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# MICRO ECONOMICS PROJECT

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GLOBAL AND INDIAN OIL MARKET



**SUBMITTED BY**

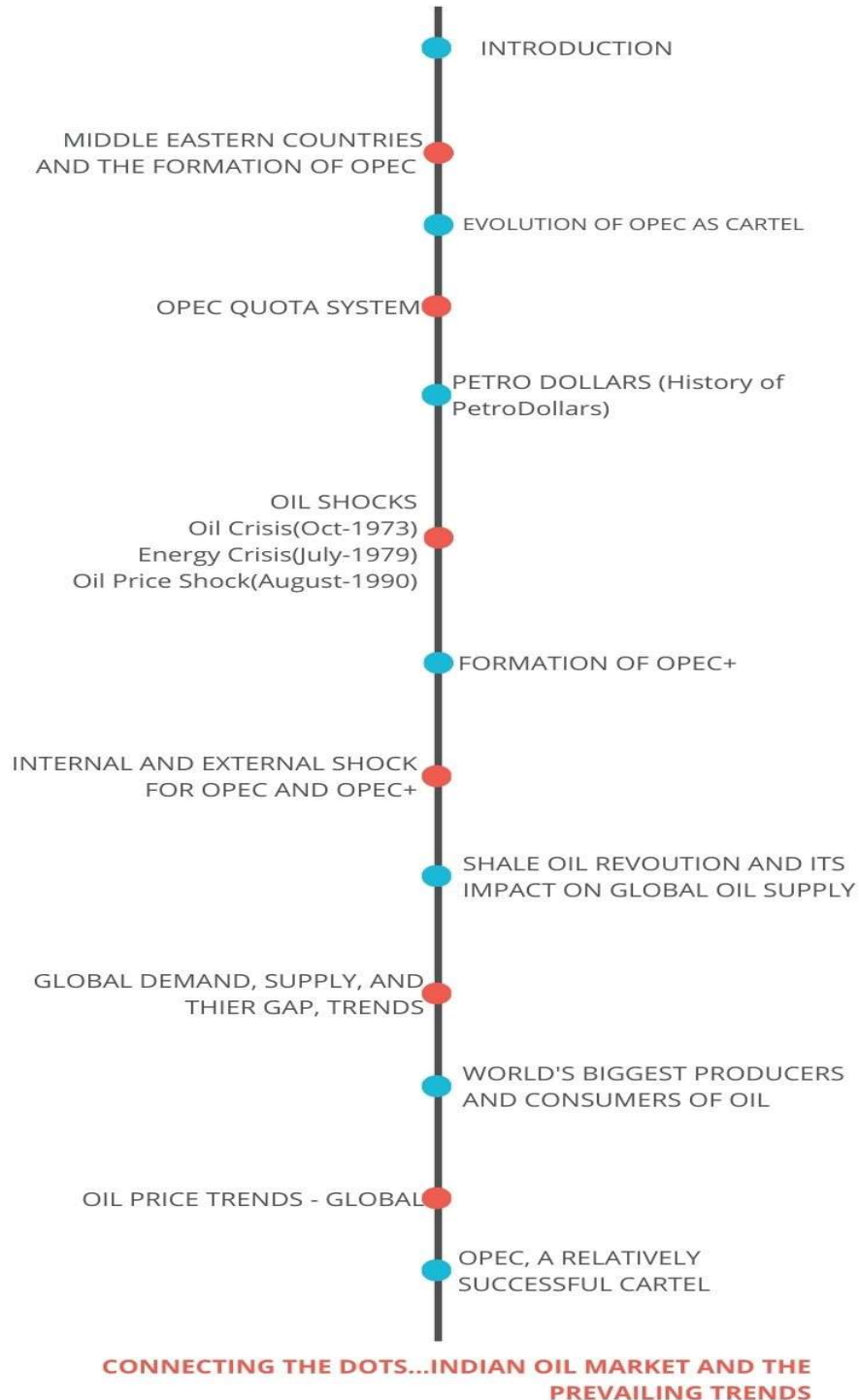
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# TIMELINE OF THE GLOBAL OIL MARKET



# **GLOBAL OIL MARKET**

## **INTRODUCTION**

It all started in America.

Mostly no work after evening as lighting in the evening was based on Vegetable oil and Whale oil. But as they cannot be manufactured on a large scale, it became a headache. Later a popular fuel named camphene was used. But they caused deadly uncontrolled fires often. Hence it was unreliable.

Later in Abraham Gesner patented an oil called Kerosene made from Coal. Also called Coal Oil. They were cleaner oils and replaced whale oils. He also invented an apparatus with which this oil can be lighted. Competition grew. 250 Companies patented for new devices for lighting the same year. This Canadian chemist now faced a competition from a Chemical Company, an unexpected one. At the same time when Gesner found Coal Oil, Mrs. Samuel Kier contacted Tuberculosis. Her husband gave her dosages of Popular Cure Oil bottled curative in Kentucky. Which was known as American Oil. He noticed that this black substance was extracted from the same Brianne wells in Pennsylvania. As his wife's health condition improved, he had a thought of selling this black substance himself. He gave out ads that showed the wooden derrick, a machine which he used to drill the 400 feet deep well from where he extracted this black medicine. Seeing this ad many thought of using the same machine to extract rock oil from which kerosene could be distilled.

Now comes the first person in the world who came up with the commercial idea of producing crude oil on a large scale using the same machine (Wooden Derrick) that Kier used. He was George Bissell. He formed the Pennsylvania Rock Oil Company the first petroleum company in the world.

'Carbon oil' Fuel for lamps was sold for almost for almost \$40.

In 1880's, John D Rockefeller owned standard Oil that owned 90% of US Refineries and Pipelines and the world's largest tanker fleet. Later it was broken down into the top petroleum companies known today as Chevron, Exxon, Mobil, and Conoco

During 1914-1918, Britain and France were completely dependent on USA for Oil to power their machines during World War 1. As they were the only ones who had the technological capacity and the reserves.

Thereafter started the boom of petroleum industry. Emergence of Auto Industry in America with the emergence of mass production of Automobiles by Henry Ford with the model T. By 1927 USA was the most motorised country in the world with 1 in every 4 people owning a Car which was much higher when compared with European countries. Major Motorized European countries like Britain, Germany, and France where 1 in 40 people owned a car. Therefore by leading in highest per capita of Auto Mobile naturally USA was largest consumer and the producer of Oil across the globe.

Reserves were also found in countries such as Russia and Venezuela but they lacked the technology for extraction.

## **MIDDLE EASTERN COUNTRIES AND THE FORMATION OF OPEC**

In 1930's there was a pre dominant statement that in the next decade US would run out of reserves.

Hence it started searching outside its territories for the "Black Gold". This is where Middle Eastern Countries came in, especially Saudi Arabia.

The fact was that 1 in 9 Oil wells drilled will not have any oil. And that too only 1 in 1000 wells drilled will have significant Oil that can be planned for long term exploration.

But this probability was much lower in Saudi Arabia. Hence US companies felt profitable by drilling wells in Saudi Arabia. As it is a Prince led kingdom it was easy for the American Corporations to explore oil well with just the Consent from the Prince.

In 1938, Saudi Arabia was found to have vast quantities of reserves. In 1943, the then president Franklin D Roosevelt met with Saudi Prince Abdul Aziz by declaring that Saudi was vital to US Security and agreed to provide with financial support. A few years later world's largest oil field was found in Saudi, making it the world's largest exporter of Oil.

By 1945 after the end of World War 2, US auto Industry boomed. The holdings of automobiles raised from 26 million to 40 million in 5 years. Until then US was a net exporter, but by 1950 As a result it turned into Oil Importing country by importing nearly 1 million barrel a day and within 2 decades it started importing more than 1/3<sup>rd</sup> of US demand.

There was an over production of crude oil across the globe which led to fall in prices. Hence the then US President Eisenhower imposed the Mandatory Oil Import Programme (A Quota System) which held stable the Oil Prices

Instances that fuelled the formation of OPEC:

- Huge reserves of Crude Oil in Middle Eastern countries made them completely reliant on Oil Exports.
- US on the other Hand Curbed Imports and to stabilize the price. But to the outside would it further made the Oil cheap as the only major Oil Consuming country sanctioned import quotas.
- This angered the Arab Nations. On September 14, 1960 representatives from Saudi Arabia, Venezuela, Qatar, Kuwait, Iraq, Iran in Baghdad who then represented 80% of World's Crude Oil exports.
- Its main aim purpose was to defend Oil Prices. However, in its initial years it was ignored by the US Government.

### **EVOLUTION OF OPEC AS CARTEL**

The major turning point in the Refinery era that turned Crude Oil market as Seller's market from a Buyer's market.

In the year 1973, US supported Israel during the Yom Kippur War that was not in terms with the OPEC Countries. As a result, OPEC and Iran stopped oil supplies to United States.

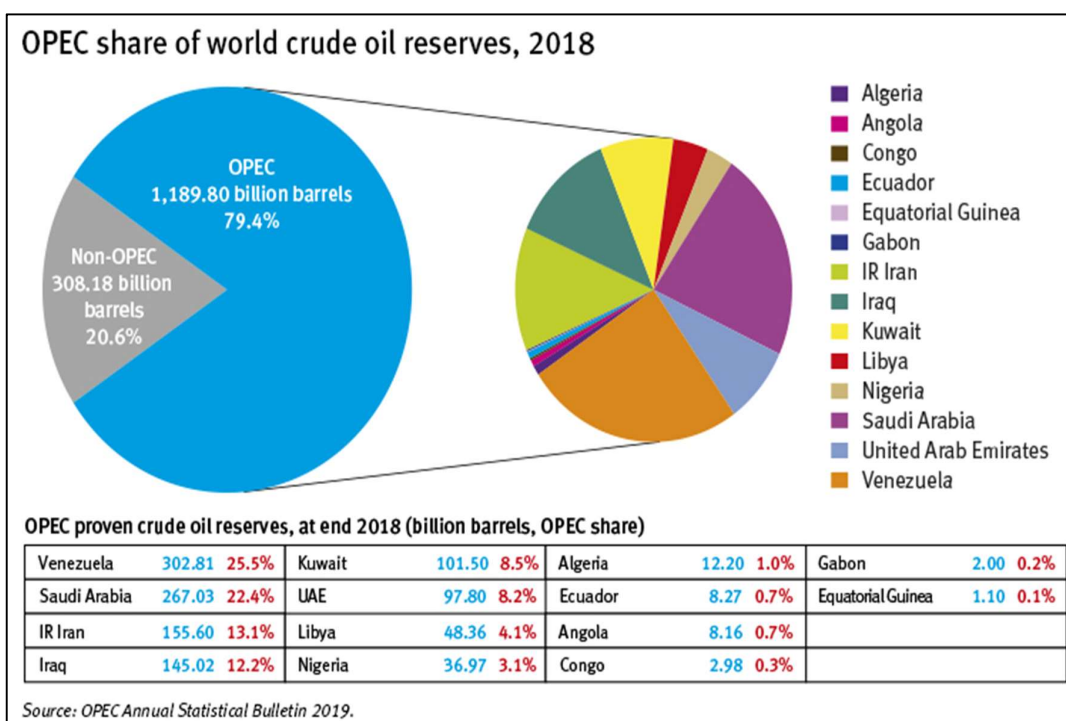
Now the 6 OPEC Countries fixed prices by cutting down and increasing oil production depending on the market condition. In general, this is type of cartel policy is not allowed for any other commodity across globe. But this "Black Gold" is not any other ordinary substance. Instead of extracting all the crude and flooding the market with Oil this Cartel ensures that the petroleum policies are followed by its member countries and to ensure stability of oil markets in order to secure an efficient, economic and regular supply of petroleum to consumers, a steady income to the producer, and a fair return to the investor. And this Cartel is legal as it is enacted in the United States Foreign Trade Law and it protects this cartel. US is not in the OPEC because it is the world's largest consumer of Oil and not an exporter.

