

# AN OVERVIEW OF PETROLEUM PRICING: IMPLICATIONS OF IMPORT PARITY PRICING FOR INDIAN ECONOMY

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**Abstract-**This paper studies the implications for implementation of Import parity pricing for Petroleum products in India. The study analysed the impact of hike in crude oil price and its impact on inflation and exchange rate of Indian rupee in two analytical periods 1970-77 and 2002-06 respectively, where import parity pricing regime was in implementation. The study also analysed the inelastic nature of demand for crude oil and the hysteria of exogenous factors and volatility. The findings of the study will certainly contribute to the oil importing countries in their petroleum pricing policy and to reduce the impact of hike in petrol price on common man with a decisive pricing policy.

**Keywords:** Import parity pricing, oil price shocks, exchange rate, CPI inflation, elasticity in oil prices, natural gas pricing

## 1. INTRODUCTION

Energy is the key driver of Economic development. 85\* percent of the energy used in the world today is produced using non-renewable sources. This percentage is forecast to remain the same through 2030, unless something changes drastically such as the widespread enactment of legislation, breakthroughs in energy technology or the development of abundant, inexpensive new energy sources. Non-renewable fuels are also known as fossil fuels because they are the fossilized remains of plants and animals which died up to 300 million years ago and became buried beneath the surface of the earth and the ocean floors. Time, pressure and heat transformed this material into hydrocarbons which we burn to extract energy. Ever since the discovery of crude oil, it has started to fulfill the need in energy sector of energy use. This made the demand for oil inelastic. The situation of inelastic demand generates ample scope for huge profit, as consumers are ready to pay any price. Thus, pricing policy become a toll to maximize the profit .Cartelization in 1960s and 1970s and speculative trading that began in early 1980s are the probable events that might have caused the dynamic changes in international oil market.

### 1.2. Phases of Cartelization of International Crude Oil Market between 1928 and 1972

There is a tendency of oligopoly in oil sector. First cartelization had happened in nineteenth century when the crude oil reserves were found. The seven giant oil companies called seven sisters attempted the cartelization. Later other new discoveries of oil fields in the Middle East and other parts of the world led to formation of Organization of the Petroleum Exporting Countries (OPEC) in 1960's. Setback to the US political hegemony consequent to military failures in Vietnam and Yomkippur war added to monopoly power of OPEC members. The OPEC was actually formed to counter the oil company's cartel, which had been controlling prices since the so-called 1927 Agreement. The Red Line Agreement is the name given to an agreement signed by partners in the Turkish Petroleum Company (TPC) on July 31, 1928. The aim of the agreement was to formalize the corporate structure of TPC and bind all partners to a "self-denial clause" that prohibited any of its shareholders from independently seeking oil interests in the ex-Ottoman territory. It marked the creation of an oil monopoly, or cartel, of immense influence, spanning a vast territory. The cartel preceded easily by three decades the birth of another cartel, the Organization of Petroleum Exporting Countries (OPEC), which was formed in 1960 and 1928 Achnacarry Agreement (Achnacarry served as the meeting place for global petroleum producers in an effort to set production quotas. A document known as the Achnacarry Agreement or "As-Is" Agreement was signed on 17 September 1928) and had achieved a high level of price stability until 1972.

### 1.3. Speculation in Crude Oil Market and Price Fixation from 1983 onwards

Crude-oil futures began trading in New York on March 30, 1983. After the collapse of the OPEC-administered pricing system in 1985, and after a short lived experiment with netback pricing (costs associated with bringing one unit of oil to the marketplace, and all of the revenues from the sale of all the products generated from that same unit), oil-exporting countries adopted a market-linked pricing mechanism first by PEMEX(Mexican state-owned oil monopoly Petroleos Mexicanos) in 1986, it received wide acceptance and by 1988 it became and still is the main

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method for pricing crude oil in international trade. The current reference, or pricing markers, is Brent, WTI, and Oman. The price of petroleum as quoted in news generally refers to the spot price per barrel (159 liters) of either WTI/light crude as traded on the New York Mercantile Exchange (NYMEX) for delivery at Cushing, Oklahoma, or of Brent as traded on the Intercontinental Exchange for delivery at Sullom Voe.

The price of a barrel of oil is highly dependent on both its grade, determined by factors such as its specific gravity or API (American Petroleum Institute) its sulphur content, and its location. Other important benchmarks include Dubai, Tapis, and the OPEC basket. The Energy Information Administration uses the imported refiner acquisition cost, the weighted average cost of all oil imported into the US, as its "world oil price". The price of oil underwent a significant decrease after the record peak of US\$145 it reached in July 2008. On December 23, 2008, WTI crude oil spot price fell to US\$30.28 a barrel, the lowest since the financial crisis of 2007–2010 began, and traded at between US\$35 a barrel and US\$82 a barrel in 2009 . On 31 January 2011, the Brent price hit \$100 a barrel for the first time since October 2008, on concerns about the political unrest in Egypt.

The paper is further divided into five sections. The second section comprises of review of literature on (Import parity pricing) IPP. The third section devoted to petroleum pricing policy in India .The fourth section comprise of data analysis. The fifth section is offers concluding comments.

