International Journal of Research in Economics and Social Sciences (IJRESS)
Available online at: http://euroasiapub.org
Vol. 7 Issue 6, June- 2017, pp. 191~204
ISSN(o): 2249-7382 | Impact Factor: 6.939 | Thomson Reuters Researcher ID: L-5236-2015

Indian Petro-Retail Market Structure: Comparison with Overseas Petro-Retail Market Structure

Mr. Rahul Sharma[1],
Lecturer, College of Management and Economic Studies
University of Petroleum and Energy Studies
Energy Acres, P.O Bidholi Via Prem Nagar, Dehradun, U.K. (India) 248007

Dr. R Jayaraj[2],
Associate Professor, College of Management and Economic Studies
University of Petroleum and Energy Studies
Energy Acres, P.O Bidholi Via Prem Nagar, Dehradun, U.K. (India) 248007

Dr. Arvind Kumar Jain[3]
Associate Professor, College of Management and Economic Studies
University of Petroleum and Energy Studies
Energy Acres, P.O Bidholi Via Prem Nagar, Dehradun, U.K. (India) 248007

Abstract

Efficient and reliable energy supplies are a pre-condition for accelerating the economic growth of a country's economy. Petroleum being an important energy source in the overall energy basket, an efficient and reliable petro-retail market plays an important role in ensuring energy security. In overseas countries the petro-retail market is an open one, where free entry is ensured for any company or independent retailer. Some of the oversea markets have been following the free market structure policy since the very beginning, whereas some have adopted the deregulation strategy for ensuring competition among the players. In Indian scenario the market structure of petro-retail sector is vertically integrated with only few companies controlling the market share. This phenomenon has led to inadequate competition and uncompetitive prices over last five decades. Though the Government of India has attempted the price deregulation from 2002 onwards in a phased manner, it has failed to yield the desired results in terms of both competition as well as prices of transport fuel. Moreover the cartelization and subsidy to the public sector oil marketing companies has resulted the business of private sector petro-retail players unviable. Lately the stakeholder of the petro-retail sector as well as the government has been realizing the need for a market structure deregulation to ensure reaping the benefit of price deregulation. The present study not only aims at finding the present challenges prevailing in the Indian petro-retail market due to lack of competition but also explores the petro-retail market structure of India as well as various countries. The study suggests a deregulated Indian petro-retail market structure which may prove instrumental in addressing the identified present challenges of the sector.

Key Words: Competition, Vertical Integration, Market Structure, Deregulation

Introduction

India is the fourth largest consumer of energy in the world. The demand for energy in India is expected to grow in major sectors like Transportation, Aviation, Power etc. in the coming years. Oil accounts 36% of India's energy consumption. The transport sector is a major consumer of energy and accounts 50% of the total oil consumption in the form of high speed diesel and motor spirit. Increase in production of motor spirit, high speed diesel is due to increase in demand from automotive and transport sector. Though the demand of petroleum products is projected to increase at an annual rate of 4.7%, the current demand of POL in the country is 147.98 MMTPA, which is

projected to grow up to 186.21 MMTPA by 2016-17 in base case projections of XII Plan (GoI, 2013). To meet this demand Indian refining industry has done exceedingly well in establishing itself as a major player globally. India is emerging as a refinery hub and refining capacity exceeds the demand. The last decade has seen a tremendous growth in the refining sector. The country's refining capacity has increased from a modest 62 Million Metric Tonnes Per Annum (MMTPA) in 1998 to 215.066 MMTPA at present, comprising of 22 refineries - 17 under Public Sector, 3 under private sector and 2 in Joint Venture (JV). During 2011-12, two new JV refineries of 6 MMTPA and 15 MMTPA were commissioned in Bina, Madhya Pradesh and Bathinda, Punjab (MoPNG, 2014).The Indian refining capacity is more than its domestic demand. In 2012 the refining capacity of India is around 5.1 Million Barrel Per Day (MB/D) whereas the demand for petroleum products is around 3.5 Million Barrel Per Day (MB/D). Although an exporter of refined petroleum product, India still depends heavily on imports of crude oil. This is due to high rise in petroleum product consumption in India's Domestic market and relatively flat domestic crude oil production. For India to sustain the number one position of refined petroleum product exporter, constant and secure supply of crude oil through imports is essential (Khan, 2012).

India's publicly-owned OMCs i.e. Indian Oil Corporation Ltd. (IOCL), Hindustan Petroleum Corporation Ltd. (HPCL) & Bharat Petroleum Corporation (BPCL) are the dominant players in the country's downstream petroleum sector both in retail and (to a lesser extent) refining. In refining publicly-owned OMCs together account for over 50% of domestic refining market share and Reliance (RIL) cover around 32%, followed by Essar with 6% market share of total refining market share and about 98% of operational retail (Clarke, 2010).

Table 1. Major downstream players

	IOCL	HPCL	BPCL	RIL	Essar	M'lore	Chennai
Refining (mb/d)	1.3	0.86	0.7	1.24	0.4	0.2	0.19
Retail outlets	16000	12000	5000	1400	1400	0	0

As shown in Table 1, the five key OMCs contribute to the maximum in the overall share of Indian refining production and retail, whereas the other's contribution is small. These exclude two other small publicly-owned corporations namely Mangalore Refinery and Petrochemicals Corporation Limited (MRPL) which is Oil and Natural Gas Corporation (ONGC)'s downstream subsidiary. It operates a single (although quite large), integrated refinery and petrochemicals plant in Mangalore. Chennai Petroleum Corporation Limited (CPCL) is a subsidiary of IOCL, and operates two small refineries in Tamil Nadu State, as well as small petroleum product marketing operations in Southern India.

