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Sustainable Industrial Management Strategy of Linear Alkyl Benzene Marketing in Indian Context

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Abstract

In this competitive world, organisations need to adopt strategies based on the market structure. Historically, economic performance has been crucial parameter for Industries as it creates valued output of goods and services resulting in increase in human and man-made capital. On the other hand, production is rapidly affecting environment, depleting natural capital, eroding biodiversity and natural habitat which is socially and environmentally disruptive. This paper centres on investigating how Indian industry in India can align them towards sustainable industrial management strategy in petrochemical business with the special reference to Linear Alkyl Benzene(LAB),one of the major liquid petrochemicals and raw material for detergent industries. The organisational efforts towards growth and sustainability are discussed. Present article elaborates the probable marketing strategies Indian suppliers of LAB could adopt in the face of global competition. Overall perspective is reviewed in the light of oligopoly market structure of LAB suppliers and increasing trend of import influx so as to find the strategy domestic suppliers can plan to compete effectively with the import.

Keywords: Linear Alkyl Benzene (LAB), Petrochemicals, Oligopoly Market, Strategy, Competition, Herfindahl-Hirschman Index, Environment

1. Introduction

We are facing a sustainability crisis everywhere including business in this competitive world as we are consuming our stocks of natural, human and social capital faster than they are replenished. Unless we control the rate of this consumption through the way of conservation, recycling, reuse in a eco-friendly manner, we cannot sustain the business in the longer terms. This can be achieved through the optimum utilisation of natural capital, human capital, social capital, manufactured capital and financial capital. With the globalisation and increased free trade regime, domestic producers are also exposed to constant threat for external competitions. So understanding the influence of the macro environment –political, economic, social, technological, legal and environmental are essential in these era of growing cut throat competition. Sustainable strategy is a dynamic strategy through which organisation or any business can able to achieve a balance between their environment (internal and external),society and economic end. Sustainable consumption and production is an approach that is aimed at addressing all these problems. It refers to the challenge of achieving continuous economic and social progress within the ambit of the organisation that respects the limits of the earth's ecosystems, and meets the needs and aspirations of all the stakeholders of an organisation for a better quality of life for today as well as tomorrow. Out of the different forces in an industry, competitive rivalry, power of complementors and threat of new entrants play a major role in any business. Growing competition due to reduction of cross country barrier with the opening up of global economy forcing domestic industries to be competitive by adopting strategic alliance within the industries, technological changes, green effort for eco-friendly approach etc. Classical micro-economic theory predicts that the structure of the industry will also have an effect on average profitability and intensity of competition.

With the above perspective, study is made as to how petrochemical business is placed in Indian domestic market and what could be the possible business strategies by the Indian petrochemical industries for overall sustenance. Special reference is being made to Linear Alkyl Benzene business(LAB) and its associated competition and threats. The market structure is determined and various ways and means to survive in the given market has been elaborated as captured in different studies conducted earlier in this field. At the end, conclusion is drawn as to how even without a price war resulting in erosion of profit and with better capacity utilisation of plants in oligopoly market organisation can sustain its business in the competitive market.

2. LAB and its importance in Indian Petrochemical Industry

Petrochemicals play a vital role in economic development & growth. Output of global petrochemical industry valued at 1.3 trillion US$, is growing at 5.3 percent. The growth is closely linked to economic growth of the economy. Global petrochemical industry is currently growing at 1.2 – 1.3 times the global GDP growth. While the industry has matured in the developed world, with growth equalling or marginally ahead of GDP growth, it is the emerging economies that are currently driving the growth. In Asia, with its large and growing market, and

Middle East, with its major feed-stock advantage driven by state subsidy, had been the prime mover for the growth of the industry. Basic petrochemicals fall in two major categories – Olefins and Aromatics. Aromatics comprises of Benzene, Toluene and Xylene. While Benzene is used for a variety of chemical usages, Benzene is the third largest and one of the most versatile chemical feed-stock used for a wide variety of plastic raw-materials, Synthetic Fibers and Chemicals including LAB. Initially Benzene was obtained from Coke Ovens during World War – II. Subsequently, Refinery and Naphtha Crackers became more preferred sources due to product quality and cost efficiency.