OPEC lasted with stability through events such as the Asian Financial Crisis, Economic downturn in Russia etc.

As of April 2020, there were 13 countries in OPEC:

- Algeria
- Angola
- Congo
- Equatorial Guinea
- Gabon
- Iran
- Iraq
- Kuwait
- Libya
- Nigeria
- Saudi Arabia
- United Arab Emirates
- Venezuela

Figure 1: OPEC share of world crude oil reserves, 2018



## **OPEC QUOTA SYSTEM**

The Quota System is the production limit assigned for each OPEC country. There is a yearly meet among the OPEC countries where a decision is taken of how much to produce. There is no explicit basis on how this Production Quota is set. But with some references from Energy Intelligence it can be seen that the following points are highly considered while determining the Quota.

- Reserves
- Production capacity
- Historical production share
- Domestic oil consumption
- Production costs
- Population
- Dependence on oil exports
- External debt

## **PETRODOLLARS**

Petrodollars are U.S. dollars paid to an oil exporting country for the sale of the commodity. The petrodollar system is an exchange of oil for U.S. dollars between countries that buy oil and those that produce it.

### **History of the Petrodollars:**

In August, 1971, the Nixon administration decided to end the convertibility of U.S. dollars into gold as a consequence of high inflation rate, debt from Vietnam War and a persistence balance of payment deficit. This event was marked as “Nixon Shock” and eventually it led to the creation of Petrodollar system after U.S. had managed to come to the agreement with Saudi Arabia in 1974. The members of the Organization of the Petroleum Exporting Countries (OPEC) agreed to standardize the sale of oil in dollars.

## **OIL SHOCKS**

### **Oil Crisis (October, 1973):**

On October 6, 1973, Israel was attacked by Syria and Egypt. This conflict is known as “The Yom Kippur War”. The Nixon administration requested Congress to make available \$2.2 billion military aid package to Israel. But, Arab states along with other OPEC countries responded to this request by suspending oil shipments to the nations supportive of Israel. This embargo ceased U.S. oil imports from participating OPEC nations and trade oil supplies got reduced by 14% internationally. Within a few months, gasoline prices also increased as much as 40% in U.S. Also, the drop in value of U.S. dollars in the early 1970s led to the spike of the oil prices instituted by OPEC. Consumers were panicked over oil shortages in Europe, Japan and U.S. As a result of this crisis, people from across America started to hoard gas supplies which was followed by gas rationing and price controls.

### **Energy Crisis (July, 1979):**

In October 1978, a large number of oil workers went on strike in Iran protesting against leader Mohammed Reza Shah. Oil yield in Iran drops from more than 5 million barrels each day to zero by December—amounting to around a **5 percent loss** in global production. The 1979 energy emergency happened in the result of the Iranian Revolution, which began in mid-1978 and ended in mid-1979 with the fall of Shah Mohammad Reza Pahlavi, the state's ruler. Strife in Iran, a significant oil trading nation, a major petroleum exporting country, caused the global supply of crude oil to decline significantly, triggering noteworthy shortages, and a surge in panic buying—within 12 months, the price per barrel of this widely used resource almost doubled to \$39.50. Short-run interruptions in the worldwide flexibility of gas and diesel fuel were especially intense in the spring and late-spring of 1979. A few states reacted by proportioning gas, including California, New York, Pennsylvania, Texas, and New Jersey. In these crowded states, customers could just buy gas each other day, in view of whether the last digit of their tag numbers was even or odd. The gas deficiency additionally prompted fears that **heating oil** may be hard to come by through the 1979-1980 winter. This possibility was particularly worried for New England states, where interest for home heating oil was the most noteworthy.

### **Oil Price Shock (August, 1990):**

Iraq attacks Kuwait on August 2, 1990, following a disagreement regarding the Rumaila oil field on the border. The 1990 oil price shock occurred in response to this invasion. The shock lasted for just nine months, and the value spike was less outrageous and of more limited span than the past oil emergencies of 1973–1974 and 1979–1980, however the spike actually added to the downturn of the mid-1990s. Average month to month cost of oil rose from \$17 per barrel in July to \$36 per barrel in October. As the U.S.-driven alliance experienced military accomplishment against Iraqi powers, worries about long-term supply shortages eased and costs started to fall. Oil prices dropped from about \$30 per barrel in September to less than \$20 in January.



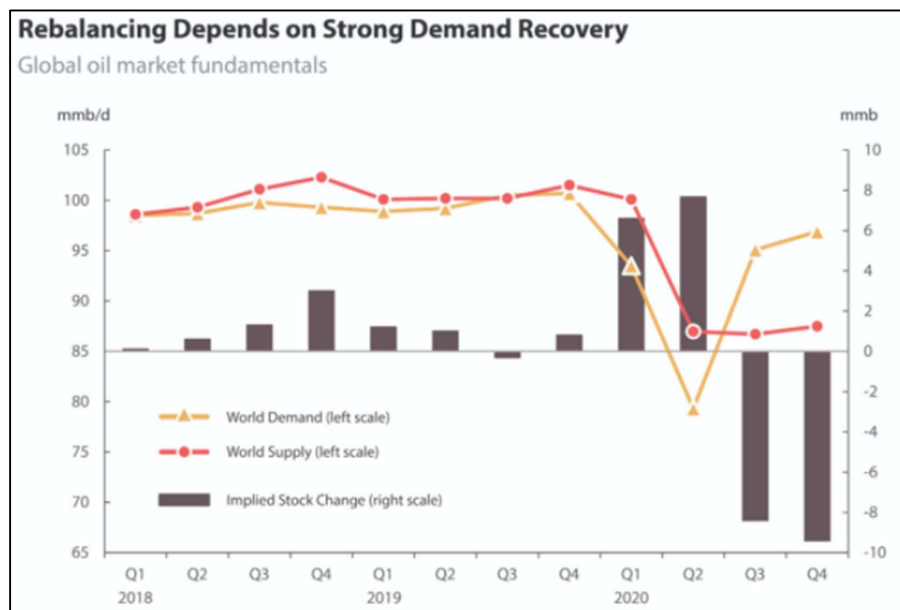
## OPEC+

In 2016, OPEC allied with other oil exporting non-OPEC countries to form the OPEC+. OPEC plus countries include Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan and Sudan. The reason behind this collaboration was to emerge as a more powerful entity in terms of controlling oil prices in global oil market. OPEC+ controls over 50% of global oil supplies and about 90% of proven oil reserves.

### INTERNAL AND EXTERNAL CHALLENGES FOR OPEC AND OPEC+

Covid-19 has affected global oil market greatly. Lockdowns, restrictions on travel, and inclinations for working from home have shown negative impact on demand-supply trend of oil. A spike in infections in different countries has reduced the demand for oil. Without sustained increases in oil demand, the risk is that even modest increases in production will inevitably lead to bloated inventories, which will need to be worked off to sustain higher prices.

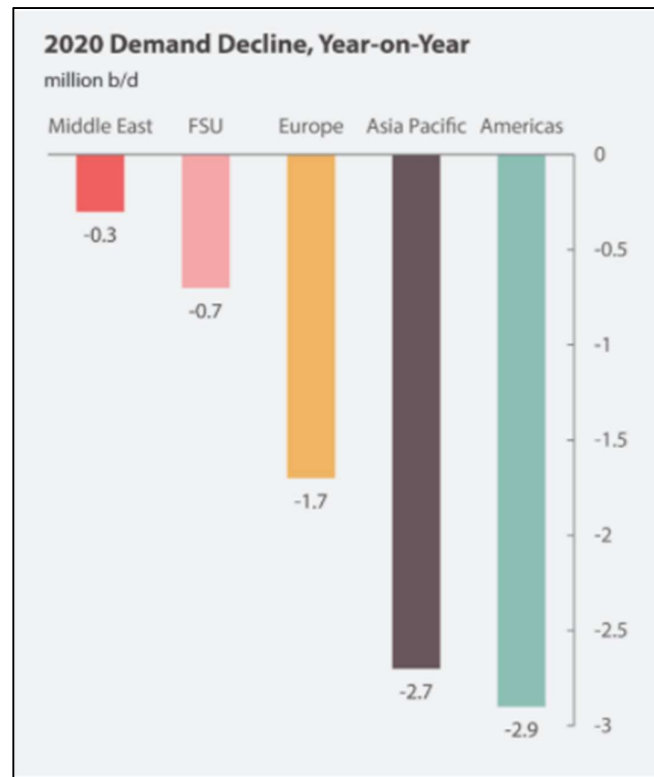
Figure 2: World demand and supply of oil



Source: International Energy Agency Oil Market Report (Paris:IEA,2020)

After confronting an unprecedented demand shock, OPEC+ has managed to reduce the supply surplus, the 10 main OPEC states met about 85 percent of the targeted cuts (Iran, Venezuela, and Libya are exempted.). Russia, shockingly, has almost met its objective of around 8.5 million b/d, maybe its key export markets have taken such a hit.

