

In present scenario petrol has become an indispensable part of our day to day life, and one cannot imagine his life without it. But the petrol prices are increasing vastly like sky rocketing, and it is going to affect each and everything in our life .Petrol prices are affecting various sectors like transportation,FMCG, Textiles etc, which in turn affects the prices of daily necessities. Increase in petrol price have more impact on poor and middle class people rather than high class people because they spend more than half of their income on food and only tenth part on fuel consumption. Hence it is important to study the impact of petrol prices on consumption of petrol by middle and poor class people. This study mainly emphasis on how the hike of petrol prices will affect the consumption of petrol by different kind of consumers during covid-19.

Key Words: Petrol, prices, Consumers.

Introduction of Petroleum: Petroleum is a naturally occurring, yellowish-black liquid found in geological formations beneath the Earth's surface. It is commonly refined into various types of fuels. Components of petroleum are separated using a technique called fractional distillation, i.e. separation of a liquid mixture into fractions differing in boiling point by means of distillation, typically using a fractionating column.

It consists of naturally occurring hydrocarbons of various molecular weights and DECEMBER contain miscellaneous organic compounds. The

name petroleum covers both naturally occurring unprocessed crude oil and petroleum products that are made up of refined crude oil. A fossil fuel, petroleum is formed when large quantities of dead organisms, mostly zooplankton and algae, are buried underneath sedimentary rock and subjected to both intense heat and pressure.

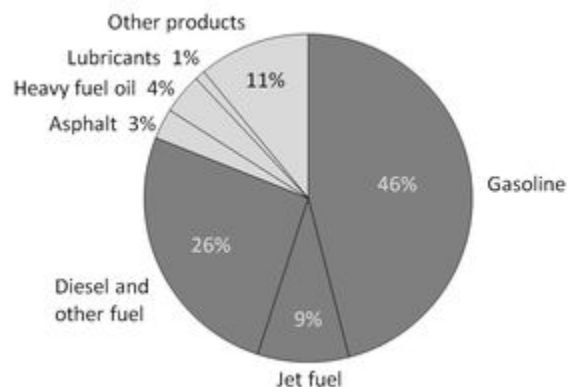
Petroleum has mostly been recovered by oil drilling (natural petroleum springs are rare). Drilling is carried out after studies of structural geology (at the reservoir scale), sedimentary basin analysis, and reservoir characterization (mainly in terms of the porosity and permeability of geologic

reservoir structures) have been completed. It is refined and separated, most easily by distillation, into a large number of consumer products, from gasoline (petrol) and kerosene to asphalt, chemical reagents used to make plastics, pesticides and pharmaceuticals. Petroleum is used in manufacturing a wide variety of materials, and it is estimated that the world consumes about 95 million barrels each day.

Petroleum is a naturally occurring liquid found beneath the Earth's surface that can be refined into fuel. Petroleum is a fossil fuel, meaning that it has been created by the decomposition of organic matter over millions of years. It is formed in sedimentary rock under intense heat and pressure. Petroleum is used as fuel to power vehicles, heating units, and machines of all sorts, as well as being converted into plastics and other materials. Because of worldwide reliance on petroleum, the petroleum industry is extremely powerful and is a major influence on world politics and the global economy.

Petroleum products: are materials derived from crude oil (petroleum) as it is processed

in oil refineries. Unlike petrochemicals, which are a collection of well-defined usually pure chemical compounds, petroleum products are complex mixtures. The majority of petroleum is converted to petroleum products, which includes several classes of fuels. The following diagram shows the percentage of byproducts acquired from petrol oil refinery.



Importance of petrol: it is the next major energy source in India after coal. It provides fuel for heating and lighting, lubricants for machinery and raw materials for a number of manufacturing industries.