It may be stressed that, despite price controls, RIL and Essar are able to supply Indian markets (either domestic retail markets or OMCs' established base of customers for industrial fuels and lubricants) by selling refined products in wholesale to OMCs from the refinery gate. Private-sector refiners can therefore freely supply the Indian auto fuels retail market through OMCs while gaining market-based refining margins and without under-recovery (Clarke, 2010). The refineries of India, produce various petroleum products namely petrol, diesel, LPG, Naphtha, ATF, Kerosene etc. and further distributed by OMC's thus various retail supply chains.

Present petro-retail market structure in India:

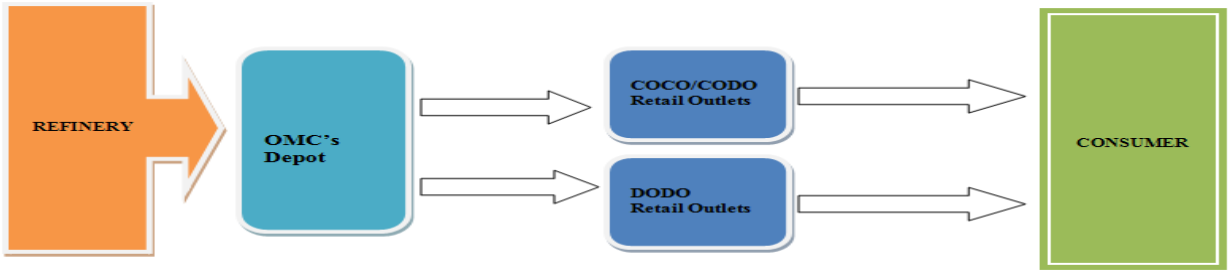
In order to provide commercial freedom to the OMC's, it was decided that the OMC's should decide their own policy and procedure for operating retail outlets (Singh M. , 2013). OMC's in India uses three broad category of petrol retail model (IIM, 2007) as discussed below:

A. Company Owned Company Operated (COCO)/Company Owned Dealer Operated (CODO): This is a common model, as the company invests in creating the RO and hands over operations to a dealer who manages day to day operations. The company pays to the dealer a commission on sale of products. The company also recovers a license fee towards use of its facilities by dealer. Such outlets are commonly called 'A' sites by oil companies in India. In this model, the company essentially continues to maintain control over the site due to ownership of assets and hence a comfort with respect to its market position. The dealership can be terminated if circumstance so warrant and company can take over operations either by itself in a COCO/CODO model or award dealership to some other dealer.

B. Dealer Owned Dealer Operated (DODO): This is yet another model for retail outlet and was quite common a few decades ago. In this type of outlets dealer owns the site and develops all facilities such as building, fencing etc. The oil company provides oil storage and dispensing facilities free of charge (a deposit may be taken by oil companies from dealer towards this investment). Dealer gets paid a commission for sale of oil company's products. These are also known as 'B' sites in India.

In the above all three types of retail chains the oil companies decide the price of the petroleum products and dealer is compensated on the basis of commission which is fixed by either government or oil company. With reference to the supply arrangements dealers have no rights to choose the particular supplier. It is mandatory for them to sell the particular branded or unbranded fuel of the company whose license or franchise it has taken. The three state-owned OMC's increase or decrease the price of petroleum product under consideration in tandem, which turn may be termed as a very serious evidence of anti-competitive practices. This in turn results in non-consistency in petrol price changes in comparison to the international crude prices (Dutta, 2013). Also, the public sector oil companies is trying to create a barrier by blocking the sites and being reckless in their retail expansion to guard their monopolistic grip on petrol pumps (Prasad, 2013). Such onerous conditionalities (criteria Rs 2,000 Cr) effectively nips in the bud any lateral entry into oil industry. The existing unlike the overseas market retail sales policy of oil products is effectively entirely ring-fenced for oil companies. There is a complete absence of a policy for independent retailers in India. Internationally the opening up and reform of petro-retailing has resulted into moderate prices and improvement of services at oil outlets (Mishra, 2006).

The present market structure of petroleum retail sector of India may be shown as in figure (Fig.1) below:



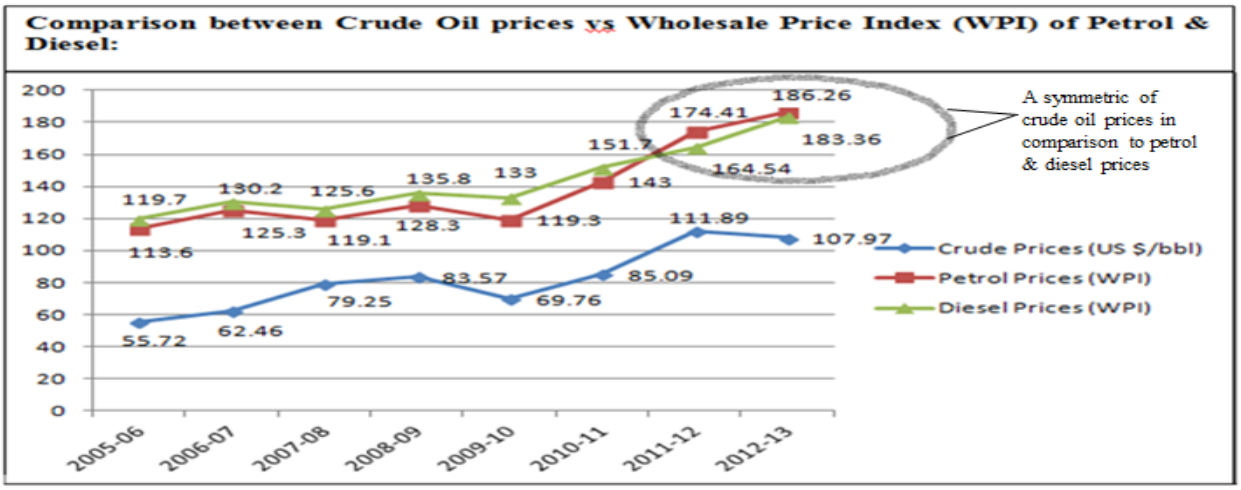
Source: (Sharma, Jain, & Roy, 2013) Figure 1

In India all the OMC's are vertically integrated. Hence, they purchase the oil from their respective refinery and sell it through their respective retail model. OMC's directly sell to the large

buyers from the refinery. OMC's also purchase oil from the standalone refinery and sell it through their networks. Operational wise there is no difference in COCO/CODO or DODO. COCO/CODO or DODO sell the petrol/diesel of their respective OMC's on which they get commission. Since the DODO are under a legal obligations to purchase petroleum products from their respective OMC's. They cannot purchase oil from any other oil company. The present market structure of Indian petro-retail market is oligopolistic in nature due to which there is no price competition among the oil companies which ultimately impact the retailers as well the customers (Sharma, Jain, & Roy, 2013). The market is found to be oligopolistic in which there is existence of market power with some firms in the industry (Bello, Sepiriti, & Letete, 2009).

Due to this oligopolistic integrated and coordinated decision making across various geographically distributed refinery manufacturing and storage sites offer an additional challenge to refinery operations optimization (Singh M. , 2013) whereas if we talk about the Indian standalone refineries they did not have exclusive retail outlets. They depended on the state owned OMC's to sell their products (Murali, 2013). The demand for motor gasoline, HSD, Kerosene, LPG and ATF is expected to grow at a very rapid rate during the forecast period. There is a need for increased emphasis on investment in secondary conversion process (Rao & Parikh, 1996). But it is not viable for integrated refiners to invest on secondary processing unit as the refineries are very costly in term of size and investment (Riboldazzi, 2010). So, to tackle up the future demand of petroleum products we need a strong competition in refining as well as retail sector because of their interconnectivity which policymakers felt that this would only be possible if the petroleum sector is fully liberalized to attract substantial foreign and domestic investment (Singh M. , 2013).

As per (CCI, 2009) a major entry barrier into oil refining is lack of competition in major markets for refined products as only three large public sector companies operate in this market and for all practical purposes, they set the same price, even for the de-controlled fuels like petrol and aviation turbine fuel (ATF) (Ghosh & Prasad, 2012). On 26 June 2010, the prices of petrol are market determined both at the refinery gate and retail level and partial deregulation on diesel prices. Now the prices must be determined on market level, but there is no consistency in petrol and diesel prices when compared with the international crude prices due to anti-competitive practices of state-owned Oil Marketing Companies (OMC's) increasing or decreasing the price of petroleum products in tandem (Dutta, 2013). The market prices of petrol and diesel in India is not a reflecting international crude prices.



Source: Indian Petroleum & Natural Gas Statistics 2012-13 Figure 2

The figure (Fig 2) depicts the international crude oil prices and the petrol and diesel prices in India over last decades. It can be observed that though the prices of petrol and diesel has been deregulated

from 2010 onwards leading to a market determined pricing regime, the decrease in crude oil prices have not lead to a corresponding reduction in motor fuels in India. Hence, there is no symmetric relationship between crude oil price and prices of petrol &diesel after the deregulation of prices which indicates that these OMC's are using similar cost of distribution and the same margin to determine the price to charge the dealer. This is very serious evidence of anti-competitive practice.

The recent deregulation initiatives by the government of India has aimed at making the prices of petrol completely deregulated i.e. market determined and the prices of diesel being partially deregulated. This policy initiative has been aimed at providing opportunity to the private players to compete on prices against this public sector. But the public sector OMCs are trying to create a barrier by blocking the sites to guard their monopolistic grip on petrol pumps, by setting up pumps at 16,000 sites which would entail a total investment of around Rs 6,000 crore. Around 16,000 retail outlets of petrol pumps which are partially not operating because of the abnormality in the market place (Prasad, 2013). Private players have far that before the decontrol of fuel prices is implemented they might wash out from the market (Jai & Thakkar, 2013). The criteria of investment 20,000 million in exploration or refining or pipeline or terminals act as an entry barrier and restrict small players from entering the market (P & Sahay, 2003).

