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Hike in prices of petrol and its impact on demand and supply

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ABSTRACT

This paper includes the economic study of demand and supply related to the petroleum consumption all over India. In economics, we study that the demand for the resources are more than their availability which means 'resources are less and wants are unlimited'. Here, this research paper includes the factors which affect the demand and supply of oil and petroleum consumption. And how does change in prices affect the demand and supply of petroleum products? The industry related to this sector pays the huge taxes and are all connected through the OPEC. The OPEC that is Organization of Petrol Exporting Countries is the cooperation of the countries which supplies the oil in different countries. The interference of the government in the market of the petroleum plays an important role with the working of the opposition parties with it. The future of petroleum will be very disastrous and there will not be any petroleum product left for the welfare of the future.

Keywords— *OPEC, Petroleum*

1. INTRODUCTION

1.1 What are the demand and supply?

Supply and demand, in economics, is a relationship between the quantities of a commodity that producers wish to sell at various prices and the quantity that consumers wish to buy at that price. It is the main model of determination of price which is used in economic theory. The price of the commodity is determined by the combination of supply and demand in the market [1]. The final price is referred to as the equilibrium prices and represents an agreement between producers and consumers of the good. In equilibrium, the quantity demanded by consumers is equal to the quantity supplied by the producer.

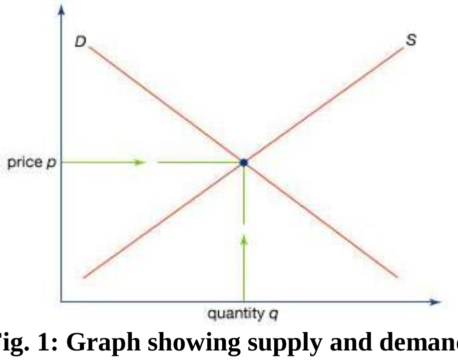

Fig. 1: Graph showing supply and demand

According to demand theory, the law of demand states that other factors remain constant, price and quantity demanded of any good and service are inversely related to each other. When the price of a product increases, the demand for that product will fall.

According to supply theory, the law of supply states that other factors remain constant, an increase in price results in an increase in quantity supplied. In other words, there is a direct relationship between price and quantities respond in the same direction as a price change.

1.2 Factors affecting demand and supply

Crude oil supply is crucial to the operation in the developed countries, with 84,249,000 barrels consumed globally each day. Because of the need for oil supplies, the fluctuation of oil prices had a great effect on the global economy. The standard economic principle of supply and demand, based around the concept that the price of a product is directly related to the supply related to consumer demand of the product, applies to whole global oil prices and resulting effects on worldwide economics [2].

a. **Increased petroleum consumption:** As the world's population grows, global demand for petroleum products increases accordingly. Hence, the consumption of the petroleum products globally increases with the increase in the population of the countries.

b. **Oil reserves:** The ability to supply oil on world demand affects the ultimate prices of the product. The world's supply of oil centers on the capacity of reserves. Reflected as the available supply, oil reserves are most often expressed in terms of "proven reserves".
c. **Exchange rates:** World exchange rates directly affect the worldwide price of oil in terms of the cost which is reflected in national markets.
d. **Environmental factors:** The environment can have a strong effect on the global price of oil, in terms of how it keeps changing the ability to produce oil supplies.
e. **Political factors:** Whenever major oil producing country is affected by political conflict, that nation's ability to continue production will be affected.
f. **Speculation:** Outside of the physical supply of oil reserves, the financial market has the ability to change oil prices through speculation. Essentially, this means financial traders speculate on oil supplies through contracts that are for future shipments, rather than those currently being distributed.

2. HOW DOES THE LAW OF SUPPLY AND DEMAND AFFECT THE PETROLEUM INDUSTRY?

The law of supply and demand directly affects the petroleum industry by determining the prices of petroleum. The price and the expectations about the prices of petroleum are the major factors which determine how companies in the oil industries allocate their resources [3]. Prices create certain inducements that influence behavior; this behavior eventually feeds back to supply and demand to determine the prices of oil.

For example, extended periods of high oil prices lead to consumers caution vehicles which are not fuel efficient, thus it reduces their driving. Businesses and individuals are paying more attention to conserve energy due to its cost in the present scenario. This factor reduces the demand for oil by the people. [4]

On the supply side, high oil prices lead to more inculcating projects, more research money pours in and sparks innovation in new techniques and efficiencies, and many projects that were not viable at lower price become viable. All of this activities increase the supply of petroleum.