Simplified Calculation Chart For Petrol & Diesel Prices in (New Delhi)

	1st January 2020	1st January 2021
International Price of Brent Crude Oil with Ocean Freight (round off)	67\$ per Barrel	42.68 \$ per Barrel
Currency Exchange Rate	Rs 71.4 / USD	Rs 74.75 / USD



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Crude Oil in Indian Currency	Rs 4784	Rs 3190
1 Barrel of Crude Oil	159 Litre	159 Litre
Crude Oil - Cost per Litre	Rs 30.08 per Litre	Rs 20.06 per Litre
Petrol Price - Per Litre (Delhi)	Rs 75.14 per Litre	Rs 80.43 per Litre
Diesel per Litre (Delhi)	Rs 67.96 per Litre	Rs 80.53 per Litre
	Petrol Price Calculation*	Diesel Price Calculation *
<u>Basic OMC Cost Calculation</u>		
Crude Oil including Ocean Freight	Rs 20.06 per Litre	Rs 20.06 per Litre
Refinery Processing + Refinery Margins + OMC Margin + Freight Cost, Logistics	Rs 4.86 per Litre	Rs 6.97 per Litre
Fuel Price after Processing (Ready to send to Petrol Pump)	Rs 24.92 per Litre	Rs 27.03 per Litre
<u>Central Government Taxes & Dealer Commission</u>		
Additional: Excise Duty + Road Cess as Charged by Central Government	Rs 32.98 / Litre on Petrol	Rs 31.83 / Lit on Diesel
Commission to Petrol Pump Dealers	Rs 3.64 per Litre	Rs 2.54 per Litre
<u>Fuel Cost Before VAT</u>		
Cost as on 1st July 2020	Rs 61.87 per Litre	Rs 61.7 per Litre
<u>VAT Calculation</u>		
Additional: VAT (30% on Petrol and 30% on Diesel. Additional Cess on Diesel) (1st January 2021)	Rs 18.56 / Litre on Petrol	Rs 32.65 / Litre on Diesel

Final Retail Price as on 1st January 2021 in Delhi

Rs 80.43 per Litre

Rs 83.71 per Litre

Need for the study: Petrol plays an important role in Indian economy. It became an indispensable part of day to day life, and one cannot imagine his life without it. Usage of petrol has increased tremendously by various sectors, individuals etc. By increase in usage of petrol by these sectors the demand for petrol increased with increase of prices. This study mainly emphasis on how much petrol is consumed by consumer with increase in prices of petrol during Covid 19.

Scope of the study:

The present study mainly focused on the data provided by consumers and their behavior in consuming petrol with increase of prices of with special reference to HP Petrol Pump, IDPL, HYDERABAD .

Objectives of the study:

- To evaluate the consumer behavior in purchasing of petrol with increase in prices.
- To study the impact of prices of petrol on consumer consumption during covid-19.
- To study the importance of petrol by various levels of consumers during covid-19.

Research Methodology:

The data used for the study mainly relay upon both primary and secondary sources.

Primary data: It includes the data collected directly from various levels of consumers of Hyderabad District.

Secondary data:it includes the data collected from Web sites, Newspapers, Journals ,magazines ,Text books .

Tools used For The Study:

Karl Pearson correlation

Dependent variable-Consumer Consumption(Y)

Independent variable-Price(X)

ANNOVA-ONE WAY Classification

Hypothesis:

Null hypothesis: H0: There is no impact in consumption of petrol with the increase in prices during covid-19.

Alternative hypothesis:H1: There is impact in consumption of petrol with the increase in prices during covid-19.

Review literature:

1) **Bishal Ghimire and Parvathy VK(2018)¹:**Analyzed the impact of crude oil prices on the exchange rate of Indian rupees against USD. They concluded that crude oil prices does not affect the exchange rate.

2)Bidishasarkar,Jain

Mathew(2018)²:Identified that Indian basket crude oil price is influenced by Brent and OPEC crude oil prices.OPEC come up with frequent production cut decisions in turn caused an impact in hike of crude oil prices. In this study they mainly revealed what are the various factors affecting crude oil prices and also factors affected by crude oil prices.

3) **Dr. K. Soundarapandiyam, Dr. M. Ganesh(2017)³**: Addressed about the impact of crude oil prices on Indian economy by considering the relevant inputs like GDP, CPI, Crude oil prices they concluded that there is inter correlation between CPI and Crude oil prices.