The pricing of petroleum products is important because more than 75 per cent of India's consumption of crude oil is based on imported products, and the world market price of crude is highly volatile. The present petroleum products pricing policy of the OMCs threatens the healthy development of petro-retail sector and growing burden of under-recoveries, which reached an all-time high of Rs.1,38,541 crore in 2011-12, which put stress on government finance due to subsidies provided on it (Parikh, 2013). Oil companies dragging international prices into domestic pricing structure whereas under-recovery is not equal to loss for the oil companies. Oil companies follow the pricing policy that is unfavorable to consumers (Srinivasan, 2012). As the major share of the Indian petro-retail market structure is in the hand of the public owned OMCs which makes it concentrated market and according to (Singh & Zhu, 2006) the concentrated markets have prices higher than competitive markets. High prices may be sustained by oligopolistic desire to mislead their rivals in a price war, a firm cuts its price not to punish its competitor but simply to regain market share (Maskin & Tirole, 1988).

The collusive pricing policy of the oil companies is an anti-competitive practice and also come under the radar of the competition commission in the past (Srinivasan, What goes down will surely go up, 2012) as the limited number of players in this sector working as a leverage for these companies(Attri & Pahwa, 2012). Due to absence of level playing field, high real estate prices, multiple approvals & huge investments make not viable for private players to compete in the market (Thangapandian, 2012). Due to not viable opportunities in the domestic market the private sectors oil companies nearly half (80 million tons) of their output exported outside the India (Gopalan, 2012).The standalone entities/refineries processing petrol, diesel and LPG, but did not have exclusive retail outlets for selling of their products they have to dependent on the state oil marketing companies (Murali, 2013). They needed strong marketing support to survive (Gopalan, 2012).

The public sector oil marketing companies have been claiming in their literature that all their activities are focused towards exhibiting certain brand values for which they are known or aspire to be known in the market place. Despite these efforts there is a very low level of brand awareness and loyalty exhibited by the customers which indicates that the level of association of the customers with these oil marketing companies might not be as strong as expected by the companies so that they cannot enjoy highest degree of brand loyalty exhibited by the customers (Attri R. , 2012). This is due to indifference exhibited by fuel consumers while making choice amongst these three brands to refuel their vehicles (Attri R. , 2011) which ultimately results in huge drop in the demand of branded fuel of oil marketing companies and they have to decrease the distribution and production of branded fuel (Pathak, 2013). The Lack of switching costs gives no reason to consumer for stay with one

particular brand, also consumer prefers to patronize an outlet that is easily accessible either near his residence or in route his place of work. It is consumer's relationship with dealer or his staff that determines the level of satisfaction (Attri R. , 2012) whereas public sector OMCs are doing collusive pricing by increase or decrease the price of petrol in tandem, which in turn is a very serious evidence of anti-competitive practices. This in turn results in non-consistency in petrol price changes in when comparison to the international crude prices (Dutta, 2013). Customer is not happy due to one –sided bargaining power. OMC's increases or decrease the prices of petrol and diesel are made on an arcane concept called under-recovery (it a difference between international and domestic retail prices of petrol/diesel), a clever invention by the oil companies that drags international prices into domestic pricing structure. Under-recovery is not the losses of the oil companies because they do not import petrol/diesel (Srinivasan, A one-sided bargain that hurts, 2012). (Thangapandian, 2012) stated during his presentation in "Fuel Retailing 2012" conference that there is absence of level playing field in Indian petr-retail sector. Also, stated that retail outlets are not offering high levels of customer services.

Whereas the overseas petro-retail market is opened, where free entry is provided for every company or individual retailers who are not in the business of refinery. In USA, 81% of refiners' sales are done by independent retailers. In overseas market we find OMC's, Individual/Independent retailers and large chain retailers (7-Eleven, Walmart, Road Ranger etc.) they all compete with each other on prices and services provided to the customer (Karrenbrock, 1991).

In comparison to Indian scenario, the global oil market has made itself adoptive to the needs of time and reaped the benefit. There have been various success stories across globe. A few countries and their respective retail strategies are discussed as below:

Global Petro-retail market structure:

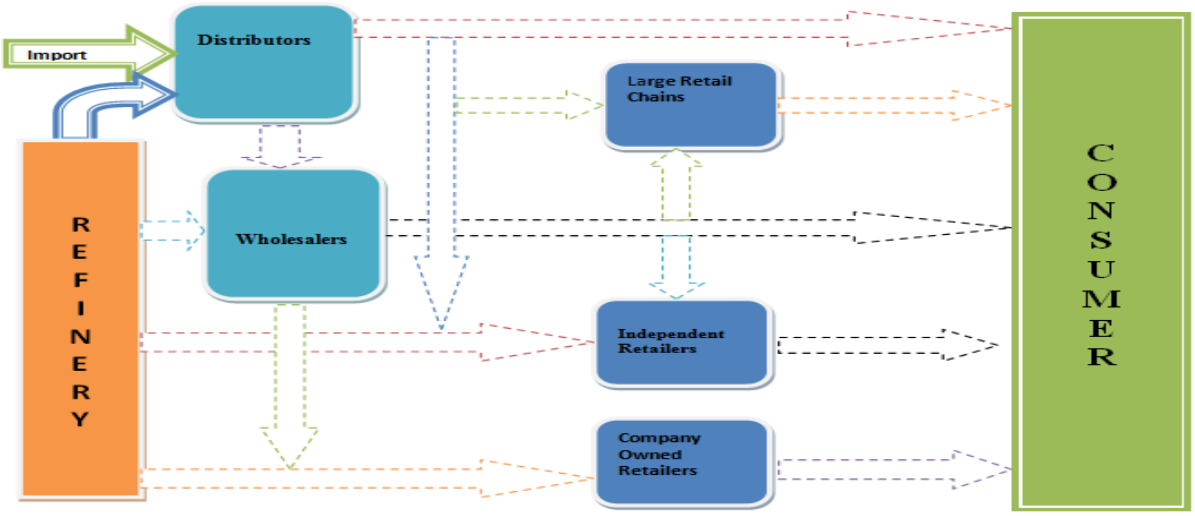
As per OECD Policy Roundtables (OECD, 2008) the different market structure prevailed in the overseas countries are as below:

Country	Stakeholders	Activity	
Australia	Owner Operated	These sites are free to choose its wholesale supplier and decide its own retail price. The independent operators align with any brand of fuel sold by a particular wholesaler.	
	Commission Agent	It manages the sites of a refiner/marketer or independent chain and compensated in the form of commission on the quantity of product sold.	
	Franchise Operated	It rents a site or a number of sites generally owned by a refiner/marketer under a franchise agreement. At these sites, fuel is source from the owner of the site and branded accordingly.	
Canada	Integrated Refiner-Marketer	These marketers are vertically integrated encompasses one or more domestic refineries.	
	Non-refiner Marketers **They obtain the fuel supply from a refiner. They can further categories into**	Regional Distributors	These are the independent operators which carry a well-known brand, under a supply and licensing arrangements.
		Big Box Marketers	They are the large retail chain who primary not in the business of petroleum marketing but usually dealing "high volume" retail sites. They purchased the petroleum products from any wholesaler or directly from the refinery.

		Traditional non-refiner marketers	These are the marketers who supply petroleum products under their own brand.
		Wholesale Brokers	These are the marketers who purchased directly from the refinery and sell to the independent marketers. These are basically called wholesalers.
Japan	Wholesaler affiliated service stations	The service stations promote the brand names of specific petroleum product wholesalers.	
	Private Brand SSs"	These stations use private brands develop by energy trading firms and other major business entities.	
	Non-brand SSs" (independent stations)	These stations do business without using any brand name. They purchase petroleum products from wholesaler or trading firm on contract basis and sell it in their own brand names.	
United States	Company Owned Retailers	The oil company own and operate their own sites, have commission agent's sites, and market their fuel through single or multi-franchise operations.	
	Jobbers	They purchase petroleum products from the refiners which they in turn sell and distribute to retail stations and large buyers/users.	
	Branded Independent Operators and Distributor-Owned Sites	Independent operators tend to own their site but retail the fuel of one of the oil company. There are also distributor-owned sites that do the above activity. The price of fuel at these sites is determined by the operator.	
	Independent Operator Sites selling their Own Brands	Independent operators selling their own brands range from large independent chains to small one to two-site operations. They purchase fuel from independent wholesaler or directly from the refinery.	
	Supermarket operated sites	These are the large supermarket chains who purchase fuel from any wholesaler or refinery and sell it in the market at their own price.	
Korea	Korean gasoline business may be largely categorized into refining, importing & exporting and the marketing business which again may be broken into wholesaling and retailing. Refiners or wholesalers operate in the following three forms. First, the employee of the company manages the station. Second, they make the commissioned-agent who run their stations on contract basis and get fee for his service and all sales proceeds belong to the refiner. And lastly the lessee-dealers who are in the contract with the refinery to purchase the gasoline from them and all sales proceeds belong to the lessee only. It has to pay the rents to the refiner for renting the station. Other than refiners or wholesalers there are also independent stations who operates from their own sites and purchase gasoline from refiner or wholesalers.		
Portugal	Gasoline retail model of Portugal can be categorized between oil company own outlets and independent wholesalers & independent retailers. Oil companies run their operations through retail outlets-COCO ("Company Owned and Company Operated") together with CODO ("Company Owned and Dealer Operated") and oil companies branded open dealers, i.e. the DODO ("Dealer Owned and Dealer Operated").		

	The independent wholesalers and retailer which are minor brands with the white hypermarket outlet networks. These operators can be said to be dependent upon oil companies for the petroleum products,
Germany	Germany retail markets for fuel are divided into outlets of the vertically integrated oil companies and independent outlets. These independents run their service stations so called "white pumps" or "freieTankstellen". Independent outlets purchase product from any refiner or oil company and sell it at their own price.

A detailed study of the various global market structure across the stated countries reveals that they follow a unbundled structure of market where retail outlet may purchase the petroleum products from directly either refinery, wholesalers, OMC's or may import directly. The existing comprehensive retail market structure may be shown in figure (fig 3) as below:



Source: (Sharma, Jain, & Roy, 2013) **Figure 3**

The above figure (Fig 3) illustrates the movement of petroleum products from refinery to consumer after refining. From refinery the petroleum products are transported to a wholesale distribution center called as a distribution terminal or rack. Independent retail stations purchase wholesale petroleum products from the distribution rack or directly purchase from the refinery. Refinery may sell directly to the large users/bulk buyers or they can purchase from any distribution terminal. This wholesale products may be supplied by either vertically integrated refiners (refiners who are integrated into retail) or un-integrated refiners (refiners who sell but do not have retail component). Vertically integrated refinery also directly sells through their retail stations. There are also large retail chain who purchase product from wholesalers or any refiner.