Linear Alkyl Benzene (LAB) and Ethylene Oxides (EO) are the major synthetic intermediates used for production of Surfactants and Synthetic Detergents. LAB is produced from N-paraffin (extracted from Kerosene) and Benzene. In this report, discussion has been focussed on LAB, being the major source of manufacturing of detergent globally.

The product Linear Alkyl Benzene(LAB) is falling under the tariff description of customs heading 3817 00 11.The subject goods are used for manufacture of Linear Alkyl Benzene Sulfonic Acid which is the key ingredient for detergent industries. The domestic industries use kerosene,(Extracted-C10-C13 paraffin) and Benzene as raw materials for the production of LAB.C10-C13 Paraffins are extracted from the Molex Process, from the feed stock Kerosene. The Paraffins are converted to Olefins by selective dehydrogenation process, at high temperature. The C10-C13 Olefins are then alkylated to Benzene, to form LAB. LAB so produced can be readily sulfonated to yield Linear alkylbenzene sulfonates. These compounds constitute the active ingredient of household detergents. They are surface active compounds(surfactants) which are combined with various builders(often inorganic salts) to make up a detergent.

2.1 LAB market structure in India : Indian industry made a modest beginning in 1978 with the commissioning of first LAB plant at Vadodara. Subsequently Reliance Industries Ltd (RIL), Tamil Nadu Petrochemicals Limited (TPL) and Nirma Ltd. set up facilities for manufacture of LAB. Indian Oil Corporation Ltd (IOC) commissioned a plant of capacity of 120 KTA in August 2004 and is the latest entrant. The current installed capacity of LAB in India is 530 KTA.

2.2 Industry market structure

Whether the market is Oligopoly or not, will be determined by looking at number of suppliers. Economists often take the help of what is called Herfindahl-Hirschman Index, or HHI. The HHI for an Industry is the square of each firm's market share summed over the firms in the industry. For example, if an industry contains only 4 firms and their market shares are 35%,30%,25% and 10%,then the HHI for the industry is :

HHI=35²+30²+25²+10²=2850

By squaring each market share, the HHI calculation produces numbers that are much larger when a large share of an industry output is dominated by fewer firms.

The HHI is used by the US justice Department and the Federal Trade Commission, which have the job of enforcing antitrust policy. According to justice Department guidelines, an HHI below 1000 indicates a strongly competitive market, between 1000 and 1800 indicates a somewhat competitive market and over 1800 indicates an oligopoly.

Table 1 indicates the year wise market share of Indian LAB producers. With the given data of market share, table 2 shows the LAB market structure in India which indicates LAB business is Oligopoly in nature.

The supply demand gap is given in table 3 which indicates the feasibility of additional capacity augmentation in Indian LAB industry.

The in house data of Indian Oil, a PSU in petrochemical business in India , is given in the following table 4 wherein year wise production, sales, export and corresponding realization has been given for the period 2005-2011.

Overall Industry data on domestic LAB market in India is given in table 5 where total domestic capacity, production, consumption and capacity utilization has been given.

There is a growing increase of import in India which is affecting Indian LAB producers with respect to average realisation and capacity utilisation. In table 6 the year wise import volumes from different countries are indicated. It is observed from the data that the average import price from Iran is cheaper compared to others. It is also to be noted that LAB domestic industries increased the export volume so as to maintain reasonable price in domestic market and to minimise surplus quantity in India which is arising out of ever increasing import influx.

Table 7 shows the profit per MT of domestic LAB industry indexed considering 2005 and 2009 as base year.

Though as per Ministry report of 2012 demand for LAB had been growing at 8% during 11th five year plan period, however, as per assessment by the author based on the various in house and published reports and analysis, the same varies from 4.5 % in the period 2010-12 to 6.4% during 2012-16. The global supply demand scenario is given in Table 8.

Middle East(ME) and South East Asia(SEA)market data reveals, shortfall in LAB availability by 337 KTA in 2016 against surplus situation of 225 KTA in 2012. ME & SEA market is having influence on Indian market and shortfall in this market will reduce import to India drastically.