## 2. LITERATURE REVIEW

**Goeff perr (2005)** assessed an applicability of Import parity pricing which depends on so many variables; its affects are uneven across sectors and it so is difficult to condemn out right or to address via a policy measure in terms of SA competition Act. The study concludes that many factors contribute to the determination of a price charge at import parity, and then factors in turn variables that can and do change overtime For Ex: SA experience since 2000 has seen wide fluctuations in exchange rate that have caused similar variations in import parity price. It has different effects on different sectors. It is difficult to condemn the practice of IPP outright, because it is moving target, it would be difficult to devise a sensible policy instrument to tackle some of the negative effects that have been attributed to IPP.

**Robert E. Marks (1981)** observed that crude oil levy in 1975 and the subsequent introduction of import parity pricing for all Australian produced crude oil in August 1978 together with rises in the world price of oil had the consequence of raising the price paid by the refineries for domestic crude oil over a short period of time from below \$3 per barrel to \$20 per barrel. Australia had been largely protected from the post- 1973 increases in the world price of oil. The study concludes imposition of IPP has resulted in a sharp increase in the relative price of crude oil in Australia since 1978, both because of the rise of previously controlled price of oil to world parity, and because of subsequent increase in the world price of oil. However, the government has allowed crude oil levy on the average price received by Australian oil producers to rise only slowly, with the result that the levy is equivalent to about two-thirds of the total cost to refineries of domestically produced crude oil. In successive-National Wage Cases the government has had some success in convincing the full bench of the arbitration commission that indexation of wages should not always include the direct and indirect effects of the price rise on the CPI, and this discounting, while reducing the real wages level, has perhaps contained the inflation and unemployment which might otherwise have resulted as domestic factors of production competed for shares of the lower national income. The government avowed aims in imposing import parity pricing has been to encourage oil exploration, to encourage conservation of oil, and to encourage development of alternative energy sources. The government has not used the very large revenues generated by the crude oil levy and IPP policy to offset inflationary impact of higher oil prices on the CPI by reducing other taxes or changes while maintains the aggregate position.

**Richard Murgatoyd and Simon Baker (2010)** analysed an economic theory and relevant jurisprudence in an attempt to provide clarity as to the circumstances under which IPP might conceivably reflect excessive pricing. Here it is an attempt where an abuse is found, it may be effectively remedied. The study concluded that although in theory import parity pricing may result from excessive pricing; it is in isolation likely to be a poor indicator of excessive pricing. It is necessary to understand why IPP has resulted or occurred purely as a result of competitive market conditions. In order to advance a theory of harm that a firm is engaged in excessive pricing, it is essential to explain as part of the theory why the firm is not subject competitive pressures and is thus able to charge excessive prices, and indeed demonstrate empirically that price are indeed likely to be excessive .When prices are found to be excessive, substantial hurdles are then likely to be encountered when seeking to remedy such behavior. In certain situations it may simply not be possible to affect the firm's behavior in a way that is not ultimately self defeating and actually enhances customer welfare.

**Shahauddin M. Hossain (2003)** drawn a theoretical and empirical literature which provides a operational frame work in case of Nigeria, the relevance of taxes/subsidies to correct the externalities and to address equities and revenue considerations can be measured with a view to setting prices of petroleum products. Domestic taxes on petroleum products provide a major source of revenue in developing countries, with their share of total revenue

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ranging from 7% to 30%. In countries suffering from revenue shortfall, increasing the taxes and prices of petroleum products is often recommended as a quick measure to boost. The exchange rate used to convert the dollar value of imports in to domestic currency is the interbank exchange market rate, which is market determined. The author concludes through empirical analysis indicates the prices of gasoline (petrol) and diesel should reflect their opportunity costs as measured by the import parity price as well as road user charge to recoup the road damage congestion externality imposed by automobiles. Demand is relatively inelastic; the tax authorities may impose taxes on petrol based on equity and revenue considerations.

**F.H.Meyer (2002-12)** examined the efficiency of variable import levy scheme of the wheat market in South Africa and its economic effects. The South African agricultural sector has experienced long history of state intervention. The study analysed main historical events and deregulatory activities impacting on the wheat to bread value chain. The study with empirical analysis found that between specific ranges of prices (\$167-\$147) the variable import levy did not succeed in disconnecting the domestic prices of affected imports from international prices. For some phases it will be lower than the reference price, the world price will reach an average of approximately \$157/ton.

**Kaushik Rajan Bandyopadhyay (2009)** briefed in his study, pricing of refined petroleum products have gone through various phases beginning from value stock accounting system and import parity pricing and then to retention pricing under Administrated price mechanism (APM) and presently trade parity pricing. Up to 1939, there was no control on the pricing of petroleum products. Between, 1939 to 1948 the oil companies themselves used to pool accounts for major products without intervention of the government. After independence there was a change in pricing of petroleum products. In 1948 a cost plus based formula( import parity) in which additions like ocean freight up to Indian ports, insurance, ocean loss, remuneration, import duty and other levies and changes. The realization of oil companies under this procedure was restricted to import parity price of finished goods plus excise duties/local taxes/dealer margins and agreed marketing margins of each of the refineries. The petroleum industry was deregulated with the intention of shifting to market determined pricing mechanism. Where in practice the deregulation process has been only implemented partially due to restriction on prices imposed by the Government to shield the Indian consumer from oil price volatility especially since 2004. The process of deregulation of petroleum product prices begun in 1998, five sensitive products namely petrol, diesel, domestic LPG, PDS kerosene, ATF (Aviation Turbine Fuel) continued as controlled commodities. Presently trade parity pricing has been in practice for petroleum products for refinery gate as well as retail pricing (recommended by Rangarajan committee) and proposed to review and update the trade parity price every year depending on the relative weights of exports and imports.