In overseas, market structure is often measure only by the number of independent sellers or by seller density (Johnson & Bloch, 2010). When independents are re-placed by branded integrated stations, price competition in the market is softened, resulting in higher local market prices which indicate that the presence of independent retailer's acts to decrease local retail prices (Hastings, 2010).

The degree of competition with independent retailers has significant and positive impacts on the integrated firm's wholesale prices. The mergers in the gasoline industry that increase the extent of vertical integration may lead to an increase in wholesale prices as a consequence of the incentive to raise rivals cost (Hastings & Gilbert, 2005). The increase in vertical integrated (company-op) stations in cities experiencing higher citywide average prices have come from a decrease in independent retailers. A positive correlation between the local market share of independents and the

amount of spatial differentiation between stations. The presence of independent retailers leads to lower local retail prices (Hasting, 2004). The higher prices frequently observed at service stations branded with a recognized refinery name (Bello & Cavero, 2008).

Market structure affects the speed of price adjustment in the gulf coast and New York wholesale gasoline spot markets but not significant enough to warrant policy intervention (Oladunjoye, 2008). In markets like retail gasoline, an individual outlet might compete most with its nearest neighbors, but movements in prices can ripple across the whole market through the links those neighbors have with outlets further away and so on. Each retailer maximizes profit by trading off the extra per-unit profits which can be made by charging higher prices to those consumers for whom deviating to the competing retailer is costly against the extra gross profits which can be made by selling to more customers if a retailer undercuts its rival. Local competition is important in determining retail gasoline prices; potentially more so than branding (Johnson & Bloch, 2010). An increased in aggregate market share held by smaller firms lead to increased competition and lower prices by diluting market concentration among large, more dominant firms. A decrease in the presence of independent stations leads to higher prices (Sen, 2005).

In overseas market the OMC's/retailers are more consumer-oriented to enhance their leadership position in the market (Azimont & Araujo, 2010). Non-integrated or independent/pure-play companies have generally delivered better returns than their larger, integrated competitors. In the US, the independent refining and marketing has long an important role, and with the expected changes in the refining landscape, should soon surpass the integrated firms in terms of total refining capacity (Young, 2012). Gasoline retailing occurs in a spatial setting, and retailers can charge different prices in equilibrium in a full information spatial model. Not all individual stations set their prices, many stations prices are set by the supplier, and there is a small number of suppliers serving the market. Because of these small number of retail chains competing in the market, firms may behave strategically in competing with their rivals (Eckert & West, Price uniformity and competition in a retail gasoline market, 2005). Higher petrol prices and large retail price differences between the areas are attributable to the lack of competition among petrol importers and the limited market power of independent discount retailers (Valadkhani, Seasonal patterns in daily prices of unleaded petrol across Australia, 2013).

A detailed study of the overseas retail market describes that the success of its unbundled structure may be attributed to the following enablers shown in table (Tab.2) as below:

Table 2

S.No.	Enablers
1	Free Entry
2	Competition among the firms
3	Price Competition
4	Better Services
5	Provide different choices for the consumer
6	Open market for standalone refineries
7	Resolve recurring contract disputes between OMC's and Dealers
8	Benefits to consumers

The above enablers are absent in Indian petro-retail market as it is vertically integrated market structure. So, to improve the efficiency of the Indian petro-retail sector its market structure needed to be deregulated and open for other independent firms to compete in the sector. Deregulation not only increases the competition but it also helps in proper function of the market place.

Deregulation and its impact on competition and prices

Spanish oil industry has shifted from being a state monopoly to competing in a free market. There is a positive impact of liberalisation on the market competition and also favour the national oil companies (Bello & Cavero, 2008). The significantly positive welfare impact of liberalization, due to the expansion of supply in a market with large tax wedge between price and cost and, possibly more importantly, due to the reduction of excessive investment, especially in distribution (Nagaoka & Kimura, 1999). Due to deregulation the correlation between the end-consumer price and import price under the long-term supply contracts has decreased and the correlation between the end-consumer price and market price of gas has increased (Slabá, Gapko, & Klimešová, 2013). The ownership unbundling leads to lower costs and higher quality of services in the electricity supply industry (Nillesen & Pollitt, 2011). The reform has boosted power plant efficiency as indicated by the overall catching-up towards the technology frontier following the unbundling reform (Zhao & Ma, 2013). Competitive pressure encourages increases in productivity for all firm size groups. Mergers only increase productivity for middle scale firms. The deregulation of the wholesale market does not affect changes in productivity (Tanaka & Managi, 2013). Reform of the Japanese oil refining market is likely to bring significant welfare benefits (Clarke & Edwards, 1998). The significantly positive welfare impact of liberalization, due to the expansion of supply in a market with large tax wedge between price and cost and, possibly more importantly, due to the reduction of excessive investment, especially in distribution (Nagaoka & Kimura, 1999). Prices in regulated metropolitan areas increased significantly relative to their unregulated counterparts. If regulation expansion leads to increased refiner entry into regulated markets, then competition would benefit both from an increase in the number of suppliers and an increase in the continuity between potential arbitrage markets. If regulation expansion causes increased exit by marginal refiner due to high fixed entry cost, then gasoline content regulation reform may lead to increased price distortions (Brown, Hastings, Mansur, & Villas-Boas, 2008). The shift from coal use to the consumption of cleaner energy has been supported by price liberalization and deregulation in the energy sector Foreign participation in Chinese energy industry has expanded, the scope is still limited, in particular in the retail sector (Wu, 2003). The full deregulation policy, if properly implemented, will surely have tickle down effects such as crowding out the impact of price volatility, sustain investors' confidence, create employment and inter-sectoral integration, boost local content, revenue and external reserves, improve performance and ensure national development (Mercy, 2011). The increase in prices of petroleum products was not due to deregulation, but increase in international oil prices. Increase in prices of petroleum products significantly influence economic growth (Monday, 2013).