4)**Himansu Mallick(2017)⁴**:Analyzed the Exploration of crude oil for five years and FDI inflows of petroleum products.In this study he mainly focused on import of crude oil and their average prices for five years. The study revealed that from 2014 the revenue of oil refining companies had dipped down but the profits of such refineries and oil marketers is high when compared with oil drilling companies.

5)**Narendra**

punati,RaghavenderRagu.G(2017)⁵:Analyzed India is emerging country, it is majorly depending upon Imports. Too much of Imports also downfall our Indian economy in turn leads to trade deficits. India has to Import the necessities based on Reserves. In their study they identified that the prices of crude oil is very low because of the fact that OPEC didn't bother to cut down its production even when demand is very less for one of the month in 2014.They speculated that OPEC has an agreement with US about its production.

DATA ANALYSIS:

Table-I: Price movements and consumption of Petrol in the month of October-2020:

DATE	PRICE P/L	VARIATION IN PRICES	CONSUMPTION IN LITRES
1-October	76.21	-0.15	265
2-October	76.21	0	301
3-October	76.21	0	326
4-October	76.21	0	426

6)

K.ChitraLekha,S.Prakasham(2016)⁶:Analyzed the support provided by various respondents of LPG subsidy 'Give it up' scheme for the welfare of Indian government. They also focused on the obstacles that stand in the way of not surrendering LPG subsidy.

7) **Akansha Sanjay Jain1 , Nitish Sunil Patil(2015)⁷**:analyzed the relationship trend of production over its consumption and production with import of crude oil. they analyzed crude oil prices are affecting India's Inflation, Fiscal and trade deficit, Indian oil companies. They suggested to take various measures to improve efficiency of petroleum products and to enhance suppliers to control the affects of petrol.

8) **Dr. Shefali Dani(2014)⁸**:He focused on the reasons for souring petrol prices in India. His study is mainly used to understand various policies, causes of government in rise of petrol prices and adverse effect on general public in India. He suggested the government to extend Subsidy to the targeted customers which does not impinge on freedom of oil companies to set price in market place.



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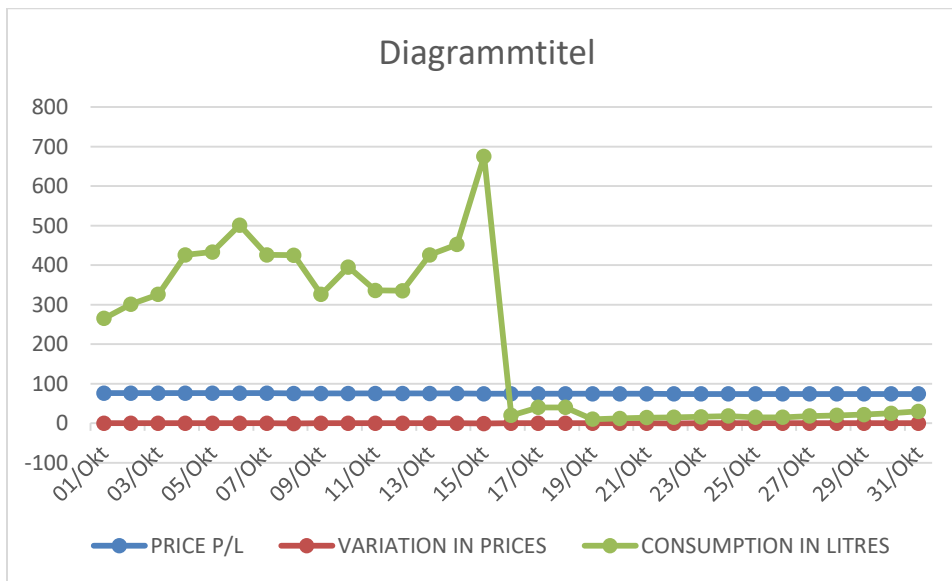
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5-October	76.21	0	433
6-October	76.21	0	501
7-October	76.21	0	426
8-October	75.27	-0.94	425
9-October	75.27	0	326
10-October	75.27	0	395
11-October	75.27	0	336
12-October	75.27	0	335
13-October	75.27	0	426
14-October	75.27	0	452
15-October	74.39	-0.88	675
16-October	74.39	0	20
17-October	74.39	0	40
18-October	74.39	0	40
19-October	74.39	0	10
20-October	74.39	0	12
21-October	74.39	0	14
22-October	73.95	-0.44	15
23-October	73.95	0	16
24-October	73.95	0	18
25-October	73.95	0	15
26-October	73.95	0	15
27-October	73.95	0	18
28-October	73.95	0	20
29-October	73.95	0	22
30-October	73.95	0	25
31-October	73.95	0	30