From these analysis it is imperative that Indian industry like Indianoil can capture the ever present growth in the segment through additional capacity by way of debottlenecking of existing capacity as it is having capacity for debottlenecking with the existing plant. As per the market analysis, demand in the country would be adequate to absorb incremental production and Indianoil should be in a position to seize the opportunity. Otherwise, the market shortfall will be captured by growing imports. Domestic industries can increase the existing capacity and make suitable strategic alliance among them by collaborating of raw material and sharing of markets by way of supplying more to locations nearby their plant so that cost of freight is minimum across India which will improve their average profitability.

Based on supply-demand scenario as illustrated in table-8 there is a potential for absorption of additional LAB in domestic market. Based on growth in market demand and Indianoil's actual sales performance in the past, there is scope for enhancement of existing capacity. With the increase in high sulphur crude processing at Gujarat Refinery of Indianoil and increased feed availability, capacity augmentation of LAB plant is not a constraint.

3. Different strategies based on literature surveys

Strategy is the limited set of important, non routine, nonprogrammable decisions that guide organizational direction. Though strategy became a buzzword during 1960, different interpretations have been assigned to it. A strategy is a fundamental pattern of present and planned objectives, resource deployments, and interactions of an organization with markets, competitors, and other environmental factors. Studies have shown that market orientation has a significant positive effect on various performance parameters including sales growth and profitability.

3.1 Generic Business-level Competitive Strategies

Michael Porter distinguishes three strategies-overall cost leadership, differentiation and focus. Robert Miles and Charles Snow identifies business units into four strategic types: prospectors, defenders, analyzers, and reactors.

3.2 Major Forces that determine Industry attractiveness

Porter's five competitive forces collectively determine an industry's long-term attractiveness-rivalry among present competitors, threat of new entrants into the industry, the bargaining power of suppliers, the bargaining power of buyers, and the threat of substitute products. This was added with sixth force as the power of complementors by Brandenburger and Nalebuff in 1996.

Strategic Issue: Critical success factor : In most Industries, there are a small number of critical factors that tend to separate the winners from the also-rans.

Policy barriers that limit competition in developing countries: trade barriers can prevent import competition; legal restrictions can prevent foreign entry that would increase the number of competitors; state monopolies can prevent entry of private firms, foreign and domestic alike; and badly-designed regulatory regimes in industries that have been privatized can impede both domestic and foreign competitors, to the detriment of consumers.

Firms in Korea, Malaysia and Thailand are more productive than firms in India and China, in part because of lower trade restrictions and administrative barriers to entry.

It have been long debated whether and when "parallel pricing" adoption of the same price by every firm in a market-should be considered a violation of antitrust law. "Parallel exclusion" conduct, engaged in by multiple firms, that blocks or slows would-be market entrants are also in place.

 Parallel exclusion is a proper concern for merger policy, and why it is bad policy to automatically condemn certain boycotts without any evaluation of their anticompetitive effects.

The dynamic approach of the economic reality goes to the change of parameters of the variables which compete with the span of economic and social life. The key to survive in case of economic games is the capability of the companies to adjust their strategies to the environment which is in continuous change. A correct forecast of the future events it is necessary. The cross - impact analysis, the request--hazard forecast as well as other numerous scenarios are just a few of the methodologies used in economic forecasts.

The game theory contribution to the development of the competition politics can solve some problems related to the price system and to the intelligence exchange.

The problem of the economic agents is no longer conducting studies for the operation of the perfect competition markets but to analyse the means in which they can coordinate the decisions, in dynamic configurations in a competitive environment affected by risk and uncertainty.

In oligopoly literature there is a line of research investigating incentives for oligopolists to share their private information about uncertain demand conditions or production costs. Raith proposes a general framework for analyzing information sharing in oligopoly. A general result given by these works is that the equilibrium

outcome of information sharing will reach two extreme points: no information sharing (NIS) or full information sharing (FIS), depending on competition type (i.e., Cournot or Bertrand) and product type (i.e. complement or substitute). Vives summarizes these results and concludes that firms in Cournot competition with a homogeneous product have no incentives to share their private information about the common value. In addition, information sharing will benefit social welfare in Cournot competition with demand uncertainty.