Conclusion

Indian petro-retail sector is an oligopoly market structure, where only the few OMCs are having the most of the market power. Due to this phenomenon they are not only controlling the market by increasing the prices of petrol and diesel but also creating the entry barrier for other private players to compete in the market. In India there is no policy like independent retailers which give an additional leverage to the existing public sector companies as they are able to control the major market share through their vertically integrated channel. Because of vertical relation with OMCs dealers are not free to buy product from other companies which results in one way supply chain. This further is leading to no competition between the OMCs for grapping the dealers to sell their products. If Indian government deregulates the Indian petro-retail market structure there is more chance that it will increase the competition between the OMCs to ensuring the more competitive locations in the market and they will attract the dealers to buy product from them through discounts, services and other contractual benefits. It may further increase the competition among the dealers all the dealers have to individually compete for market share. In order to achieve the market share they will provide good prices to the consumer, services and differential products which ultimately may benefit the consumer. Deregulation of market structure also may benefit the

Indian standalone refineries as they also can access the market to sell their products in the form of independent retailers.

References

Attri. (2012). Learning for Public Sector Oil Marketing Companies in India to Manage Business in Turbulent Times. *Prabandhan & Taqniki, Management Research Journal*, 29-36.

Attri, R. (2011). India's Petroleum Market: The Journey from a Commodity to Brands. *Management Research Journal*, 78-82.

Attri, R. (2012). A Study of the Brand Association of the Customer with the Public Sector Oil Marketing Companies. *The Indian Journal of Commerce*, 21-32.

Attri, R. (2012). Learning for Public Sector Oil Marketing Companies in India to Manage Business in Turbulent Times. *Prabandhan & Taqniki, Management Research Journal*, 29-36.

Azimont, F., & Araujo, L. (2010). The making of a petrol station and the "on-the-move consumer": Classification devices and the shaping of markets. *Industrial Marketing Management*, 1010–1018.

Bello, A., & Cavero, S. (2008). The Spanish retail petroleum market: New patterns of competition since the liberalization of the industry. *Energy Policy*, 612–626.

Bello, H. M., Sepiriti, M., & Letete, E. M. (2009). Competition, Market Structure and Market Power in the Insurance Industry in Lesotho. *The IUP Journal of Financial Economics*, 7-21.

Brown, J., Hastings, J., Mansur, ,. E., & Villas-Boas, S. B. (2008). Reformulating competition Gasoline content regulation and wholesale gasoline prices. *Journal of Environmental Economics and Management*, 1-19.

CCI. (2009). *Public Enterprises, Government Policy and Impact on Competition.* New Delhi: Competition Commission of India.

Clarke, K. (2010). *India's Downstream Petroleum Sector.* Australia: International Energy Agency.

Clarke, R., & Edwards, T. H. (1998). Deregulation of the Japanese oil products market. *Energy Policy*, 129–141.

Dutta, S. (2013, March 8). *Oil Companies: Evidence of Cartelisation*. Retrieved from Fronline: http://www.frontline.in/the-nation/oil-companies-evidence-of-cartelisation/article4328373.ece

Eckert, A., & West, D. S. (2005). Price uniformity and competition in a retail gasoline market. *Price uniformity and competition in a retail gasoline market*, 219–237.

Ghosh, S., & Prasad, R. (2012, July 26). *Government should allow competition in fuel retailing and benchmark diesel prices.* Retrieved April 22, 2013, from The Economic Times: http://articles.economictimes.indiatimes.com/2012-07-26/news/32869663_1_export-parity-parity-price-litre

GoI, M. (2013). *12th -13th five year plan.* MoPNG.

Gopalan, M. (2012, November 29). *Press pause button on new refineries*. Retrieved from Business Line: http://www.thehindubusinessline.com/opinion/press-pause-button-on-new-refineries/article4147136.ece

Hasting, J. S. (2004). Vertical Relationships and Competition in Retail Gasoline Markets: Empirical Evidence from Contract Changes in Southern California. *THE AMERICAN ECONOMIC REVIEW*, 317-328.

Hastings, J. (2010). Vertical Relationships and Competition in Retail Gasoline Markets: Empirical Evidence from Contract Changes in Southern California. *American Economic Review*, 1277-79.

Hastings, J. S., & Gilbert, R. J. (2005). MARKET POWER, VERTICAL INTEGRATION AND THE WHOLESALE PRICE OF GASOLINE. *THE JOURNAL OF INDUSTRIAL ECONOMICS*, 469-492.

IIM. (2007). *Network Expansion Analysis of PSU's - OMCs.* Ahemdabad: IIM Ahemdabad.

Jai, S., & Thakkar, M. (2013, Feb 19). *Dealer-owned-dealer-operated pump owners may migrate to private oil companies*. Retrieved June 24, 2014, from The Economic Times: http://articles.economictimes.indiatimes.com/2013-02-19/news/37179855_1_pumps-petrol-and-diesel-essar-oil

Johnson, N. W., & Bloch, H. (2010). Retail Gasoline Markets as Networks. *Centre for Research in Applied Economics*, 1-20.