### 3. PRICING OF PETROLEUM IN INDIA

Crude oil, both indigenous and imported are refined in to various petroleum products viz., petrol (motor spirit), naphthol, light diesel, aviation fuel, kerosene, high speed diesel, furnace oil, bitumen, waxes etc. The pricing of refined petroleum products have gone through various phases beginning from value stock accounting system and import parity pricing and then to retention pricing under Administrated price mechanism (APM) and presently trade parity pricing. Among the above petroleum pricing systems import parity pricing is said to be one which meets the international product pricing. India had followed the same at two different time periods from 1970-77 and 2002-06 respectively.

#### 3.1 Why did India adopt Import parity pricing? (IPP)

Import parity price or IPP is defined as, “The price that a purchaser pays or can expect to pay for imported goods; thus the c.i.f. import price plus tariff plus transport cost to the purchaser’s location.

Crude oil price is said to be a highly volatile and whose price is influenced by exogenous factors and inelastic in nature. Goods that are elastic tend to have a high correlation between price and demand, which is usually inversely proportional: When prices of a good increase, demand tend to decrease. This relationship makes sense because you’re not going to pay for a good that you don’t need if it becomes too expensive. Inelastic goods, however, are goods that are so essential to consumers that changes in price tend to have a limited effect on supply and demand. Most commodities fall in the inelastic goods category because they’re essential to human existence.

#### 3.2 Formula to Calculate Import parity pricing

$$IPP = (P_{fob} + Tr) * XR (1+T)$$

IPP= Import parity price (LC/mt)

$P_{fob}$  = world (or cheapest city import) market price of the commodity

XR= Exchange rate local currency Vs US\$ (LC/US\$)

LC= Local Currency unit

Mt= Metric ton

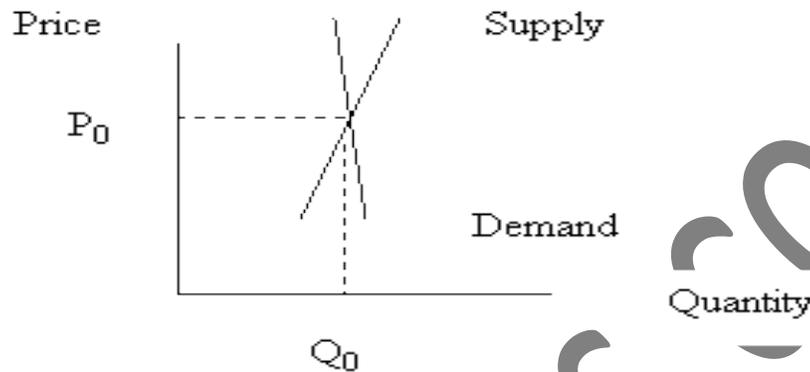
Fob= Free on board i.e. price of the good in the country of origin

CIF= Cost, insurance and freight i.e. price of the good in the country of destination (at the border)

T= Advalorem tariff (in %)

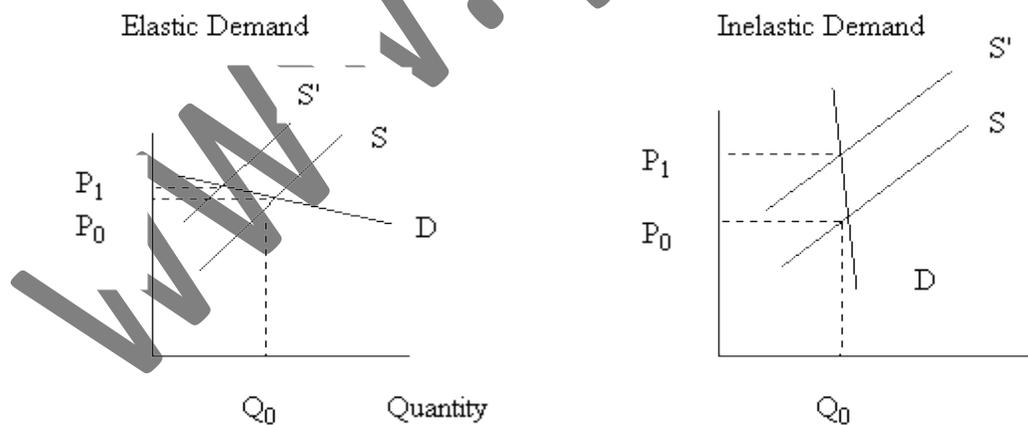
Tr= Transportation costs, port handling etc. (US \$/Mt)

Robert J. Stonebraker, Winthrop University had observed the demand and supply of oil are relatively inelastic in the short run: changes in price have little impact on either the quantity demanded or the quantity supplied. When oil prices rise we spend considerable time and energy complaining but, at least in the short run, spend almost no effort in trying to adjust our habits to consume less. Similarly changes in price do little to spur new supplies in the short run. Exploring for, drilling, and bringing new sources on-line can take many years. Since the quantities demanded and supplied change very little as prices rise and fall, both curves are relatively vertical as shown below:



**Fig. 3.1 Short Run Demand and Supply of Oil**

Because quantities are relatively fixed in the short run, any shifts in demand or supply will cause large changes in prices. For example, suppose that supply falls. The decreased supply creates a temporary shortage that will begin to drive up price. If demand is elastic, only a small increase in price will be needed to get consumers to cut purchases enough to meet the new reduced output. However, if demand is inelastic, it will take a much larger price increase to generate the needed cut in quantity demanded. The graph on the left below illustrates the elastic demand case. The demand curve is relatively flat and the drop in supply (from  $S$  to  $S'$ ) causes only a small increase in price (from  $P_0$  to  $P_1$ ). However, if the demand curve is less elastic or more vertical (as in the graph on the right), the same cut in supply causes a much larger increase in price.



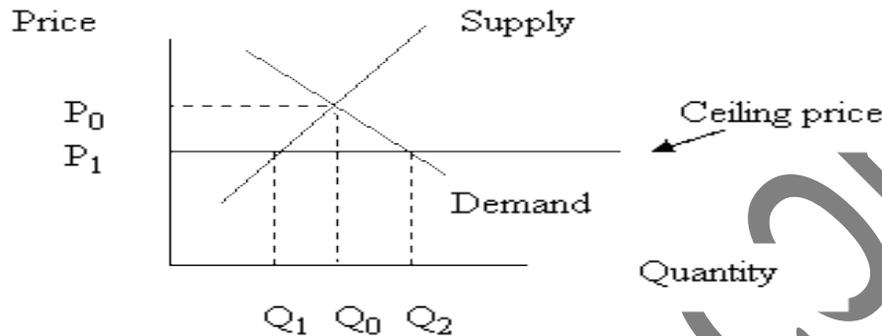
**Fig. 3.2 Elastic and Inelastic Demand for Oil**

We can understand from the graphs that when curves are elastic, shifts in demand and supply because only small changes in price, but when curves are inelastic, those same shifts cause much larger price changes. Apply this to oil markets. For many years members of the Organization of Petroleum Exporting Countries (OPEC) have controlled most of the world's oil market. In the early 1970's, partly reacting to political turmoil in the Mideast, OPEC oil ministers voted to deliberately cut production. As illustrated above, this shifted the supply curve for oil to the left and drove up prices. Because demand was inelastic, the price increase was significant. The higher prices OPEC countries received more than offset the lower sales and their oil revenues rose rapidly. In 1979 a bitter war between

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long-time enemies Iran and Iraq shut down more oil fields and caused additional price increases. Demand and supply are far more elastic in the long run than in the short run. After oil prices rose, firms began shifting to less energy-intensive ways of manufacturing goods and services. Similarly, consumers started to conserve as well.

Stonebraker reiterates that suppose if the government decides to lower gasoline prices by decree and forbids firms from charging any price higher than  $P_1$  in the graph below. In economic jargon,  $P_1$  becomes a ceiling price. Consumers immediately react to the lower price by increasing their quantity demanded from  $Q_0$  to  $Q_2$ . However firms react in the opposite way. Stuck with a lower price they reduce their quantity supplied from  $Q_0$  to  $Q_1$  and a shortage results. The quantity demanded ( $Q_2$ ) now exceeds the quantity supplied ( $Q_1$ ).



**Fig. 3.3 Oil Price Determination and Government Intervention**

Some consumers do get gasoline for a lower price, but others get no gasoline at all. Since output has been cut from  $Q_0$  to  $Q_1$  there is less gasoline to go around. It simply is not profitable to produce as much at the lower price. In a free market consumers would compete for the scarce gasoline by offering higher prices; those willing to pay the most would get the gasoline. However, with a price ceiling in effect, paying higher prices is illegal. Firms and consumers must find a different way to decide who gets the gas and who does not.

With regard to literature available for the volatility in crude oil prices, it is oil derivative market which is responsible for fluctuations in price where the demand for energy is inelastic in the short run and the consumer is ready to pay any price by taking this advantage the oil marketing companies (OMC's) fix the higher prices to maximize the profit at domestic level. At the international arena the oil speculative market traders will speculate the price to take advantage of inelastic nature of energy demand. Sometimes exogenous factors (geo-political events) will create speculation in the oil price or either the speculative investors create artificial disturbances which make oil price volatile. It is the nature of oil derivative traders who takes the advantage of inelastic nature of crude oil prices, speculate the price and transfer the money from the pockets of petro users to speculative gains to the investors. Millions of dollars goes to the pockets of speculative traders and add up as inflation in the respective countries.

Based on the recommendations of the Kirit Parikh Committee, the Government of India (GOI) on 25 June, 2010 announced the full deregulation of the prices of two crucial petroleum products: petrol and diesel. Henceforth, prices of these two products will be determined by the unfettered play of market forces and government "subsidies" on these products, which worsen the fiscal situation, will be completely removed. Government control over the determination of the prices of these key commodities was willingly ceded to the magic of the market, presumably to "rationalize" prices and to wipe away losses of state-run Oil Market Companies (OMCs) to the tune of ₹ 22,000 crores. There were strident complaints that this policy change was not enough: prices of kerosene and liquefied petroleum gas (LPG) were still minimally under government control and therefore even after the deregulation move, the losses of the OMCs on account of these two petroleum products would stand at ₹ 53,000 crores for fiscal 2011. The first crucial victory of this struggle came in 2002 when the government dismantled the administrative pricing mechanism (APM). This move reduced the "subsidies" on petrol and diesel but the government decided to continue to "subsidize" kerosene and LPG. Accordingly, in 2009 the next committee was constituted to examine the same set of issues, i.e., the Kirit Parikh Committee. In its report submitted in February 2010, the Kirit Parikh Committee finally recommended what the capitalist sector had been telling GOI all these years. It recommended full liberalization of petrol and diesel prices.