An example of this circumstance was seen in between the year 2017 to 2014 when oil prices were above $100 for the most of the parts. Massive investments poured into the sector via credit and new companies. Production increased in response to high prices, especially with innovations in franking and oil sands. These investments could only be justified based on high oil prices and contributed to record supply in 2014.

Additionally, great strides were made in efficiency and alternative energy, which contributed to decreasing demand on a per-person basis. In the summer of 2014, there was a deflationary shock due to economic weakness in China and Europe. Given the supply and demand dynamics, oil prices cratered, falling more than 50% in a four-time frame.

A low oil price creates the opposite site of incentives. Production drops as many companies in the oil industry may declare bankruptcy and projects in development are shut down; this crushes supply. Demand also rises as people drive more and focus on efficiency matters less materially because of lower energy costs.

3. INFLUENCE OF OPEC IN OIL PRICES

In the short term, the Organization of Petroleum Exporting Countries (OPEC) has a significant influence on the prices of oil [5]. Over the long term, its ability to influence the price of oil is quite limited, primarily because individual countries have different incentive than OPEC as a whole.

Although India partly subsidizes few products of the refined petroleum to check inflation it extracts huge tax revenues from the import of crude oil. The rate of change in market prices of refined products largely remains unaltered compared to the fluctuations in the international market largely due to regulated pricing mechanisms. As a result, India is suffering from vast fiscal deficits and is reflected in the recent outstanding balance of payment to Iran [6].

Iran is India's second-biggest crude oil supplier after Saudi Arabia, accounting for about 13 percent of its total crude oil imports. If the present issue of payment with Iran remains unsolved it would potentially hit Indian imports of 400,000 barrels per day of Iranian crude oil, forcing Asia's third-largest economy to look for more expensive alternatives that would swell its already high current deficit. [7]

4. PETROLEUM INDUSTRY IN INDIA

Along with liberalization and privatization, the overall economy of India grew. Also, the demand for petroleum products the petroleum industry in India is particularly favorable for foreign investments because the industry is one of the fastest growing segments, and it has shown a staggering growth rate of around 13% in the recent past. Apart from the tremendous growth rate in the Indian petroleum industry today, it also boats technology of international standards, easy availability of infrastructure at very cheap rates, high demands for petroleum products, and increased spending habits of the middle-class people. All these factors make investments in the Indian petroleum industry an attractive proposition for foreign investors [8].

The petroleum industry has contributed heavily to the manufacturing industry in the country through foreign trace in the petroleum products. Rapid globalization, fast-changing technology, and the changing methods in the way business are conducted have bought significant changes and enormous opportunities for petroleum companies in India to flourish and expand their operation to global markets [9].

5. GOVERNMENT AND POLICIES

Firstly we need to understand the basic difference between Government and politics.

The political parties, which proves majority, will form the government and the political parties, which does not the proof majority, will be the opposition parties. The ruling party will administer the country. Funds are needed to run the government and are collected through imposing various types of taxes. The government accumulates 22%of its revenues through levying taxes on petroleum product. [10]

Similarly, states will generate revenue through taxes and central government. States may not be interested in reducing the local taxes. Instead, they will seek the assistance of the Central Government for sponsoring various schemes and proposals. When states start building pressure on the government for additional funds, the government will be hesitant to reduce central taxes including excise duty on petrol and diesel. In states like Odessa, Delhi, West Bengal, Punjab and Kerala, BJP is not in power. Other parties are in power [11].

These states may not reduce the value-added Tax on diesel and petrol in order to build pressure on the current ruling party, the BJP, which demands a certain level of funds to run the government and finance the state and central level projects. This may be the reason why BJP- led has increased the excise on petrol and diesel. If the government reduces the central tax, it will fall short of revenues to administer the country.

6. THE ECONOMICS OF OIL SUPPLY AND DEMAND

The demand for oil is inelastic because there are no readily available substitutes for using oil as a source of fuel or energy. For example, if the prices of petrol were to increase, a person can’t easily convert their car so that it runs on another fuel source. Oil demand is therefore inelastic, because the percentage change in the quantity of oil demanded is less than the percentage change in price, giving price elasticity a value between zero and one [12].

Short run oil supply

In the short run, the supply of oil is also inelastic, and this is largely due to the costs associated with production. For example, once an oil field has been built, the cost of pumping oil will be the same regardless of whether that oil field is running at 60% capacity or 100%capacity. If oil prices are high then producers may increase production because of the marginal cost of producing the oil increases. However, if oil prices are low, producers may decrease production because of the marginal cost of producing the oil falls.

Therefore, the amount of oil produced depends on whether oil prices are high enough to cover the marginal cost of production.