Figure 3: Country wise year-on-year decline in demand of oil



Source: International Energy Agency, Oil Market Report – May 2020 (Paris, IEA 2020)

But as the oil prices rise, some OPEC countries may not follow the targeted cut to earn more revenue. Laggards in the OPEC+ group include Angola, Nigeria, Kazakhstan, and especially Iraq, which reported production volumes of 4.21 million b/d in May—well above its agreed target of 3.59 million b/d. According to OPEC statement, countries that fail to meet the targets of a month will have to make deeper cuts in upcoming month to make up the difference. Still, Iraq has been observed to fail routinely to meet its targets and the reason behind this could be the new government in Iraq is facing financial strains and it has incentive to generate as much as revenue possible withing this turmoil of demand for oil.

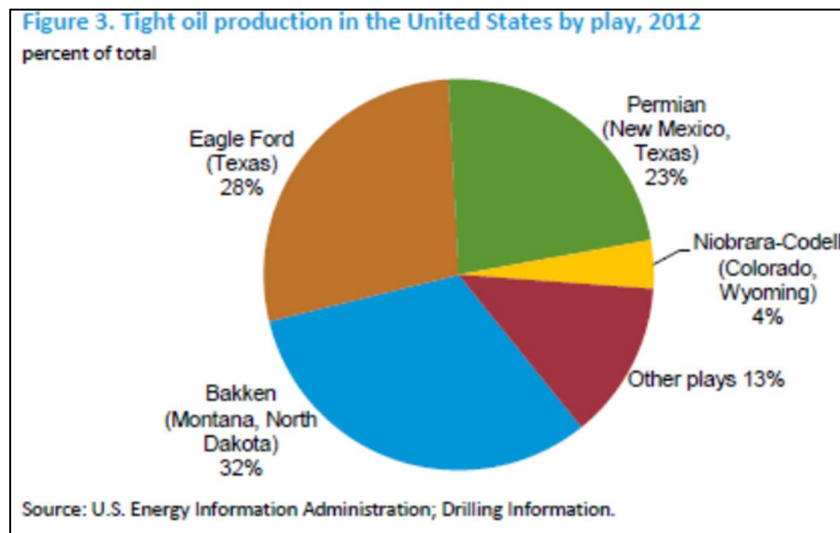
Also, after the shale revolution is U.S., the OPEC has lost its position as the top producer of oil.

## SHALE OIL REVOLUTION AND ITS IMPACT ON GLOBAL OIL SUPPLY

### **Shale Revolution:**

The "Shale Revolution" alludes to the combination of hydraulic fracturing and horizontal drilling that has enabled the United States to fundamentally build its production of oil and natural gas, especially from tight oil arrangements, which currently represent 36% of complete U.S. unrefined petroleum creation. This new production capacity has diminished the United States' reliance on oil imports from abroad and keeps on giving a significant financial lift as the nation recuperates from the 2008 downturn. Oil and gas comprised 1.6% of the United States' GDP in 2011 and is developing. The improvement of shale developments has been corresponded with an ascent in business, with the oil and gas industry adding 169,000 jobs between 2010 and 2012.

Figure 4: Tight oil production in the United States. (U.S. Energy Information Administration/Drilling Information)



### **Impacts on oil markets:**

The first to feel the effects were existing providers. Especially West African nations like Nigeria and Angola that produce a similar sort of 'light tight' oil that comes from shale formation in the U.S. were severely affected. Middle Eastern countries that supply the 'heavy' crude that is favored by numerous U.S. refineries were less affected. Saudi Arabia has maintained production levels despite falling prices, a challenge to the shale oil producers whose production costs are higher.

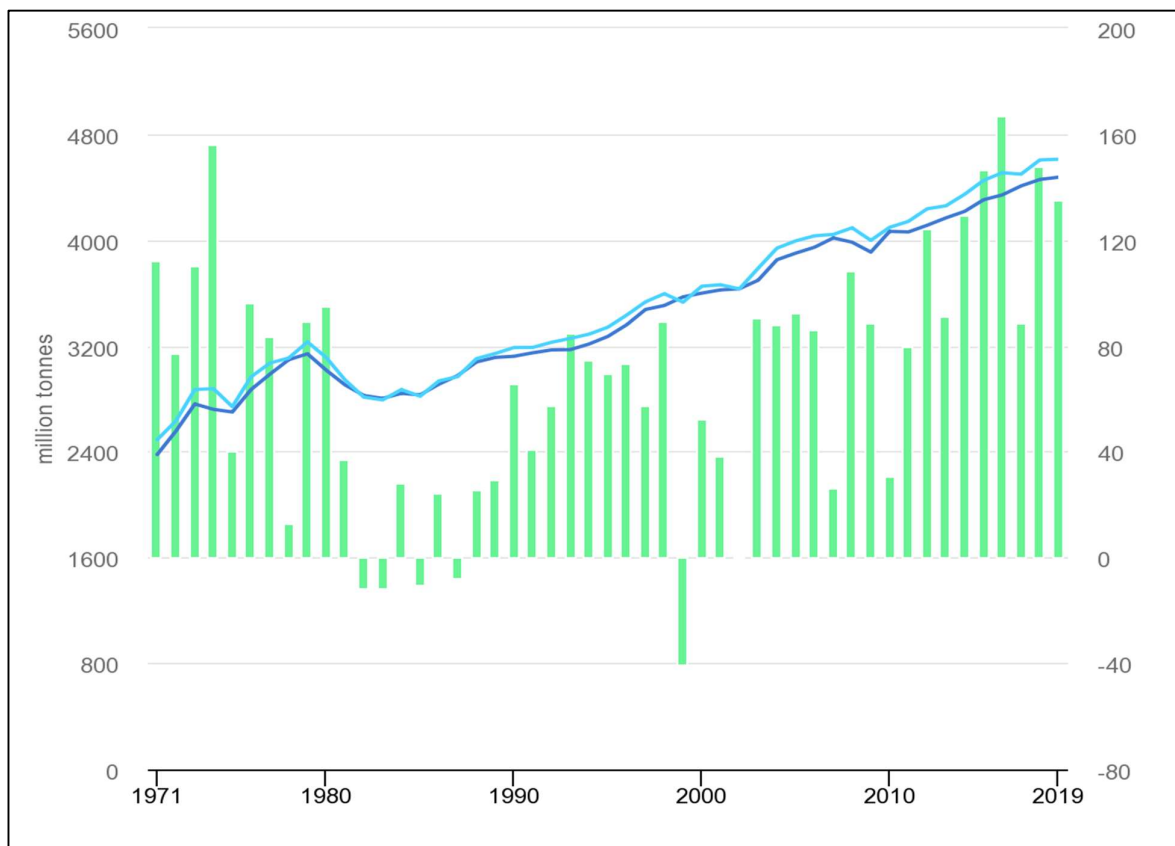
### Impact on global oil supply:

The revelation of shale oil in North America has helped the U.S. to achieve near-record volumes of oil production. As indicated by the Energy Information Administration (EIA), America's oil production was 12 million barrels for each day (BPD) in 2019, making it the world's biggest oil-producing nation. As of December 2019, the U.S. was the world's top supplier, trailed by Russia and Saudi Arabia. However, Saudi Arabia is still the worldwide pioneer in exporting oil followed by Russia and Iraq. Consolidated, these three countries, all individuals from OPEC+, represent almost 36% of the flexibility of oil to the remainder of the world.

### DEMAND, SUPPLY AND DEMAND-SUPPLY GAP TRENDS

- 1974: Crude Oil and NGL production was 2875 million tonnes, the total demand 2719 million tonnes, supply demand gap being 156 million tonnes.
- 1981: Saudi flood market with inexpensive oil in 1981, forcing unprecedented price oil cuts by OPEC members. All 13 OPEC members align on a compromise 32 Dollar per barrel in October.

Figure 5: Demand, supply and demand-supply gap trends



Source: The International Energy Agency

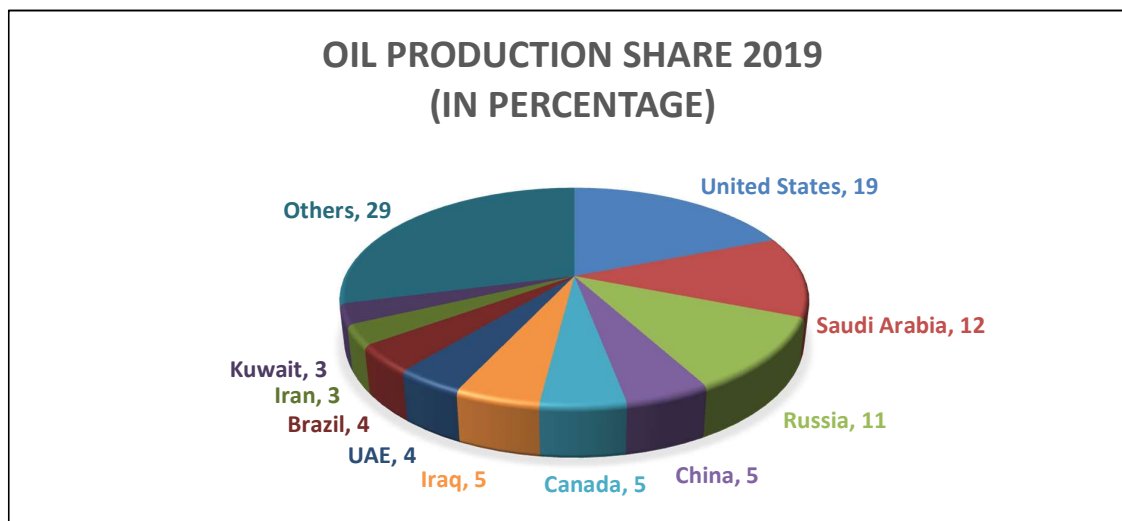
- 1982: Indications of a World Oil Glut lead to a rapid decline in the world oil prices early in 1982. In June, Iran declared unilateral ceasefire and launched first attack in Iraq. Crude Oil and NGL production were 2812 million tonnes whereas the total demand was 2824 million tonnes, creating a gap of negative 12 million tonnes (Negative indicates demand was more than the production).
- 1983: Iraq increases missile on Iran. Oil Glut takes bad demand focus as a result of conservation, use of other fuels and recession. OPEC agree to limit the production to 17.5 mbb/d, supply demand gap remained at Negative 12 million tonnes.
- 1987: OPEC price accord begins to deteriorate as OPEC majors sticks to fixed price, production of 2967 million tonnes and demand of 2975 million tonnes, creating a supply demand gap of Negative 8 million tonnes.
- 1988: Crude Oil prices jump in anticipation of possible production accord at Gulf Cooperation Council meeting set for October, supply demand gap is positive 26 million tonnes, production and demand being 3103 million tonnes and 3078 million tonnes respectively.
- 1999: Oil was 13 Dollars per barrel after steadily declining over the previous two years when it was as high as 28 Dollars per barrel. Reasons include weak demand from Asia, increased supply by OPEC, threat that shift to renewables could impact the demand, technology has reduced the cost of supply.
- 2016: Supply and demand gap being the highest at positive 167 million tonnes for production and demand at 4508 million tonnes and 4340 million tonnes respectively.
- 2019: The highest production till today at 4610 million tonnes, demand being 4474 million tonnes creating a gap of 135 million tonnes.