Average price of petrol in Month of October=74.85 /-

GRAPH-I:



INTERPRETATION: From the above graph it is observed that the consumption of Petrol dipped from 265 liters to 30 liters due to impact of Prices and covid-19.

Table-II: Price movements and consumption of Petrol in the month of NOVEMBER-2020:

DATE	PRICE P/L	VARIATION IN PRICES	CONSUMPTION IN LITRES
1-NOVEMBER	73.95	0	145
2-NOVEMBER	73.95	0	147
3-NOVEMBER	73.95	0	185
4-NOVEMBER	73.95	0	156
5-NOVEMBER	73.95	0	144
6-NOVEMBER	73.95	0	149
7-NOVEMBER	73.95	0	201
8-NOVEMBER	73.95	0	212
9-NOVEMBER	73.95	0	215
10-NOVEMBER	73.95	0	274
11-NOVEMBER	73.95	0	215
12-NOVEMBER	73.95	0	189
13-NOVEMBER	73.95	0	177
14-NOVEMBER	73.95	0	168



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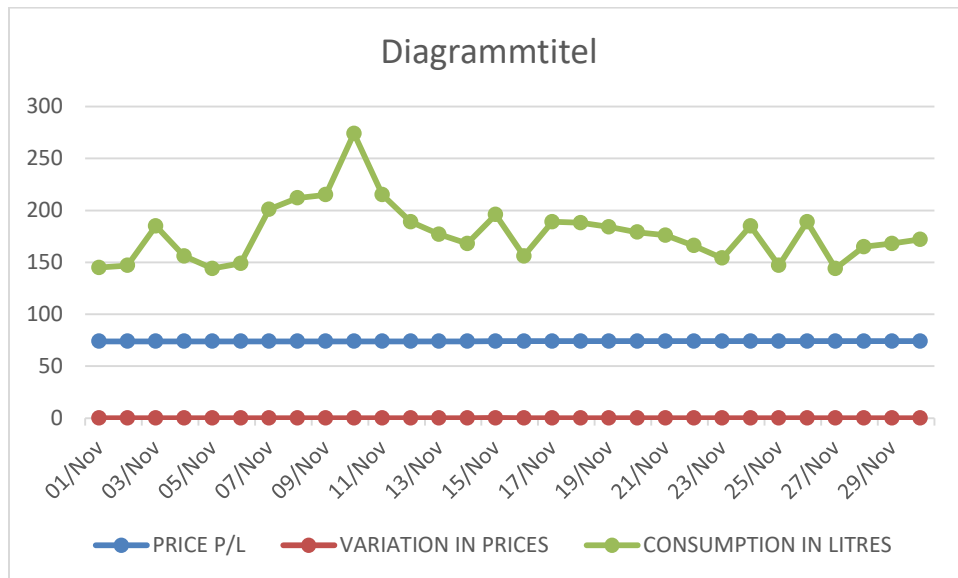
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NOVEMBER			
15-NOVEMBER	73.97	0.02	196
16-NOVEMBER	73.97	0	156
17-NOVEMBER	73.97	0	189
18-NOVEMBER	73.97	0	188
19-NOVEMBER	73.97	0	184
20-NOVEMBER	73.97	0	179
21-NOVEMBER	73.97	0	176
22-NOVEMBER	73.97	0	166
23-NOVEMBER	73.97	0	154
24-NOVEMBER	73.97	0	185
25-NOVEMBER	73.97	0	147
26-NOVEMBER	73.97	0	189
27-NOVEMBER	73.97	0	144
28-NOVEMBER	73.97	0	165
29-NOVEMBER	73.97	0	168
30-NOVEMBER	73.97	0	172

Average price of petrol in Month of NOVEMBER=73.96/-

GRAPH –II:



INTERPRETATION: From the above graph it is observed that the consumption of Petrol rose from 30 liters to 274 liters, due to covid-19 it felt down to 172 liters.