Business strategy is a response to rapidly changing, hardly forecasted environment of an enterprise; moreover, it is considered to be a proper tool to affect the environment in a favourable manner in order to achieve the performance meeting the expectations of business owners. Competitive strategy is aimed at achieving long-term competitive advantage due to superior, compared to competitors, strategic position in the market.

In recent times, the industrial structure in many developing economies has been subjected to competitive forces through rapid policy reforms. In India, the removal of industrial licensing policies and the liberalisation of policies concerning entry of TNCs were initiated in the mid-1980s, and trade policy reforms followed in the early 1990s. The reforms have facilitated entry of a number of TNCs, which has important implications for the evolution of a competitive market structure.

Given this relative disadvantage, domestic firms could concentrate on their relative strengths. For example, they make efforts at strengthening their distribution channels.

The significant positive association between market shares and relative technical efficiency indicates movement of the Indian industries towards a competitive mode. The long-run survival of local firms depends on their ability to rid themselves of inefficient assets and acquire new assets that enhance organisational and technological efficiency.

As regards the welfare implications, the positive association between market share and production efficiency implies that competition between the local firms and TNCs will drive market price towards marginal cost (the Cournot oligopoly result) which would result in higher consumer surplus.

Oligopoly is a game of quantity competition in which firms' products are perfect substitutes. Individuals (firms) simply choose how much output to produce, and the market price is a negative function of total production in the industry. Firms do not know in advance what the market price will be. They have to form their choices on the basis of what they predict other firms will do. Total industry production determines the market price in a given time period. Thus, profit will depend not only on firm's own output level, but also on the output levels of rivals.

Firms have the same production technology as that of the rivals (i.e., the same constant marginal cost). Firms know their constant marginal cost and the market demand curve, but not how much their rivals are going to produce (so they will not know the market price in advance).

Several game-theoretic models have attempted to explain sustainability of oligopoly coordination in the presence of demand fluctuations. In a market with a stochastic demand, for example, Green and Porter [Econometrica, 1984] suggest that more competitive behaviour by a cartel during periods of unexpectedly large demand reductions (causing the market price to drop below a trigger level) is sufficient to curtail the temptation to cheat.

No advantage is sustainable. Firms can sustain advantages only as long as their competitors will allow. In hypercompetitive markets, firms respond quickly to their competitors' innovations. Moreover, counterattacks have become faster and more frequent. Thus, hyper competitors must preposition themselves to generate many advantages, not just one.

Several recent game-theoretic studies of oligopoly coordination attempt to uncover the link between demand fluctuations and cartel stability. One of the best-known models was developed by Green and Porter (1984). They argue that in a market with a stochastic demand it becomes most difficult to detect cheating on an agreement during periods of low market demand, since a low market price could be the result of cheating or a negative demand shock. In order to curtail the temptation to cheat, they suggest that the cartel may use a 'trigger price strategy', which causes the cartel to revert to more competitive behaviour whenever the market price is driven below the trigger price.

 Rotemberg and Saloner (1986) provide a model which runs counter to Green and Porter. They assume that demand shocks are independently and identically distributed (i.i.d.).

Available evidence on the effects of cyclical fluctuations on oligopoly coordination is mixed. For example, in support of Green and Porter, Domowitz, Hubbard and Petersen (1986) find that the price-cost margin is lower during recessions, which suggests that coordination is weaker when demand is low. They also find that imports are negatively correlated with the price-cost margin. Alternatively, Rotemberg and Saloner (1986) find that their measure of the price-cost margin is lower when sales are high.

3.3 The Kinked Demand Curve Theory: Follow Down, Not Up (FDNU)

In an oligopolistic setting, the sales and profit outcomes of a firm's pricing initiatives clearly depend upon the reactions of competitors. The KDC theory (Hall and Hitch 1938; Sweezy 1939) may be the only theory of competitive behaviour which provides an explicit prediction of how competitors will react to a price change in

such a market, holding that executives believe rivals will follow a price cut yet will not follow a price increase. This conjecture produces an "imagined" demand curve with a kink at the current price, bounded by a less elastic portion for lower prices and a more elastic portion for higher prices.

Firms in the industry often react to new market entries (or new market strategy initiatives) with aggressive pricing, given the apparent belief that price has a relatively higher elasticity than other marketing tools.