In case of India nearly 39% of the subsidies given by the government go to oil and gas payments. Oil price fluctuation affect automobiles and transportations, Agro based industries, oil industry, Household and Fast Moving Consumer Goods etc. so, almost all the sectors of Indian economy is likely to feel the impact as inflation will rise and rupee value against dollar will fall. In the physical terms the quantum of crude oil imports of India rose up by

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just 3%, where as in rupee terms it rose up by 49% during 2010-11 to 2011-12. It implies that even if we keep the demand for oil constant, the price which we have to pay phenomenally increases. The rate of increase in the oil import bill is far greater than the rate of increase in physical quantity of oil import. This drains away the precious financial resource of India which can otherwise be utilized for raising the welfare of the people.

The economic times mentioned in its column that India could seek diversification for its crude oil imports and build up on its reserves to tackle risk associated with geo-political instability: The unrest in Iraq threatens to aggravate oil supply shocks in a market already faced with disruptions owing to domestic turmoil in other petro countries viz. Libya and Nigeria. Concerns of potential lower oil supplies from key producer Iraq has pushed up global crude oil prices to 9 month highs in a short span of a week since the crisis erupted. As the unrest in Iraq rages, the risk of a spillover of the turmoil into neighboring petro states has emerged, deepening fears of potential oil supply losses and concerns of long-term supplies from these regions. Given India's vulnerability to a rise in global crude oil prices, considering that almost 75-80% of our consumption is met through imports, the sudden and rather steep rise in the same has the potential to dislodge the envisaged economic recovery of the country in the current fiscal. It has the potential to: - Widen the CAD and put pressure on exchange rate - Hamper the fiscal consolidation intent of the government - Increase inflation at a time when the news of a sub-normal monsoon has put pressure on food prices - Delay any action on interest rates by the RBI All these possibilities could come in the way of the revival of economic growth in the country which is expected given the early moves made by the government to reinvigorate the economy and put investment on a fast track. In the context of the escalating violence in key oil producer Iraq, the prevailing fundamentals of the oil markets and implications for oil import dependant India has been looked into here. The times of India mentioned in its column that India's crude oil basket is now worth \$111.25 a barrel, translating into an import cost of Rs 6,688 a barrel. This could go to Rs 7,200 a barrel if crude touches \$120. It is difficult to forecast the extent of the diesel price hike, but keep in mind that the losses on diesel will raise to Rs 5 in a \$120 scenario. Hindustan times observed, Oil marketing companies like Indian Oil, BPCL and HPCL and upstream majors such as ONGC will be affected due to unrest in Iraq. The former will not be able to pass on the higher crude cost while the latter's share of the subsidy burden will increase. ONGC's subsidy burden in FY14 was Rs 56,384 crore, or one-third, of its revenues. Stand alone refiners such as RIL or MRPL may not be affected so much as they sell petrol or diesel at international rates to Indian OMCs which will bear the burden.

Profit through price increase in pricing is difficult, considering increase in input pricing the firms justify pricing. In trade parity pricing without any justification a firm can hike the price, by simply quoting the international price increase. The domestic economy may remain static but the price increase, because of trade parity pricing. There must be justification while taxing on sensitive products like oil. Normative economics says that the essential commodities and services should not be used as a source of public revenue. The basis behind Import parity pricing is Opportunity cost, if domestic supply is not there we must import. Therefore, international price is charged. Oil is brought to India as a raw material in the refineries it is converted into final product. About 109 by products been generated in the refining process. The price of the final product in some other country cannot be used in computing the oil price like Import Parity Pricing (IPP). In the case of oil pricing in India the refining cost is around ₹20/- the retail price is around ₹75/-. The tax and profit margin works out to 350%. As a positive aspect of trade parity pricing, higher profit may attract investors. For every dollar dip in crude oil prices, petrol prices come down by 33 paise a litre. Similarly, for every depreciating Indian rupee against the US dollar, petrol prices go up by 77 paise a litre.

The government can follow Singapore model of importing crude, refining it to generate surplus final petroleum products and export it to other countries. This would generate demand for Indian rupee and Indian currency value can appreciate. If rupee is used as a payment medium in oil trading by India she can reduce trade deficit. Instead of buying oil futures and contracts in speculative market if India goes for the country where oil originates and purchases, can reduce the import cost. Even though the OMC's are charging international price for oil (IPP) is still claims they are under recoveries and the Government of India given subsidies too. The pricing mechanism itself is a flaw, which affect the interest of common man. Since 24% of the crude oil demand met with the domestic sources, it is injustice to impose

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International price or Import parity price. India herself exporting few of petroleum products and it's by products, if it is diverted to domestic use, it can serve the interest of common man. The ongoing debate on KG basin LNG exploration, where Indian government leased it to Reliance Company, the resource found in Indian soil the Government should stop pricing LNG on the basis of IPP by Reliance.