### **BIGGEST PRODUCERS AND CONSUMERS OF OIL**

Table 1: The 10 largest oil producers and share of total world oil production in 2019

<b>Country</b>	<b>Million barrels per day</b>	<b>Share of world total</b>
United States	19.51	19%
Saudi Arabia	11.81	12%
Russia	11.49	11%
Canada	5.50	5%
China	4.89	5%
Iraq	4.74	5%
United Arab Emirates	4.01	4%
Brazil	3.67	4%
Iran	3.19	3%
Kuwait	2.94	3%
Total top 10	71.76	71%
World total	100.63	

Figure 6: Pie-chart showing the oil production share in 2019



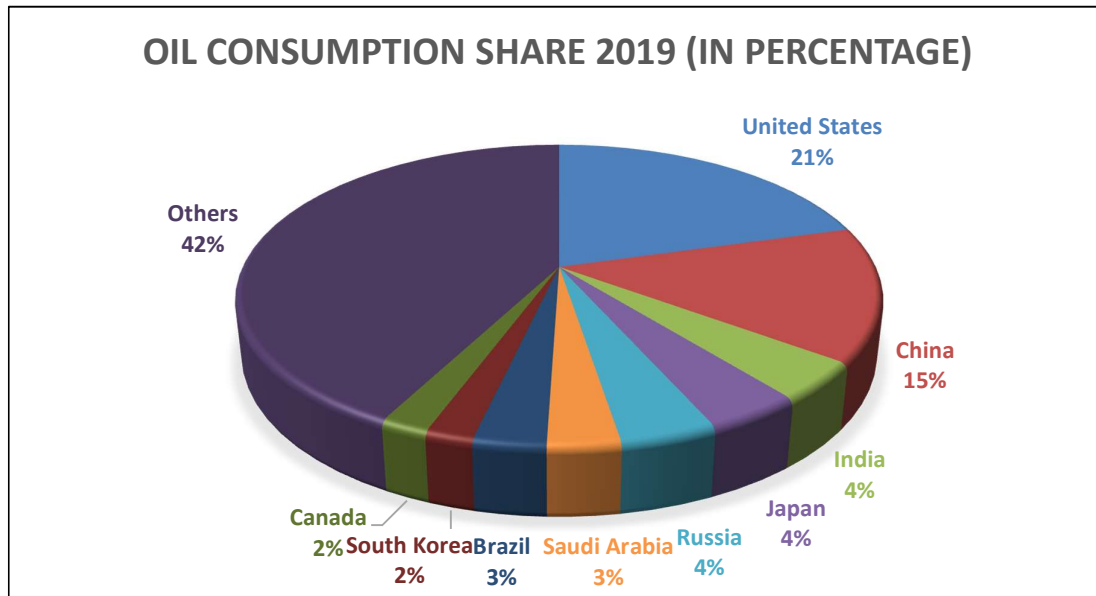
Source: The International Energy Agency

Table 2: The 10 largest oil consumers and share of total world oil consumption in 2019

Country	Million barrels per day	Share of world total
United States	19.96	20%
China	13.57	14%
India	4.34	4%
Japan	3.92	4%
Russia	3.69	4%
Saudi Arabia	3.33	3%
Brazil	3.03	3%
South Korea	2.63	3%
Germany	2.45	2%
Canada	2.42	2%
Total top 10	59.33	60%
World total	98.76	

Source: The International Energy Agency

Figure 7: Pie-chart showing the oil consumption share in 2019



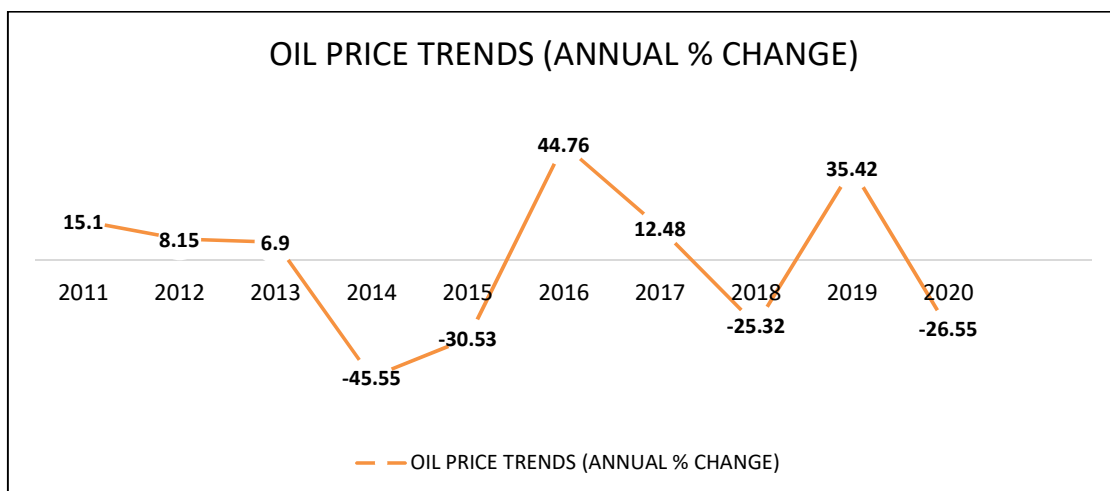
Source: Statista

### OIL PRICE TRENDS

**2014-2016 Decline:** The 2014-16 collapse in oil prices was driven by a growing supply glut, but failed to deliver the boost to global growth that many had expected. The global economy faced one of the biggest oil price decline in modern history between mid-2014 and early 2016. The price fell to 70%, which was one of the three biggest decline since World War II.

The initial drop in oil prices from mid-2014 to early 2015 was primarily driven by supply factors, including booming U.S. oil production, receding geopolitical concerns, and shifting OPEC policies.

Figure 8: Oil price trend



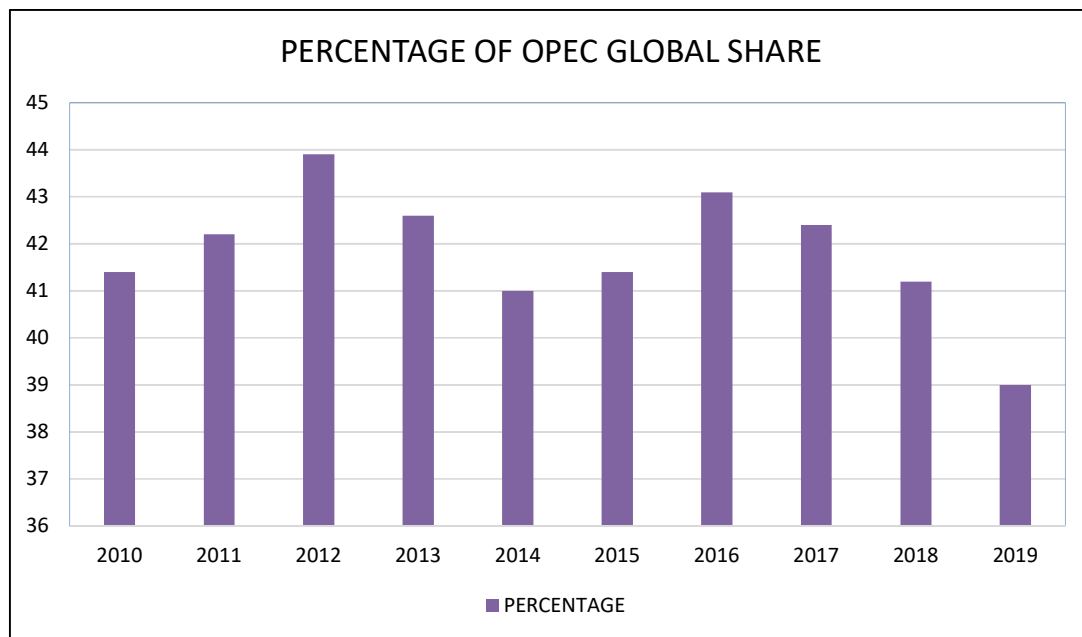
Source: Macrotrends

2018-Rise: The threat of sanctions on Iran, global demand that continues to rise (despite increasing predictions of the demise of demand growth), and the deteriorating situation in Venezuela can be considered to be the reasons of higher oil prices.

2018-Fall: China had become a major importer of U.S. oil to the tune of 500,000 BPD. But the trade war with China resulted in China halting imports of U.S. oil which resulted in hurting the US Oil producers, thereby pushing the prices down.

**OPEC'S SHARE OF TOTAL GLOBAL CRUDE OIL PRODUCTION**  
**FROM 2009 TO 2019\***

Figure 9: Percentage of OPEC global share



Source: Statista

- OPEC produced approximately 39 percent of the world's total crude oil in 2019 and sold it at an average price of around 64.05 U.S. dollars per barrel.
- Over the past decade, roughly a third of the world's total oil production has come from the Middle East, while the share produced by Africa and South America have been declining.
- Overall, global oil production has increased every year of past twenty, except for the years surrounding the financial crisis, from 2007 to 2009.



### **OPEC AS A RELATIVELY SUCCESSFUL CARTEL**

OPEC allied with other top, non-OPEC, oil-exporting nations to form an even more powerful entity named OPEC+. The cartel's goal was to exert control over the price of the precious fossil fuel known as crude oil. OPEC actively seeks to control market oil prices by cutting production and curbing export. OPEC has been the ruling the oil markets and prices for most of the latter part of the 20th century. But after the “Shale Oil Revolution” in U.S., OPEC has lost its position as the primary market force and America has re-emerged as a top producer of oil. As of 2019, OPEC controlled roughly 75% of the world's total crude oil reserves and produced 42% of the world's total crude oil output. However, the U.S. was the world's largest oil-producing country in 2019 with more than 12 million barrels per day. In spite of the fact that OPEC actually can drive costs, the U.S. has limited the cartel's pricing power by increasing the production whenever OPEC cuts its output. Nevertheless, the main reason that OPEC still has the ability to influence prices is because its membership includes Saudi Arabia, which produces about 10 percent of global output and supplies around 12 percent of world exports, can affect the oil market in large scale.