Table-III: Price movements and consumption of Petrol in the month of DECEMBER-2020:

DATE	PRICE P/L	VARIATION IN PRICES	CONSUMPTION IN LITRES
1-DECEMBER	73.97	0	325
2-DECEMBER	73.97	0	324
3-DECEMBER	73.97	0	324
4-DECEMBER	73.97	0	259
5-DECEMBER	73.97	0	289
6-DECEMBER	73.97	0	275
7-DECEMBER	73.97	0	269
8-DECEMBER	75.54	1.57	289
9-DECEMBER	75.54	0	288
10-DECEMBER	75.54	0	284
11-DECEMBER	75.54	0	279
12-DECEMBER	75.54	0	256
13-DECEMBER	75.54	0	236
14-	75.54	0	245



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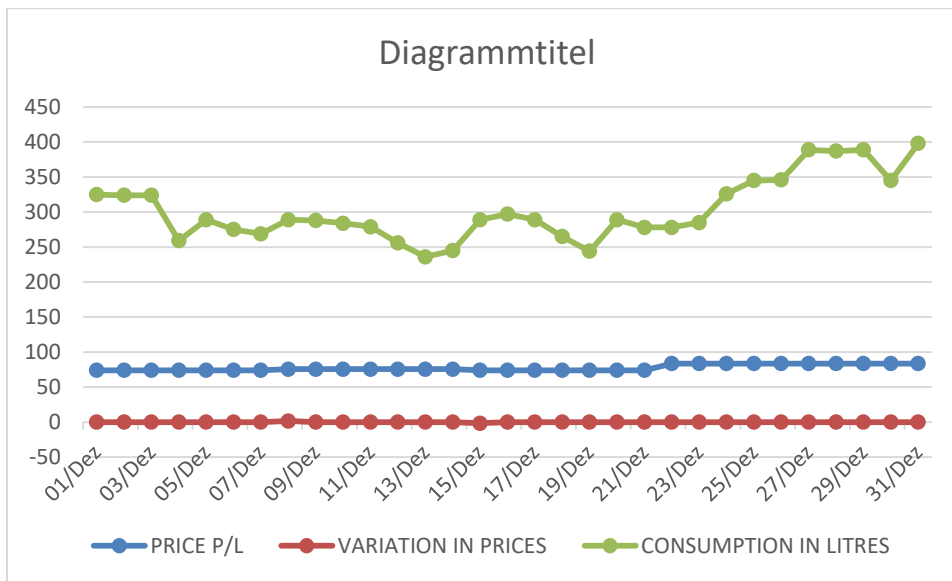
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DECEMBER			
15-DECEMBER	73.97	-1.57	289
16-DECEMBER	73.97	0	297
17-DECEMBER	73.97	0	289
18-DECEMBER	73.97	0	265
19-DECEMBER	73.97	0	244
20-DECEMBER	73.97	0	289
21-DECEMBER	73.97	0	278
22-DECEMBER	83.71	9.74	278
23-DECEMBER	83.71	0	285
24-DECEMBER	83.71	0	326
25-DECEMBER	83.71	0	345
26-DECEMBER	83.71	0	346
27-DECEMBER	83.71	0	389
28-DECEMBER	83.71	0	387
29-DECEMBER	83.71	0	389
30-DECEMBER	83.71	0	345
31-DECEMBER	83.71	0	398

Average price of petrol in Month of DECEMBER=76.32 /-

GRAPH-III:



INTERPRETATION: From the above graph it is observed that the consumption of Petrol rose from 172 liters to 398 liters even there is variation in prices of petrol and covid-19.