With regard to gas pricing Delhi Chief Minister had ordered registration of FIRs against Reliance Industries Ltd (RIL) chairman Mukesh Ambani, Petroleum Minister Veerappa Moily and former Petroleum Minister Murali Deora for conspiring benefits RIL leading to higher prices of Natural gas. Where the cost of production of one unit of gas was less than \$1, but the RIL got the contract of 17 years for gas production, it forced govt to revise the rate \$2.3 per unit in 2010. It was revised to \$4 and they have planned to re-revise the rate to \$8 on April 1, 2014. He also opined revised price of natural gas will lead to further inflation. When the gas price goes up, this will lead to costly transportation and hike in prices of every commodity. Power tariff will go up; fertilizers will become costlier which lead to steep hike in prices of food items. In a complaint he cited where reliance supposed to supply 80 million units of gas, but only 18 percent of it being supplied. They have created fake crisis of natural gas in the country so that they could black mail the government to revise the rates. A company named NIKO which is partner of Reliance in gas basins is selling natural gas to the neighboring country of Bangladesh at \$2.32 per unit. How it is possible that Reliance's rates are much higher than its partners? (Source: Deccan Herald, Bangalore Feb 12, 2014).<sup>(8)</sup>

### **Why did the government and oil marketing companies adopt Import parity pricing model for petrol, diesel and Natural gas pricing?**

It is observed that in the short run the demand for energy products are inelastic, taxes from energy usage by the consumers is the one of the main source of revenue. Even though there are many pricing methods like marginal pricing, cost-plus pricing, skimming pricing etc. because IPP is beneficial for the Government, oil companies and speculative traders i.e. the demand for energy in the short run not going to change, neither supply disruptions nor rigidity in supply or change in demand. The infrastructure for oil drilling and refining is the same it does not bring a change in price, only the price is influenced by exogenous factors or any of the events across the globe will be treated as a cause for the price change. As the supply of crude oil comes or it is in the hands of few companies that are oligopolistic in nature where companies cite an international event (geo-political) is a cause for price hike. Sometimes domestic events will attribute for price hike like exchange rate volatility and domestic crisis. In case of India's petroleum pricing policy trade parity pricing is in implementation at present (according to Rangarajan committee recommendations) trade parity pricing consist of (80:20) format IPP and export pricing respectively.

India is solely crude import country 80% of energy needs fulfilled by imports only which eats up the majority of export earning of the country. The pricing mechanism is allowing an import linked price at the refinery gate on the sale of petro products. The IPP pricing mechanism consists of expenses like custom duty, insurance, ocean freight etc which are not incurred but are reimbursed to the refineries. So, it is beneficial for government in form of tax revenue, beneficial to the OMC's as subsidy and huge dividend to oil speculators. The CAG (Comptroller and Auditor General of India) have found, the present pricing mechanism benefited Oil marketing companies by Rs 50,513 crore during the five year period of 2007-12. The pricing mechanism allowing an import-linked price at the refinery gate on the sale of regulated products — LPG, kerosene, diesel and petrol — is beneficial to the oil-marketing companies (OMCs), the federal auditor said and pointed out how the faulty pricing mechanism has acted as a source benefit to private refiners (Reliance Industries Limited and Essar Oil Limited), which was estimated at Rs 667 crore on high speed diesel alone in one year(2011-12). The pricing mechanism, including notional import related expenses like customs duty, insurance, ocean freight etc, which are not incurred but are reimbursed to the refineries works out to Rs 50,513 crore for the period 2007-12. Even allowing for import-related expenses incurred by the refineries on import of crude, the oil marketing companies ought to have benefited at least by Rs.26,626 crore through the pricing methodology of products. (Source: Times of India, Bangalore July 19, 2014).

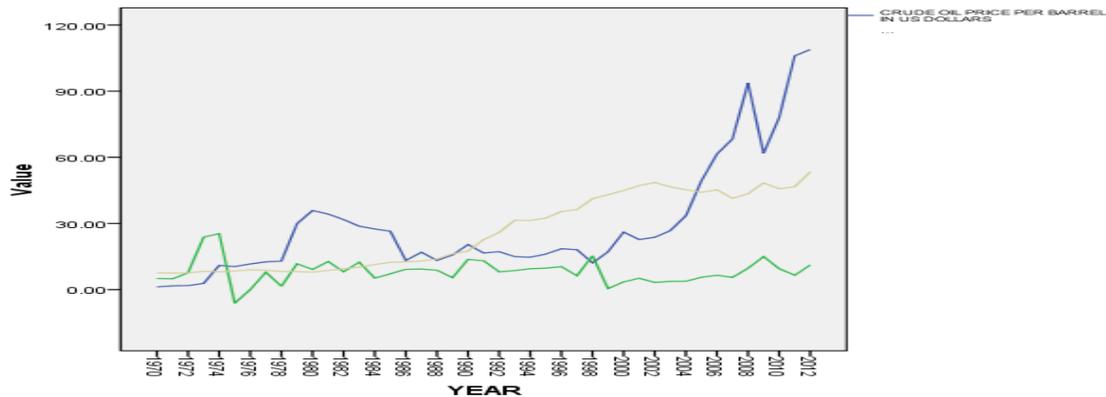
## **4. DATA ANALYSIS**

The data on oil prices were downloaded from knomea.com. Data related to exchange rate was downloaded from RBI Publication (Hand book of Indian statistics 2012-13), CPI inflation from inflation.eu. The variables that we use are the world crude oil prices in Us Dollars, CPI inflation in India and exchange rate of rupee per \$1 Us Dollar. Time series data from 1970 to 2012 are used for all the variables. The time series data has drawn in the form of diagrams to interpret the impact of IPP in the two analytical periods and to observe the volatility of three selected variables.