In some cases it is found that the price war was competitor- rather than consumer-driven.

Strategy and performance are related to market power in oligopolistic industries. Oligopoly models focus on the market structure of an industry as the primary determinant of firm performance (Cool & Schendel, 1987). Certain industries (Bain, 1956) or, in more recent forms, industry groups (Caves & Porter, 1977) provide the opportunity for firms to acquire excess profits. Firm strategy (conduct) consists of identifying and occupying favoured positions in the industry structure. Sustained supernormal performance is attained through collective action by groups of firms that hold such favoured positions.

Operations management researchers and practitioners face new challenges in integrating issues of sustainability with their traditional areas of interest. During the past 20 years, there has been growing pressure on businesses to pay more attention to the environmental and resource consequences of the products and services they offer and the processes they deploy. One symptom of this pressure is the movement towards triple bottom line reporting (3BL) concerning the relationship of profit, people, and the planet. The resulting challenges include integrating environmental, health, and safety concerns with green-product design, lean and green operations, and closed-loop supply chains.

The World Commission on Environment and Development (1987) (the Brundtland Commission) defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Strategy and public-policy experts debate the ultimate cost and benefits of environmental regulations.

Companies are increasingly expected, or legally required, to take responsibility for the entire lives of their products, including proper recycling and disposal.

To be globally competitive, firms require globally competitive suppliers. There is a strategic importance of service quality to financial success. Firms with a strong commitment to quality and continuous quality improvement may sustain business in the face of stiff competition.

Service quality is becoming a necessity not only for success and growth, but also for survival, especially in the supply of firms in the petro-chemical industry.

It has been argued that the domestic channel is frequently extended into a foreign market to gain economies of scale, because product characteristics are generally similar and because of strategic momentum. Firms may switch to a less-integrated mode in a foreign market if asset specificity is relatively low, as a response to environmental diversity, and when the market makes a small contribution to overall sales.

Economies of scale can be realized, the product characteristics change little, and strategic momentum leads the domestic channel is likely to be extended to the foreign market.

Economic theory predicts that under certain conditions departures from perfect competition will result in excess profits. Empirical research has in fact confirmed that a positive correlation exists between profits and the characteristics of market structure, such as the degree of domestic seller concentration, the conditions of entry, and the growth of demand. However, studies have not been observed in Indian context the structure-performance relationship correctly by overlooking the role of international trade in the determination of the degree of competition. As a result, they have not depicted a statistically significant influence of foreign competition on the profitability of the domestic industry. The purpose of this paper is to provide empirical evidence of the relationship between market structure and profit margins in Indian industry, and assess the importance of foreign competition on profitability in a country which has a relatively large foreign trade sector.

Section II of this paper describes the analytical framework and variables included in the analysis. Section III examines the statistical results. The conclusion is reached in Section IV that domestic market structure and the degree of foreign competition, as represented by effective protection, exert a very significant influence on industry profit margin.

Conventionally, domestic market power is measured by the degree of seller concentration and it is usually assumed that rising concentration increases the ability of industry members to collude (Weiss, 1971), and influences the probability of entry (Baron, 1973).

It is generally recognised that free trade provides more competition to domestic producers, while protection may give rise to excessive profits.

Where entry barriers are important and persist over time, established firms can earn excess profits. The barriers to entry for domestic competitors are assumed to depend on the economies of large scale operations, the absolute cost advantage, and product differentiation.

The rate of growth of demand should, *ceteris paribus,* affect industry profits positively via increases in market prices and the possible relaxation of competitive pressures.