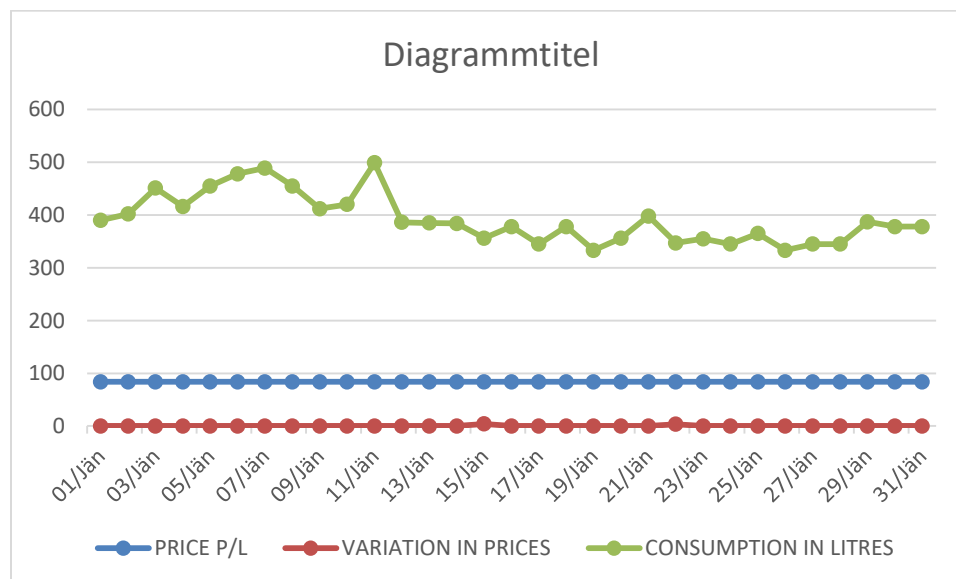
Table-IV: Price movements and consumption of Petrol in the month of JANUARY-2020

DATE	PRICE P/L	VARIATION IN PRICES	CONSUMPTION IN LITRES
1-JANUARY	83.71	0	390
2-JANUARY	83.71	0	402
3-JANUARY	83.71	0	451
4-JANUARY	83.71	0	416
5-JANUARY	83.71	0	455
6-JANUARY	83.71	0	478
7-JANUARY	83.71	0	489
8-JANUARY	83.71	0	455
9-JANUARY	83.71	0	412
10-JANUARY	83.71	0	420
11-JANUARY	83.71	0	499
12-JANUARY	83.71	0	386
13-JANUARY	83.71	0	385
14-JANUARY	83.71	0	384
15-JANUARY	83.71	3.95	356
16-JANUARY	83.71	0	378
17-JANUARY	83.71	0	345
18-JANUARY	83.71	0	378

19-JANUARY	83.71	0	333
20-JANUARY	83.71	0	356
21-JANUARY	83.71	0	398
22-JANUARY	83.71	3.42	347
23-JANUARY	83.71	0	355
24-JANUARY	83.71	0	345
25-JANUARY	83.71	0	365
26-JANUARY	83.71	0	333
27-JANUARY	83.71	0	345
28-JANUARY	83.71	0	345
29-JANUARY	83.71	0	387
30-JANUARY	83.71	0	378
31-JANUARY	83.71	0	378

Average price of petrol in Monthof JANUARY=83.71

GRAPH-IV:



INTERPRETATION: From the above graph it is observed that the consumption of Petrol rose from 398 liters to 378 liters even there is huge variation in prices of petrol and covid-19.