### **Relationship between Historic crude oil prices, Inflation (CPI) and Exchange rate or Rupee Vs US dollar**

There is non-linear relationship between the crude prices, inflation and exchange rate. The fluctuations in crude price have found to be commendable influence on consumer price inflation and exchange rate. Price for energy is found to be in elastic in nature where consumer is ready to pay any price. Even the government bears the burden in

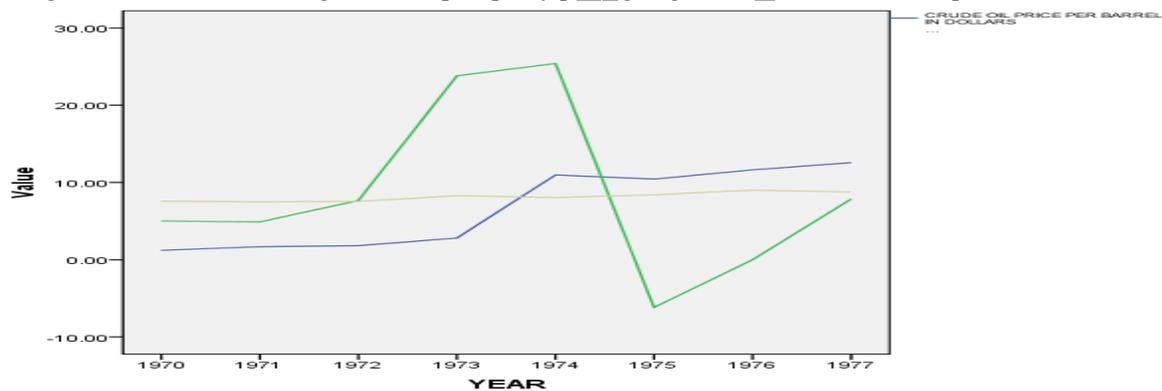
the form of subsidy, as energy is a basic infrastructure for economic development. Fluctuations in the price of crude prices have cascading effects on the performance of an overall economy.



**Fig. 4.1 Crude Oil Price per Barrel in US Dollars (Futures price WTI), CPI Inflation and Exchange Rate**

From the above diagram it is clear that there is a non linear relationship between Crude oil prices, Inflation (CPI) and Exchange rate. The study period can be divided in to two different analytical periods 1970-77 and 2002 to 2006 where Import parity pricing had in practice in pricing petroleum products.

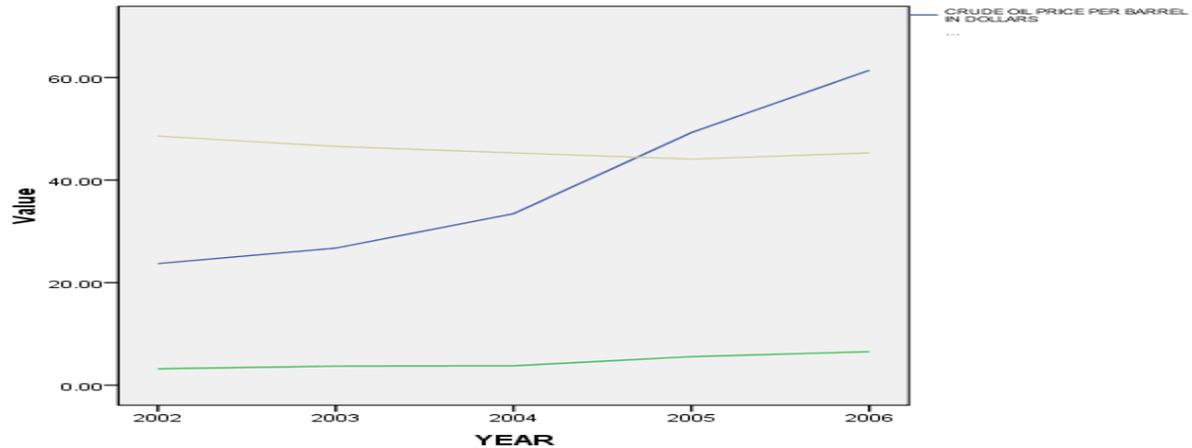
**Analytical period I (1970-77):** The decade witnessed a severe political and geopolitical uncertainties and wars like yomkippur war in 1973, Iran oil embargo and emergency situation in India. To counter the situation may be the popular governments would have gone for import parity pricing to guard the state run oil companies.