# INDIAN OIL MARKET

## **IMPORTS AND EXPORTS OF PETROLEUM PRODUCTS**

- During 2018-19, import of petroleum products having decrease to 33.35 MMT valued at INR 113665 Crores, showing decrease of 5.96% in quantity terms against 35.46 MMT imports of petroleum products valued at INR 88374 Crores during 2017-18.
- The quantity of petroleum products imported during April- December 2019-20 was 31.24 MMT valued at INR 90830 Crores and 50.06 MMT of petroleum products valued at INR 202311 Crores were exported.

Table 3: Import and export of petroleum products

Year	Imports of Petroleum products (MMT)	% Growth in imports of petroleum products	Export of Petroleum products (MMT)	% Growth in exports of Petroleum products
2014-15	21.30	27.57	63.93	-5.97
2015--16	29.46	38.28	60.54	-5.31
2016-17	36.29	23.19	65.51	8.22
2017-18	35.46	-2.28	66.83	2.01
2018-19	33.35	-5.96	61.10	-8.58
2019-20(Apr-Dec)(Provisional)	31.24	33.62	50.06	6.75

Source: Ministry of Petroleum and Natural Gas

## **CONSUMPTION OF PETROLEUM PRODUCTS**

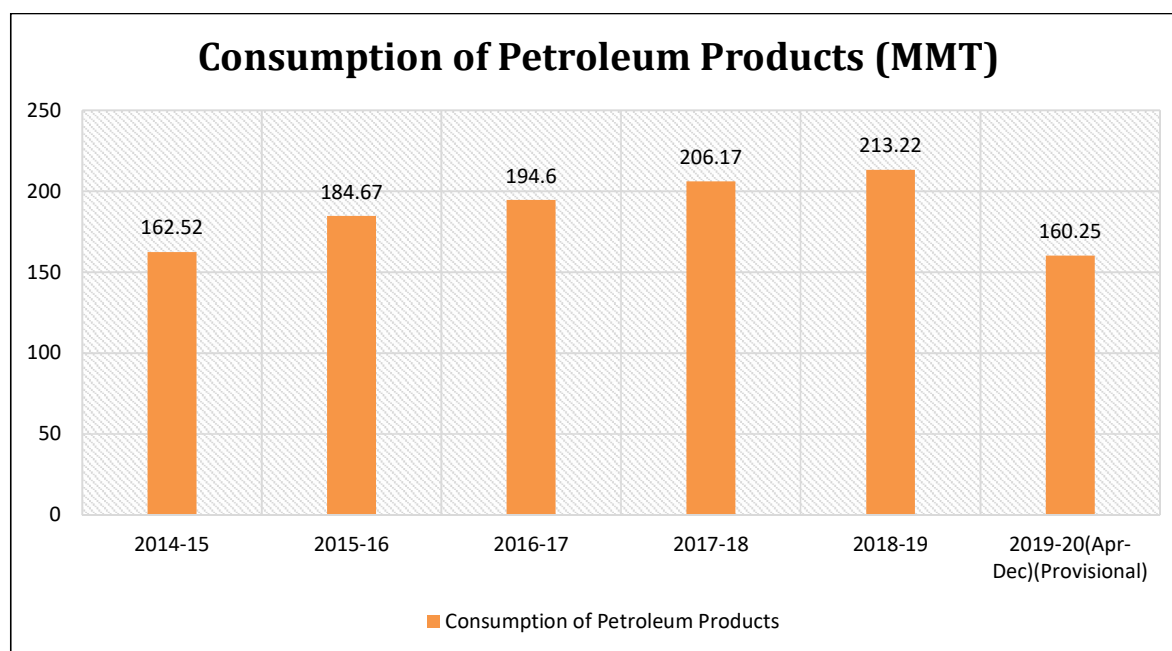
Table 4: Consumption of petroleum products

Year	consumption of Petro Products (MMT)	% Growth in the consumption of petroleum products
2014-15	165.52	4.49
2015-16	184.67	11.57
2016-17	194.60	5.37
2017-18	206.17	5.95
2018-19	213.22	3.42
2019-20(Apr-Dec)(Provisional)	160.25	1.62

Source: Ministry of Petroleum and Natural Gas

- India was ranked third with regards to primary energy consumption across the globe.
- The import volume of petroleum products reached figure close to 33 million metric tonnes during the fiscal year of 2019.
- The consumption volume of petroleum products in India was estimated to be approximately 211 million metric tonnes in the fiscal year 2019.

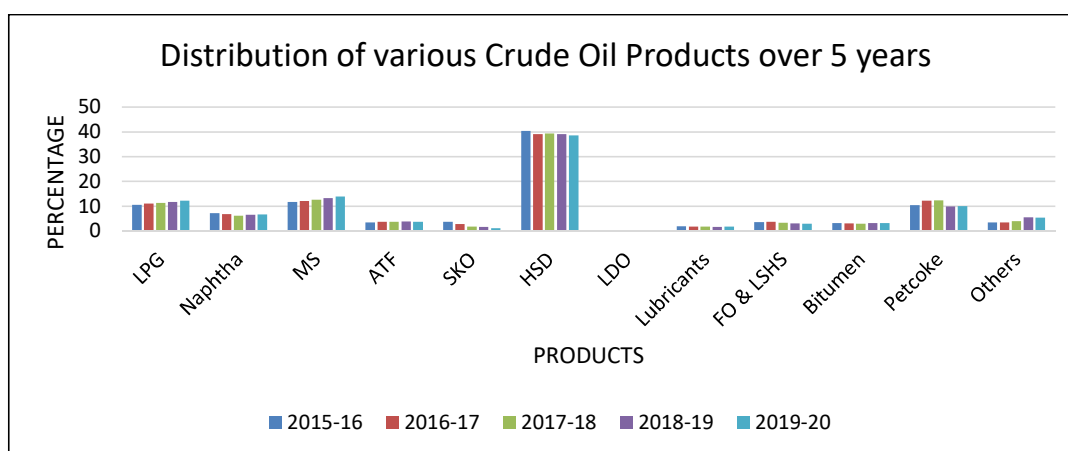
Figure 10: Bar graph showing consumption of petroleum products



Source: Ministry of Petroleum and Natural Gas

## PERCENTAGE SHARE OF VARIOUS PETROLEUM PRODUCTS IN TOTAL CONSUMPTION

Figure 11: Bar graph showing distribution of various crude oil products over 5 years



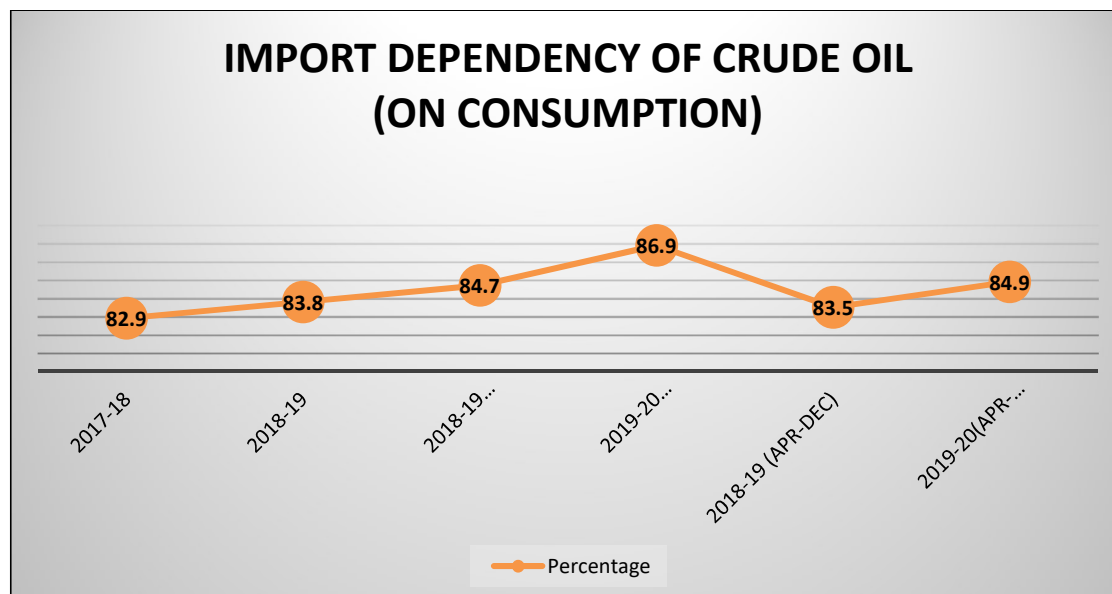
Source: <http://ppac.gov.in/>

### **Inference:**

Among these there can be a seen a steady incline in LPG. This can be attributed because of the introduction of Pradhan Mantri Ujjwala Yojana in the year 2016. There is also a steady increase in MS – Motor Spirit also known as petroleum due to increase in two wheeler sales across India. The highest consumption among these products is HSD. HSD is High Speed Diesel, i.e. any hydrocarbon oil in the range of C13-C17 which is used in Compression Ignition Engines. It is used for Automobiles, any combustion engine e.g. Motorboat, Aeroplane etc.