OVERALL ANALYSIS OF PETROL CONSUMPTION BY CONSUMERS FOR FOUR MONTHS USING PEARSON AND ANOVA ONE WAY CLASIFICATION :

Descriptives

CONSUMPTION IN LITRES

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
74	78	216.99	140.539	15.913	185.30	248.67	10	675
75	14	402.57	49.444	13.215	374.02	431.12	326	499
76	14	325.36	84.472	22.576	276.58	374.13	236	501
79	7	363.43	22.345	8.446	342.76	384.09	333	398
83	9	355.56	17.671	5.890	341.97	369.14	333	387
Total	122	269.34	137.449	12.444	244.71	293.98	10	675

Test of Homogeneity of Variances

CONSUMPTION IN LITRES

Levene Statistic	df1	df2	Sig.
8.467	4	117	.000

ANOVA

CONSUMPTION IN LITRES

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	635089.974	4	158772.494	11.252	.000
Within Groups	1650883.567	117	14110.116		
Total	2285973.541	121			

Robust Tests of Equality of Means

CONSUMPTION IN LITRES

	Statistic ^a	df1	df2	Sig.
Welch	21.154	4	30.314	.000
Brown-Forsythe	38.810	4	64.746	.000

a. Asymptotically F distributed.

Post Hoc Tests

Homogeneous Subsets

CONSUMPTION IN LITRES

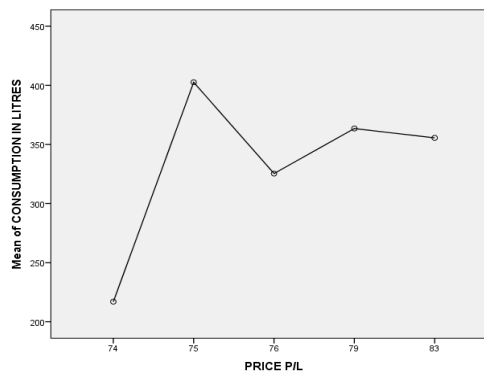
Tukey B

PRICE P/L	N	Subset for alpha = 0.05	
		1	2
74	78	216.99	
76	14	325.36	325.36
83	9		355.56
79	7		363.43
75	14		402.57

Means for groups in homogeneous subsets are displayed.

- Uses Harmonic Mean Sample Size = 12.2
- The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Means Plots



Correlations

		CONSUMPTION IN LITRES	PRICE P/L
CONSUMPTION IN	Pearson Correlation	1	.327**

LITRES	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	2285973.541	13709.607
	Covariance	18892.343	113.303
	N	122	122
	Pearson Correlation	.327**	1
PRICE P/L	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	13709.607	769.377
	Covariance	113.303	6.358
	N	122	122

** . Correlation is significant at the 0.01 level (2-tailed).

“ANOVA” and Pearson test result shows that significance level is 0.001 which is less than LOS value 5%, Null Hypothesis is rejected and Alternative Hypothesis is accepted. Hence there is impact in consumption of petrol with increase in prices of petrol during covid-19.

FINDINGS:

- From graph-I it is observed that the consumption of Petrol dipped from 265 liters to 30 liters due to impact of Prices and covid-19 in the month of October..
- From graph-II it is observed that the consumption of Petrol rose from 30 liters to 172 liters .
- From graphs-III and IV it is observed that the consumption of Petrol has increased rapidly even the is increase in the price of petrol.
- Based on Descriptive statistics table it is observed that the standard deviation is varying from 140.53 to 17.67 implies that there is a major impact on consumption of petrol.

- ANOVA and CORELATION tables are showing the significant level is 0.001 when compared with 5% and 1% LOS.
- Robust test of equity means and Post Hoc test is also illustrating that the significance level is less than LOS .

CONCLUSION: India is a developing country which mainly depends upon major imports rather exports. Crude oil prices can influence GDP of the country; there are many factors that are affecting the prices of crude oil. Oil marketing companies are responsible for processing, Refining and selling auto fuels. Think Indian Oil Corporation limited due to lockdown on these people, petrol consumption dived 60% but fixed cost didn't dissipate as quickly. The companies still have to ship crude oil, payment of salaries and spend money even when there are not enough consumers to buy Petrol. From this study it is observed that there is a huge downfall in consumption of petrol due to

lockdown and price fluctuations. Government has to take necessary actions in bringing up a stable or downfall of prices of petrol to support middle and low class people in consuming. Finally this study concludes that there is a huge impact on consumption of petrol by various levels of consumers due to changes in prices and lockdown.

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