**Fig. 4.2 Crude Oil Price per Barrel in US Dollars (Futures Price WTI), CPI Inflation and Exchange Rate**

The above diagram shows time period where Import parity pricing was in practice in India i.e. from 1970-77. Where the value of crude was rising at a marginal rate till 1973 and there was a sudden spike due to oil embargo the rise in price was continued till 1977 with moderate fluctuations. Since there was an oil embargo the Indian government adopted IPP to put more burden on the users of petroleum products like adding fuel to fire. So for that might be the price in 1973 was \$1.21 per barrel and it plummeted to \$12.57 in 1977. The Consumer price index (CPI) inflation was also had the implications of both Oil embargo and application of IPP, in 1973 and 1974 it reached to a peak of 23.81% and 25.4 % respectively. In 1975 CPI index went in negative -6.18% and further in 1976 became '0'. In 1977 it reached to 7.86%. As the Exchange rate of rupee for dollar is concerned it raised marginally in the decade from 1970-77.

**Analytical period II (2002-06):** From 2002-06 was also witnessed conflicts and geo political events which made the crude prices to fluctuate like invasion of Iraq by US in 2003, Hurricane Katrina devastated North America causing huge economic loss at the international level and change of governments in India with populist policy.



**Fig. 4.3 Crude Oil Price per Barrel in US Dollars (Futures Price WTI), CPI Inflation and Exchange Rate**

In the above diagram crude oil price shows increasing trend in 2002 it was \$ 23 per barrel there was a consistent rise in prices till 2004 and in 2005 and 2006 oil price spiked to \$49 and \$61 dollars respectively. Whereas CPI inflation is concerned there was a marginal rise over the period 2002-06, not much to note. To support petroleum pricing policy that is IPP, when the new government came to power in 2004 it given the statement and as its policy to shield the burden of high crude prices on aam aadmi i.e. populist policy. As exchange rate of rupee Vs dollar is concerned it was very high about ₹ 48.59 a dollar in 2002 in the consequent years it reduced marginally till 2005 and it was ₹ 44.1 per dollar in 2005. In the next year it spiked further to ₹ 45.30 per dollar in 2006. From the past few quarters it is trading around ₹ 66-68 per dollar. It is clear from the analysis that the successive governments imposing IPP to raise more revenue on the inelastic commodity and giving the reasons as (oil marketing companies) OMC's under recoveries which is not exists in reality.

## CONCLUSION

The objective of this paper is to study the implications of implementation of Import parity pricing in Petroleum products. The study analysed the impact of hike in crude oil price on inflation and exchange rate of Indian rupee in two analytical periods 1970-77 and 2002-06 respectively, where import parity pricing regime was in implementation. The study finds in the above two analytical periods there was a sudden spike in the prices of crude oil where in 1973 Iran oil embargo was another international political event which led to increase in crude prices. In the second analytical period (2002-06) too it is observed there was a huge rise in crude prices. In response to the same the CPI inflation and Exchange rate of rupee against dollar had a commendable impact. From above two analytical periods of Import parity pricing implementation, it is observed that first analytical period ended with ruling party losing power in 1977. This time around the same for the General elections 2014 for the congress government it repeated again. It is lesson to be learned by politician of the national parties who lost ruling power because of petroleum pricing policy and those who form the government should take it as a caution note. With regard to the elasticity in oil prices, the demand and supply of oil are relatively inelastic in the short run: changes in price have little impact on either the quantity demanded or the quantity supplied. When oil prices rise we spend considerable time and energy complaining but, at least in the short run, spend almost no effort in trying to adjust our habits to consume less. Similarly changes in price do little to spur new supplies in the short run. Exploring for, drilling, and bringing new sources on-line can take many years. Since the quantities demanded and supplied change very little as prices rise and fall, the exogenous factors responsible for oil price volatility. The recent militant crisis in Iraq has widened the CAD as India's vulnerability to hike in crude prices which imports 75 to 80 percent of oil for consumption will have cascading effect on the economy in the form of inflation. The CAG report on Petroleum product pricing which is tabled in the parliament recently asserts the present pricing mechanism benefited the OMC's by Rs 50,513 crores during the five year period of 2007-12.

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The pricing mechanism allowing an import-linked price at the refinery gate on the sale of regulated products — LPG, kerosene, diesel and petrol — is beneficial to the oil-marketing companies (OMCs) not to the petro consumer. It is observed that oil derivative market which is responsible for fluctuations in price where the demand for energy is inelastic in the short run and the consumer is ready to pay any price by taking this advantage the oil marketing companies (OMC's) fix the higher prices to maximize the profit at domestic level. At the international arena the oil speculative market traders will speculate the price to take advantage of inelastic nature of energy demand. Sometimes exogenous factors (geo-political events) will create speculation in the oil price or either the speculative investors create artificial disturbances which make oil price volatile. It is the nature of oil derivative traders who takes the advantage of inelastic nature of crude oil prices, speculate the price and transfer the money from the pockets of petro users to speculative gains to the investors. Millions of dollars goes to the pockets of speculative traders and add up as inflation in the respective countries.

It is also observed that whenever there is a fall in International crude oil prices the Ministry of petroleum and Natural gas and an Oil marketing company does not regulate the diesel and Kerosene, LPG prices expect petrol partially. Here too there is a exploitation of petro user by the concerned Ministry and Oil marketing companies crores of rupees goes to the pockets of (OMCs) and the Government by not regulating the price according to the fall in prices of crude oil, and whenever there is a increase in international crude oil price there will be a sudden hike in prices of petrol and diesel expected without any delay.

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