## IMPORT DEPENDENCY OF CRUDE OIL (ON CONSUMPTION)

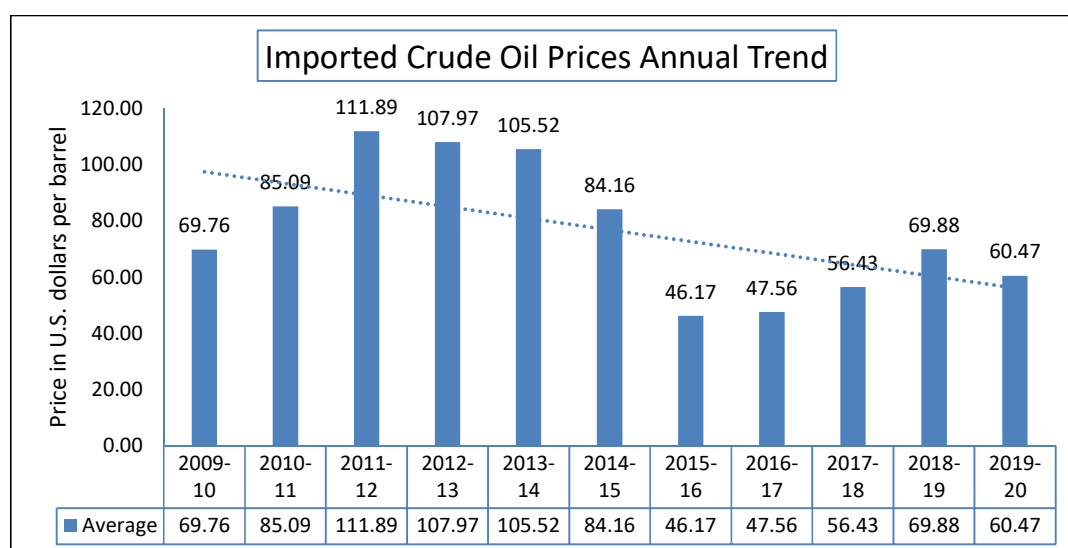
Figure 12: Trendline showing import dependency of crude oil over the years



Source: Petroleum Planning & Analysis Cell

## IMPORTED CRUDE OIL PRICE ANNUAL TRENDS (INDIAN BASKET)

Figure 13: The average crude oil prices trend of last 10 years



Source: Petroleum Planning and Analysis Cell

The financial year in India starts from April and ends in March. From the above graph it can be seen that the average crude oil price was highest in financial year 2011-12, touching almost 112 dollars per barrel. The average crude oil price in financial year 2019-20 has slightly dropped from around 70 U.S. dollars per barrel to 60 U.S. dollars per barrel. In the financial year 2015-16, the average price is observed to be lowest, i.e. around 46 U.S. dollars per barrel.

### **RETAIL SELLING PRICE OF PETROL AND DIESEL –DAILY DATA TRENDS FOR ONE YEAR (DELHI) – INDIAN OIL CORPORATION**

#### **Petrol:**

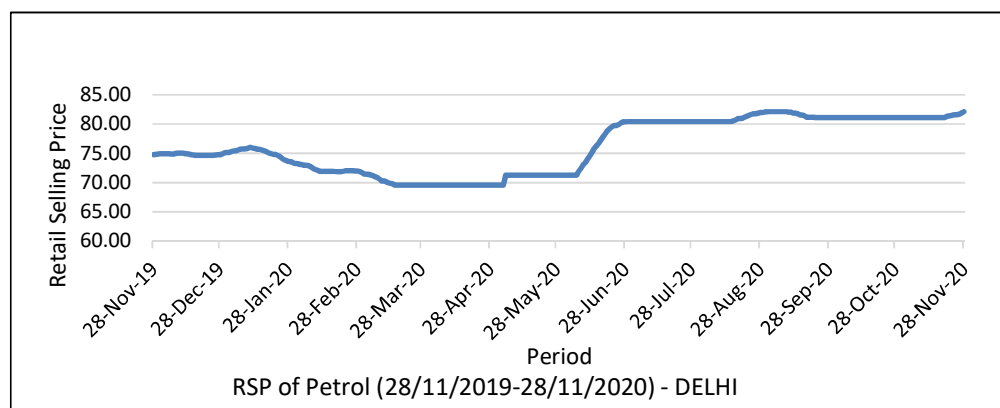


Figure 14: Trendline showing RSP of petrol

Source: <http://ppac.gov.in/>

#### **Interpretation:**

It can be seen that there has been a steep rise in the retail selling price during the month of June. Increase of around 11% in just one month amid the global prices of crude oil falling. Since then the RSP has been going sideways and maintained a threshold of Rs.80 per litre.

#### **Diesel:**

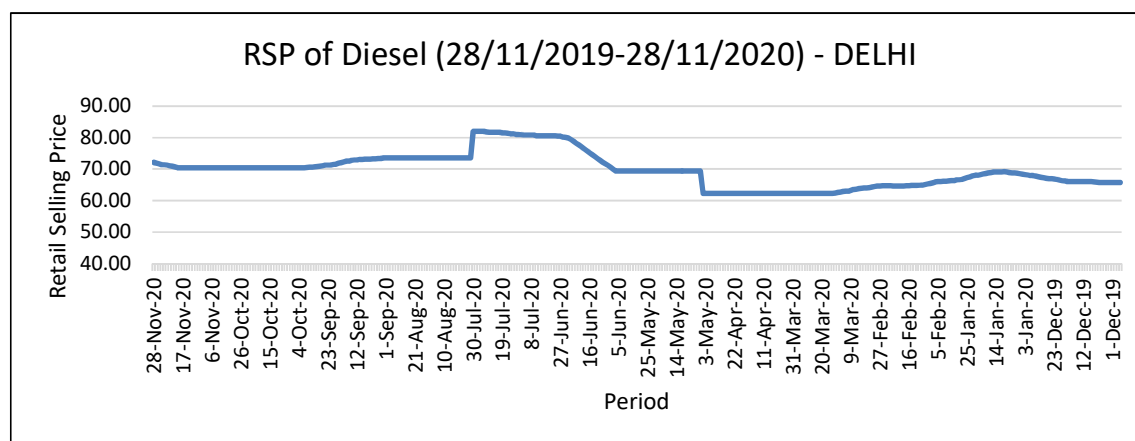


Figure 15: Trendline showing RSP of diesel

Source: <http://ppac.gov.in/>

This entire trend line consists of 365 daily data points of Retail Selling Price of Diesel by Indian Oil Corporation from 28/11/2019 to 28/11/2020.

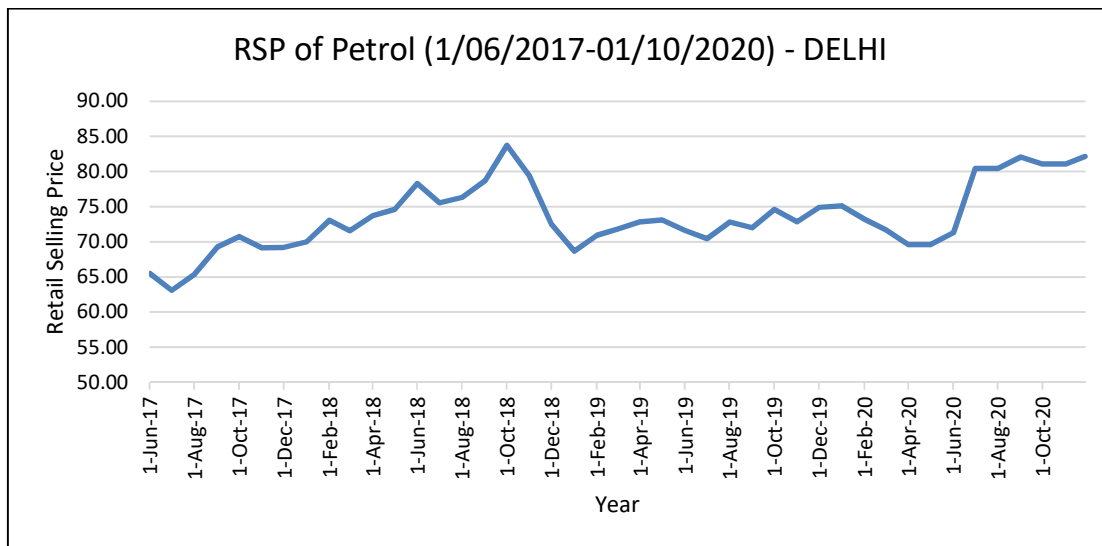
### Interpretation:

It can be seen that there has been a rise in the retail selling price of diesel during the months of April, May and June. There has been an Increase of around 20% as prices have jumped from Rs.60 to Rs.80 in three months amid the global prices of crude oil falling. This is the first time in the history of Indian Oil Market when prices of Diesel has raised over Petrol.

### RETAIL SELLING PRICE OF PETROL AND DIESEL -MONTHLY DATA TRENDS FOR 3 YEARS (DELHI) – INDIAN OIL CORPORATION

#### Petrol:

Figure 16: Trendline showing RSP of petrol



Source: <http://ppac.gov.in/>

The trend line has data points collected from 1/06/2017 till 1/10/2020. These are monthly data points of RSP from Indian Oil Corporation.

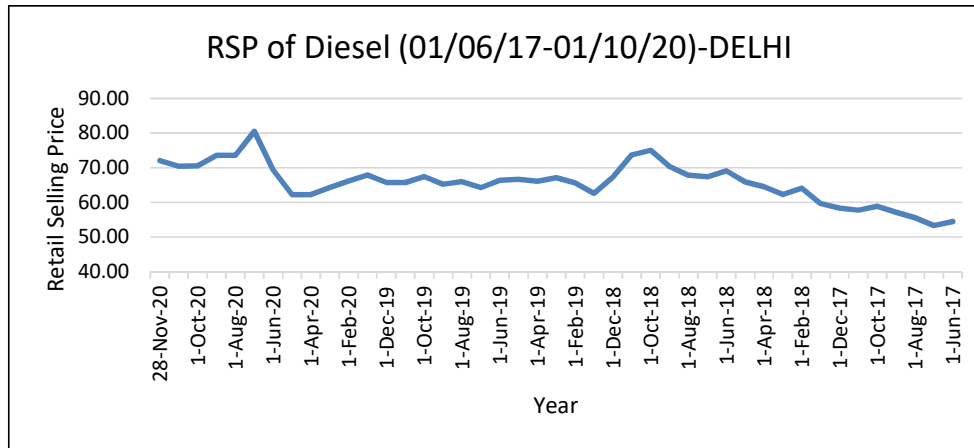
### Interpretation:

The price of petrol has been volatile during this past three years. There has been a jump during Aug-2018, but it declined sooner. But the increase this time during Jun-Jul 2020 period has been steep but it has been a steady phase maintaining Rs.80 as the support level.