7. HOW THE PETROL PRICES ARE CALCULATED?

Petrol prices are calculated on the basis of worldwide supply and demand factors. Foreign suppliers sell crude oil to oil Marketing Companies in India at benchmark prices. Delivery price at the refinery and Brent crude’s daily prices are considered to calculate the actual cost of petrol in India.

One barrel of crude oil contains about 160 liters of oil priced in US dollars. To calculate price, US dollars are converted to Indian rupee and then divided by 160 [13].

After buying, crude oil is transported to refineries in India. India at present has about 20 refineries. Crude oil is then separated into various products like petrol, diesel, coal tar, etc. In distillation towers of these refineries. [14] Cost of distillation and refining is added to the price of petrol. Also, crude custom levy and charges from ports to the refinery are added.

Separated petrol is now ready to be stored in storage tanks of the oil companies. Oil companies now pay to the refineries and to this added the cost of transporting petrol from the refinery to OMC’s tanks. So the actual price of petrol that a consumer pays includes all the above-mentioned cost plus commission of a dealer, VAT, excise duty, total duties, and taxes.

8. THE FUTURE OF PETROLEUM

Most experts seem to agree that if the world has not already reached peak petroleum, then within the next 20 years. Elsewhere on the site, it is explained that peak oil doesn’t mean that petroleum reserves have run out, but that the maximum rate of petroleum extraction has been reached and that subsequent methods of extraction cannot increase the rate further [15]. Over time, the total rate of petroleum output will decrease. This naturally leads people to question what that future will look alike. Several scenarios are possible and it seems that all of them will come true to some degree or another, rather than any single one of them coming true alone.

9. CURRENT EFFECT OF FUEL PRICE HIKE

- High inflation rate, rising oil prices will directly affect the overall consumer price index (CPI) directly by raising its energy cost component, which includes the prices of energy-related items, such as household fuels, gas, motor fuels, and electricity [16].
- The rise in the prices of daily use products
- Frequent stock market crash
- Instability in the Indian economy

10. CAUSES OF FUEL PRICE RISE IN INDIA

10.1 Economic Reasons

- The rapid growth of population
- Supply and demand imbalance
- Black marketing
- Taxation
- Deficit financing
- Increase in money supply

10.2 Social Reasons

- Increase in a number of vehicles.
- Use of vehicles even for short distances.
- Huge loss of fuel due to keeping engines on at traffic.
- Poor R&D in the automotive sector.

10.3 Political Reasons

- Rejection of India's call by OPEC for regulating crude prices through a price band.
- The unsolved present issue of payment with Iran, India second crude oil supplier.
- The absence of reforms to regulate the automotive sector.
- Huge tax revenues from the import of crude oil. [17]

10.4 What can we do?

- Start carpooling**.**
- Use public transport.
- Avoid using your car or motorbike for traveling.
- Switch to natural gas like CNG as fuel in cars.
- Buy those cars which give good mileage.

11. WHAT ROLE SHOULD GOVERNMENT PROMOTE?

a. Charge more tax on private vehicles.
b. Charging more tax on private vehicles will help the government to collect more revenue from the people and that can be invested in petroleum products.
c. Increase the number of public transport.
d. If public transportation facilities are available in proper form then the people will more prefer the public transportation facilities and this will avoided more usage of petroleum products.
e. Promote biodiesel.
f. The one and only source is biodiesel which plays the role of petroleum product without harming the nature and it can be available easily.
g. Introduce efficient technologies to extract fuel from nonrenewable resources.

12. CONCLUSION

Petroleum prices are evaporative in the short run because demand and supply are inelastic. This is due to the facts that there is a limited supply of oil and petroleum product which means any disruption to supply will shift the supply curve to the left, resulting in a sharp increase in prices. [18]

In terms of demand, prices are volatile because at present there are no readily violable substitutes to this natural products, so an increase in demand, such as from developing nations [19], will shift the demand curve to the right also causing a sharp increase in price. Petroleum processed in the short run is therefore very sensitive to changes in demand and increased supply.

For example, oil supply may be increased through new extraction technologies or the discovery of new oil fields that will shift the supply curve to the right and reduce oil prices.

Demand may be decreased through the development of "green technology" which is manmade technologies such as hydrogen-fuelled cars, thereby sifting the demand curve to the left and lowering the oil prices. [20]

Therefore, in long, petroleum prices will be less volatile because if oil prices get too high people will use a cheaper substitute, and when prices rise, producers will supply more oil. But until and unless there is no substitute to be used as fuel for vehicles the demand and supply of petroleum will be at equilibrium.

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