4. Strategic Alliances

This refers to cooperative agreements between potential or actual competitors. Here we will discuss about how Indian firms in domestic LAB market can have strategic alliance to face the competition of import. In south, Tamil Nadu Petro products Ltd. (TPL) is having the strong foothold due to proximity of the market. However, TPL is unable to capture the growth in LAB market due to shortfall of raw material i.e. jet kerosene as the major input resulting in less capacity utilisation of plant. A typical tolling arrangement can be made effectively between Indian Oil and TPL wherein Indian Oil can source raw material like Jet Kerosene and Fuel oil from its nearby subsidiary Chennai Petroleum Corporation Ltd.(CPCL), Chennai and process the same at TPL plant. The additional volume so generated by TPL with the utilisation of the shortfall capacity can be utilised by Indian Oil for its additional market segment in East and South. This will result in additional volume available with existing refinery of Indian Oil at Gujarat with the current capacity and the same extra volume can be catered in North and West market and part of the same can be thought for export from West coast giving rise to improvement in supply management for Indian Oil refinery at Gujarat and improvement in margin per ton. Even if the cost of raw material and conversion cost through TPL matches breakeven cost of Indian Oil refinery at Gujarat, the arrangement will make sense till such time Indian Oil is in a position to maintain the overall gross margin of the current production level of Gujarat Refinery. With this specific tolling arrangement, Indian Oil will be in a position to penetrate more in domestic market and can compete with import. This will help Indian Oil to make a platform for future expansion plan which can be envisaged by 2016 to capture growing LAB market. This will help TPL to run the plant at its increased capacity, thereby, reducing their variable cost per ton of production with the advantage of scale of production. This is a win win situation for both TPL and Indian Oil. This is a way to bring together complementary skills and assets for a public sector and private sector companies in India for overall business growth and prosperity in Indian LAB market and thereby Indian detergent market. Both firms can agree in advance to swap skills and technologies that the other covet, thereby, ensuring a chance for equitable gain. Risk of opportunism by an alliance partner can be reduced if the firm extracts a significant credible commitment from its partner in advance. Contractual safeguards can be written into an alliance agreement to guard against the risk of opportunism by a partner. Building trust and managing the alliance successful will require building interpersonal relationships between the firms. This will also help both the organisations not to unnecessarily go for price war and maintain the overall price stability in domestic market and reduce market volatility to some extent insulating from import influx.

5. LPI index

As per World Bank Report,2012 India ranks at 46th compared to neighbouring country China which ranks at 26.The top in the list is Singapore. Developing integrated intraregional infrastructure will help to increase trade volumes. Among various categories of physical infrastructure, the most relevant to regional integration are those needed to facilitate the movement of goods and individuals (such as roads, railways, and ports).

PSU like Indian Oil has made sustainability efforts by launching its first grass root LAB plant through Detal catalyst route rather than earlier technology of HF catalyst. Imports from Iran are from HF catalyst plants which has environmental hazards during production process. Hence, Indian Oil should emphasise LAB marketing focusing technology differentiation as Indian Oil technology is more green compared to Iran imported products. Govt.of India can emphasise on environment ground to check Iran HF sources.

Indian industries should emphasise on ISO 14000 compliance on environment standard and promote for the same for all major global detergent manufacturers in India and abroad. Indirect trade barrier may be imposed for possible imports for non-compliant sources.

6. Variables and Data

The various data sources have been used for all the variables considered for this study. The data has been sourced from Ministry of commerce and Indian LAB industries .

7. Research Methodology and Statistical Results

The detailed impact of import in Indian LAB industry and resultant impact has been analysed in annexure-1 with the help of multivariate correlation. Overall impact of domestic Indian LAB market by import and how industry realisation has been impacted by imports are analysed. The trend of LAB domestic industry realisation and its impact by import influx has been worked out. Interpretation of Results shows that there is a positive moderate correlation coefficient between Indian domestic sales and import from Iran and impact on export by import from

Iran is minimal. The impact on export by import from other countries is significant if we compare with that with Iran. Very remarkable Impact of import price of Iran on export realisation is observed. Impact of import volume from Iran on domestic realisation and export realisation is significant. Domestic and export realisation is more effected by the impact of import price and volume of Iran than import price of other countries. Impact by import price from Iran on domestic capacity utilisation is higher than the other countries. Impact of import price from Iran on export price is lower than by the other countries but has a good impact on domestic profitability index. Export price on domestic profitability index has moderate correlation. Import price of Iran compared to other countries are more affecting on domestic profitability index .we can conclude that the impact of import is positive on domestic market price, capacity utilisation and realisation. Import affect on domestic market price and capacity utilisation is more or less moderate but significantly remarkable on realisation.