## Diesel:

Figure 17: Trendline showing RSP of diesel



Source: <http://ppac.gov.in/>

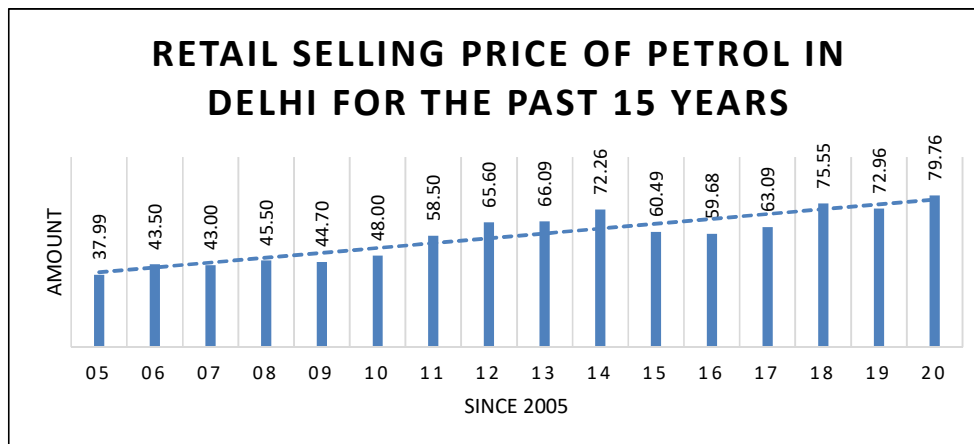
The trend line has data points collected from 1/06/2017 till 1/10/2020. These are monthly data points of RSP from Indian Oil Corporation.

## Interpretation:

The price of diesel has been volatile during this past three years, especially during the pandemic period. A steep jump of 20% surpassing petroleum prices during June 2020. But the year 2019 was a steady year where the price boundary was from Rs.63-Rs.68. Given the global disturbance in the supply chain and the supply demand gap the price of crude oil has been falling to historic rates. But given the VAT and Tax rates.

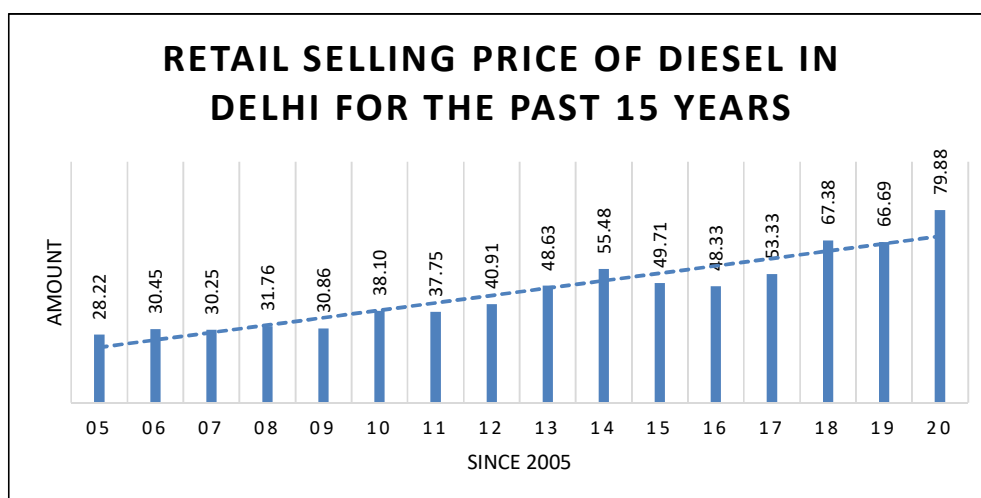
## RETAIL SELLING PRICE OF PETROL AND DIESEL –ANNUAL DATA TRENDS FOR 15 YEARS-(DELHI)

Figure 18: Trendline showing RSP of petrol



Source: <http://ppac.gov.in/>

Figure 19: Trendline showing RSP of diesel

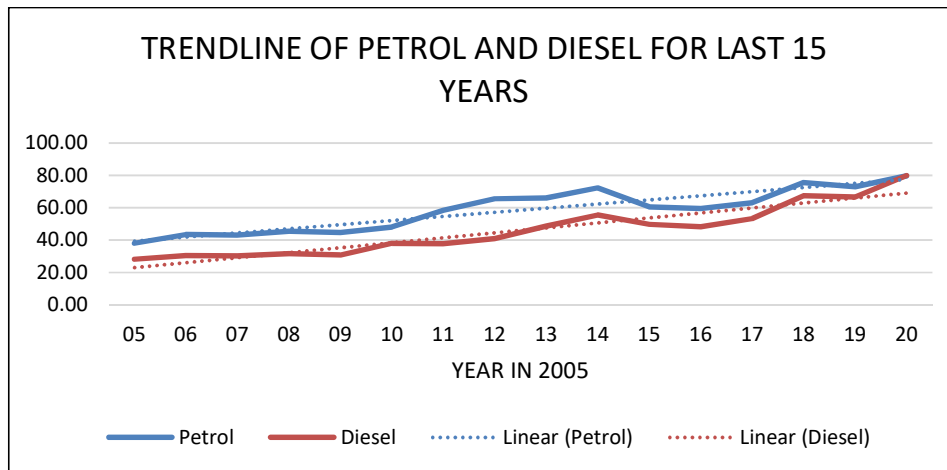


Source: <http://ppac.gov.in/>

The above tables show us the graphical representation of Petrol and Diesel prices from 2005 to 2020. The price on April 1<sup>st</sup> is considered as the base data point for each year. The trend line of Diesel will have been much steeper if the data in the month of Jul 2020 is included when the price of diesel surpassed price of petrol in the history.

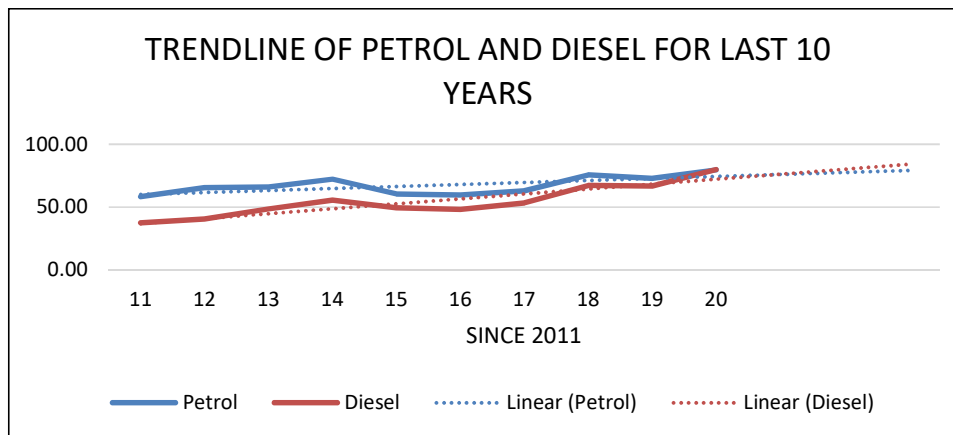
## Comparison:

Figure 20: Comparison between price of petrol and diesel for last 15 years



Source: <http://ppac.gov.in/>

Figure 21: Comparison between price of petrol and diesel for last 10 years

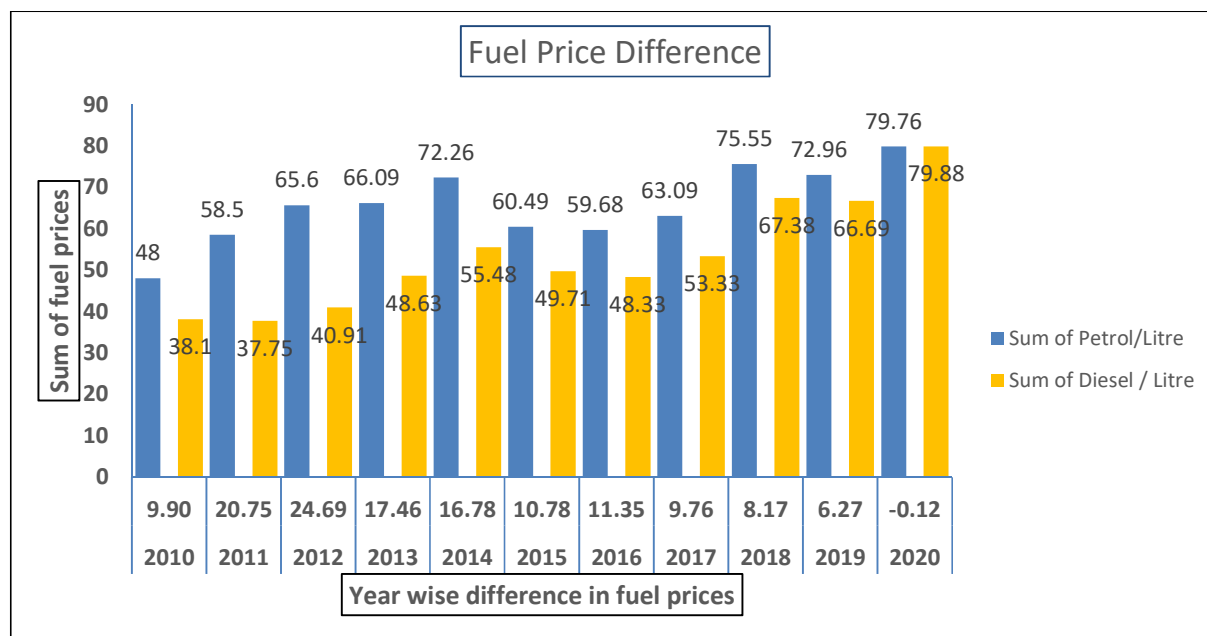


Source: <http://ppac.gov.in/>

A significant observation can be done using the above two graphs. In the 15 years plot it can be seen that Price of Petrol and Diesel doesn't intersect. But by zooming in to the last 10 years it clearly shows that price of diesel surpassing petrol. Though this only due to the supply shock which would not last long this is an important observation that can be noticed.