Karrenbrock, J. D. (1991). The Behaviour of Retail Gasoline Prices: Symmetric or Not? *Federal Reserve Bank od ST. Louis*, 19-29.

Khan, S. (2012). India – Dawn of the Oil Refining Hub of Asia. *International Conference on Financial Management and Economics* (pp. 1-4). UK: ipedr.

Maskin, E., & Tirole, J. (1988). A Theory of Dynamic Oligopoly, II: Price Competition, Kinked Demand Curves, and Edgeworth Cycles. *Econometrica*, 571-99.

Mercy, O. A. (2011). Deregulation Policy in the Downstream Oil Sector and the Nigerian Economy. *Journal of Social Sciences and Public Policy*.

Mishra, J. (2006, November 30). *It's time petro-goods' retailing is liberalised.* Retrieved from Economic Times: http://articles.economictimes.indiatimes.com/2006-11-30/news/27424499_1_retail-industry-retail-sector-petro-goods

Monday, J. U. (2013). Downstream Deregulation Policy and Economic Growth: A Case of Nigeria. *IRC'S INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SOCIAL & MANAGEMENT SCIENCES*, 1-8.

MoPNG. (2014, April 17). *MoPNG.* Retrieved April 18, 2014, from MoPNG: http://petroleum.nic.in/refinery.pdf

Murali, G. (2013, June 27). *The changing refining landscape*. Retrieved from Business Line: http://www.thehindubusinessline.com/industry-and-economy/the-changing-refining-landscape/article4857221.ece

Nagaoka, S., & Kimura, F. (1999). The Competitive Impact of International Trade: The Case of Import Liberalization of the Japanese Oil Product Market. *Journal of the Japanese and International Economies*, 397–423.

Nillesen, P. H., & Pollitt, M. G. (2011). Ownership Unbundling in Electricity Distribution: Empirical Evidence from New Zealand. *Review of Industrial Organization*, 61-93.

OECD. (2008, October). *Competition Policy Roundtables.* Retrieved from www.oecd.org: http:www.oecd.org/competition

Oladunjoye, O. (2008). Market Structure and Price Adjustment in the US wholesale gasoline markets. *Energy Economics*, 937–961.

P. K., & Sahay, A. (2003). Retailing at Petrol Pumps : From Commodity Dispensing to Customer Service. *Journal of Services Research*, 29.

Parikh, K. S. (2013). Pricing of Petroleum Products: Importance and Options. *ASCI Journal of Management*, 73–89.

Pathak, K. (2013). *Branded fuels stop flowing.* Mumbai: Business Standard.

Prasad, S. J. (2013, April 2). *State oil cos all set to take on RIL, Essar, Shell.* Retrieved from Economic Times: http://articles.economictimes.indiatimes.com/2013-04-02/news/38218211_1_petrol-pumps-diesel-prices-india-petrol

Rao, R. D., & Parikh, J. K. (1996). Forecast and analysis of demand for petroleum products in India. *Energy Policy*, 583–592.

Riboldazzi, S. (2010). Retail Policies in the Global Gasoline Market. *Symphonya - Emerging Issues in Management*, 86-101.

Sen, A. (2005). Does Increasing the Market Share of Smaller Firms Result in Lower Prices? Empirical Evidence from the Canadian Retail Gasoline Industry. *Review of Industrial Organization*, 371-389.

Sharma, R., Jain, A. K., & Roy, H. (2013). A Critical Review of Market Structure of Indian Petro-retail Sector. *International Conference on Research in Marketing.* Delhi: IIT Dehli.

Singh, M. (2013). Distribution of Petroleum Products by Indian OMCS: Challenges in Supply-Demand and Price. *I.J.E.M.S*, 471-475.

Singh, V., & Zhu, T. (2006). Pricing and Market Concentration in Oligopoly Markets. *Carnegie Mellon University*, 1-33.

Slabá, M., Gapko, P., & Klimešová, A. (2013). Main drivers of natural gas prices in the Czech Republic after the market liberalisation. *Energy Policy*, 199–212.

Srinivasan, R. (2012, November 25). *A one-sided bargain that hurts*. Retrieved June 24, 2014, from The Hindu: http://www.thehindu.com/todays-paper/tp-miscellaneous/tp-others/a-onesided-bargain-that-hurts/article4132155.ece

Srinivasan, R. (2012, March 22). *What goes down will surely go up*. Retrieved June 24, 2014, from The Hindu: http://www.thehindu.com/news/national/what-goes-down-will-surely-go-up/article2684791.ece

Tanaka, K., & Managi, S. (2013). Measuring Productivity Gains from Deregulation of the Japanese Urban Gas Industry. *Energy Journal*, 181.

Valadkhani, A. (2013). Seasonal patterns in daily prices of unleaded petrol across Australia. *Energy Policy*, 720–731.

Wu, Y. (2003). Deregulation and growth in China's energy sector: a review of recent development. *Energy Policy*, 1417–1425.

Young, E. &. (2012). *The oil downstream: vertically challenged?* . U.S.: EYGM Limited.

Zhao, X., & Ma, C. (2013). Deregulation, vertical unbundling and the performance of China's large coal-fired power plants. *Energy Economics*, 474–483.