## HISTORIC FUEL PRICE DIFFERENCE IN INDIA FROM 2010 TO 2020

Figure 22: Difference between petrol and diesel prices in India (Capital-Delhi) – Last 10 year's trend

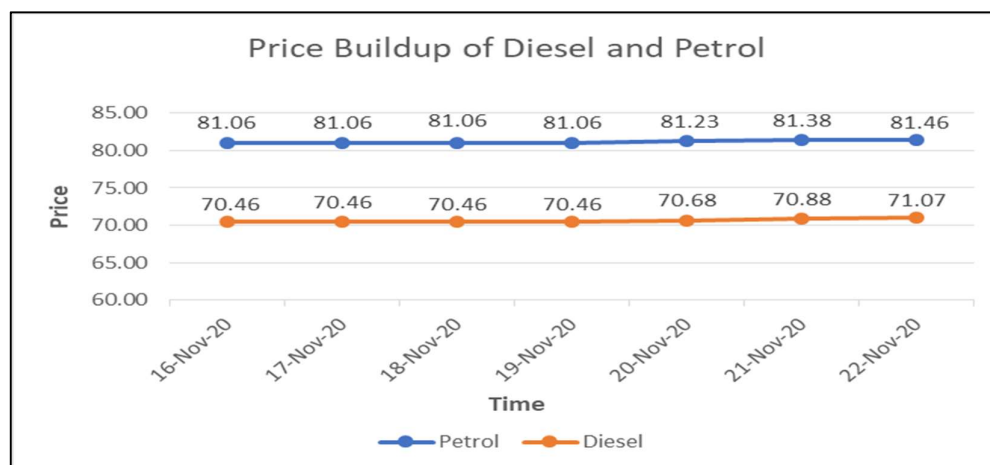


Source: [www.mycarhelpline.com](http://www.mycarhelpline.com)

From the graph it can be observed that the price of petrol has always been higher than price of diesel. But, in 2020, for the first time, the price of diesel has crossed the price of petrol. Though the difference in fuel price is minute, i.e. only 0.12 U.S. dollars per barrel.

## PRICE BUILD-UP OF PETROL AND DIESEL

Figure 23: Price build-up of diesel and petrol from 16/11/2020 to 22/11/2020



Source: [www.iocl.com](http://www.iocl.com)

Table 5: Price build-up of petrol

<b>Price Buildup of Petrol at Delhi effective 16-Nov-20</b>		
<b>Elements</b>	<b>Unit</b>	<b>Delhi</b>
Base Price	Rs/Ltr	25.37
Freight etc	Rs/Ltr	0.36
Price Charged to Dealers (excluding Excise Duty and VAT)	Rs/Ltr	25.73
Add : Excise Duty	Rs/Ltr	32.98
Add : Dealer Commission (Average)	Rs/Ltr	3.64
Add : VAT (including VAT on Dealer Commission)	Rs/Ltr	18.71
Retail Selling Price at Delhi- (Rounded)	Rs/Ltr	81.06

Table 6: Price build-up of diesel

<b>Price Buildup of Diesel at Delhi effective 16-Nov-20</b>		
<b>Elements</b>	<b>Unit</b>	<b>Delhi</b>
Base Price	Rs/Ltr	25.42
Freight etc	Rs/Ltr	0.33
Price Charged to Dealers (excluding Excise Duty and VAT)	Rs/Ltr	25.75
Add : Excise Duty	Rs/Ltr	31.83
Add : Dealer Commission (Average)	Rs/Ltr	2.52
Add : VAT (including VAT on Dealer Commission)	Rs/Ltr	10.36
Retail Selling Price at Delhi- (Rounded)	Rs/Ltr	70.46

Source: [www.iocl.com](http://www.iocl.com)

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## ANNEXTURE

### Oil price trends

Year	Average Closing Price	Year Open	Year High	Year Low	Year Close	Annual % Change
2020	\$38.89	\$61.17	\$63.27	\$11.26	\$44.91	-26.55%
2019	\$56.99	\$46.31	\$66.24	\$46.31	\$61.14	35.42%
2018	\$65.23	\$60.37	\$77.41	\$44.48	\$45.15	-25.32%
2017	\$50.80	\$52.36	\$60.46	\$42.48	\$60.46	12.48%
2016	\$43.29	\$36.81	\$54.01	\$26.19	\$53.75	44.76%
2015	\$48.66	\$52.72	\$61.36	\$34.55	\$37.13	-30.53%
2014	\$93.17	\$95.14	\$107.95	\$53.45	\$53.45	-45.55%
2013	\$97.98	\$93.14	\$110.62	\$86.65	\$98.17	6.90%
2012	\$94.05	\$102.96	\$109.39	\$77.72	\$91.83	-7.08%
2011	\$94.88	\$91.59	\$113.39	\$75.40	\$98.83	8.15%
2010	\$79.48	\$81.52	\$91.48	\$64.78	\$91.38	15.10%

Source: Statista

### RSP of petrol and diesel for past 15 years

Year	Petrol	Diesel	Difference in Price
05	37.99	28.22	9.77
06	43.50	30.45	13.05
07	43.00	30.25	12.75
08	45.50	31.76	13.74
09	44.70	30.86	13.84
10	48.00	38.10	9.90
11	58.50	37.75	20.75
12	65.60	40.91	24.69
13	66.09	48.63	17.46
14	72.26	55.48	16.78
15	60.49	49.71	10.78
16	59.68	48.33	11.35
17	63.09	53.33	9.76
18	75.55	67.38	8.17
19	72.96	66.69	6.27
20	79.76	79.88	0.12

Source: Petroleum and Analysis Cell



### Crude oil price (Indian Basket)

Table Posted: (01-  
05-2020)  
Period : Since  
2000-01

(\$/b  
bl.)

Ye ar	A pr il	M ay	Ju ne	Ju ly	Au gu st	Sept emb er	Oct obe r	Nov emb er	Dec emb er	Jan uar y	Feb rua ry	M ar ch	Av era ge	Rati o *
200 0- 01	22 .5 1	26 .6 0	28 .4 9	27 .2 6	28. 33	31.3 4	30. 50	30.9 3	23.2 5	24. 02	25.9 2	23. 82	26. 92	57:4 3
200 1- 02	24 .8 2	26 .9 5	26 .6 3	23 .9 9	25. 01	24.7 9	20. 05	18.2 4	18.2 4	18. 92	19.5 3	23. 31	22. 55	57:4 3
200 2- 03	25 .0 3	24 .9 9	24 .0 5	25 .1 8	25. 86	27.5 0	26. 90	23.6 8	27.1 1	29. 59	31.3 1	28. 83	26. 60	57:4 3
200 3- 04	24 .2 1	24 .9 9	26 .4 3	27 .4 6	28. 66	26.2 7	28. 45	28.2 3	28.9 7	30. 00	29.6 5	32. 21	27. 98	57:4 3
200 4- 05	32 .3 7	36 .0 8	34 .1 6	36 .3 5	40. 52	39.1 5	43. 38	38.9 0	36.8 2	40. 96	42.6 7	49. 27	39. 21	57:4 3
200 5- 06	49 .4 3	47 .0 0	52 .7 2	55 .0 1	60. 05	59.7 4	56. 28	53.1 4	55.0 5	60. 54	58.9 5	60. 01	55. 72	58:4 2
200 6- 07	67 .0 6	67 .2 2	66 .9 0	71 .2 9	70. 78	60.9 3	57. 27	57.7 9	60.3 4	52. 53	56.5 3	60. 26	62. 46	59:8: 40.2
200 7- 08	65 .4 8	65 .7 0	68 .1 0	72 .5 8	68. 98	74.7 8	79. 33	89.1 1	87.9 2	89. 52	92.3 7	99. 76	79. 25	61:4: 38.6
200 8- 09	10 .5 72	12 .0 91	12 .9 72	13 .2 47	11 3.0 5	96.8 1	69. 12	50.9 1	40.6 1	43. 99	43.2 2	46. 02	83. 57	62:3: 37.7
200 9- 10	50 .1 4	58 .0 0	69 .1 2	64 .8 2	71. 98	67.7 0	73. 06	77.3 9	75.0 2	76. 61	73.6 9	78. 02	69. 76	63:5: 36.5
201 0- 11	84 .0 8	76 .1 6	74 .3 3	73 .5 4	75. 13	76.0 9	81. 11	84.2 6	89.7 7	93. 87	101. 62	11 0.7 1	85. 09	67:6: 32.4
201 1- 12	11 .8 64	11 .0 80	10 .9 99	11 .2 53	10 6.9 4	108. 79	106 .11	109. 62	107. 19	110 .47	117. 67	12 3.6 1	111 .89	65:2: 34.8

<b>2012-13</b>	117.97	108.05	94.51	100.34	110.07	111.77	109.79	107.87	107.28	109.55	112.68	106.45	<b>107.97</b>	<b>68.2:31.8</b>
<b>2013-14</b>	101.57	101.10	101.11	104.86	108.45	109.47	107.37	106.55	108.72	105.29	106.19	105.30	<b>105.52</b>	<b>69.9:30.1</b>
<b>2014-15</b>	105.56	106.85	109.05	106.30	118.9	96.96	86.83	77.58	61.21	46.59	56.43	55.18	<b>84.16</b>	<b>72.04:27.96</b>
<b>2015-16</b>	59.07	63.82	61.75	56.30	47.33	46.10	46.68	42.50	35.68	28.08	30.53	36.42	<b>46.17</b>	<b>72.28:27.72</b>
<b>2016-17</b>	39.88	45.01	46.96	43.52	44.38	44.48	49.25	44.46	52.74	54.08	54.86	51.47	<b>47.56</b>	<b>71.03:28.97</b>
<b>2017-18</b>	52.49	50.57	46.56	47.86	50.63	54.52	56.06	61.32	62.29	67.06	63.54	63.80	<b>56.43</b>	<b>72.38:27.62</b>
<b>2018-19</b>	69.22	75.25	73.83	73.47	72.53	77.88	80.08	65.40	57.77	59.27	64.53	66.74	<b>69.88</b>	<b>74.77:25.23</b>
<b>2019-20</b>	71.00	70.01	62.37	63.3	59.35	61.72	59.70	62.53	65.50	64.31	54.63	33.36	<b>60.47</b>	<b>75.50:24.50</b>

**No**

**tes:**

*\* The composition of Indian Basket of Crude represents Average of Oman & Dubai for sour grades and Brent (Dated) for sweet grade in the ratio of crude processed during previous financial year, e.g. ratio of crude processed as indicated in the table above.*

*- Crude oil prices are average of daily prices of respective month.*

*Source:Petroleum and Analysis Cell*

#### **Historical fuel price difference data set**

Year	Petrol/Litre	Diesel / Litre	Fuel Price Difference / Litre
2010	48.00	38.10	9.90
2011	58.50	37.75	20.75
2012	65.60	40.91	24.69
2013	66.09	48.63	17.46
2014	72.26	55.48	16.78
2015	60.49	49.71	10.78
2016	59.68	48.33	11.35
2017	63.09	53.33	9.76
2018	75.55	67.38	8.17
2019	72.96	66.69	6.27
2020	79.76	79.88	-0.12

*Source: www.mycarhelpline.com*