8. Conclusions

The main objective of this study has been to examine the hypothesis that the industry variability in realisation and profitability are function of the domestic market structure and the degree of foreign competition. The results of the statistical analysis of the Indian LAB industry during 2004-2012 provide strong support for this hypothesis. Realisation are significantly associated with seller concentration ratios and the rate of growth of demand, and is statistically significant. The degree of foreign competition, as represented by effective rates of protection, is independent of the domestic market structure and its influence on industry profitability is positive and statistically significant. Essentially the evidence confirms that departures from a competitive market structure tend to increase industry profit margins. Study shows that there is a justification for augmentation of existing LAB capacity of Indian Oil at Gujarat plant.

If import competition improves performance in otherwise uncompetitive domestic markets, public policy should recognize an additional means by which desired market performance may be achieved. Indeed, import competition potentially substitutes for vigorous antitrust policy, thus resolving to some extent the antitrust dilemma between efficiency and the number or size of domestic competitors.

Exporting means of expanding the available market. Therefore exporting may affect domestic corporate profitability, even if it has little impact on domestic pricing decisions. The results demonstrate that foreign trade is a significant additional set of influences on performance. Import competition tends to reduce realisation and thus to constrain domestic pricing. International influences significantly affect domestic market performance. In particular, import competition constrains domestic pricing, and the results indicate that this effect is more pronounced in less domestically competitive industries. Import competition thus provides an additional avenue of enforcement of more competitive market behaviour and may substitute at least partially for antitrust actions. Domestic industries should share their common strengths in terms of raw material and facilities for betterment of overall domestic productivity and growth.

With the above considerations, Indian Industries need to emphasise on quality and service level. Organisation should focus more on efficiency and green compliance. Continuous improvement in supply chain is the order of the day to be in a competitive environment. Indian firms can mutually share their raw materials based on the strength of their resources and work on tolling basis or through strategic alliance for finished product marketing so that overall capacity utilisation is improved for all firms and all markets can be catered with optimum price and the same can effectively compete with imports. Pricing should be more aligned to imports. Based on the demand situation and growth in local and global market, production is to be distributed in domestic and abroad market. As a matter of strategy, firms should export a certain percentage of production to keep them aligned with the global market and pricing. This will also maintain a balance of overall pricing vis-a-vis volume in domestic market and Indian LAB producers can increase capacity utilisation and take cost advantage by improved scale of operation. Firms should act in market and make the pricing in such a fashion that the overall industry grows. The environment should encourage more small scale down stream units of LAB and soaps and detergent units so that overall growth can be achieved through broad base.

Petrochemicals is a major segment of manufacturing industry and plays a pivotal role in agriculture, food-processing, clothing, consumer durables, building and construction, infrastructure, healthcare, communications and other critical areas supporting welfare of common man. Petrochemicals are major contributor to the exchequer by way of taxes and duties. Hence, stagnating demand in the sector would have adverse impact not only on employment but also on contribution to the exchequer.

Taking cognizance of the huge potential, Government of India had identified the petrochemical industry as one of the key driver to GDP growth. National Policy on Petrochemicals released by the Government ("Policy Resolution for Petrochemicals" published in Gazette on April 30, 2007) recognizes the necessity of sustained growth of this sector. It is ironical that India is a net exporter of Naphtha, the basic feedstock, and at the same time imports large quantity of petrochemical products, thereby discouraging value addition within the country.

There is a compelling need to establish a single national level VAT / GST on petrochemicals like LAB across the states. While the internal taxes are relatively high, India has very low import tariff on key petrochemicals, lower than most SEA countries. Import duty for all petrochemical feedstock and products should be recalibrated providing adequate incentive to attract investment in this sector. Successful execution of the strategy for developing markets require a degree of flexibility, an ability to adapt in often unforeseen ways to local conditions, and a long term perspective that puts building a sustainable business before short-term profitability.

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Table-1

LAB Market Share in India:

	2004-05	2005-06	2006-07	2007-08
IOC	11%	24%	26%	28%
NIRMA	26%	21%	19%	19%
RIL	41%	38%	36%	36%
TPL	22%	17%	19%	17%
Total	100%	100%	100%	100%

Source: Ministry of Finance

Table-2

Year wise HHI in Indian LAB industry :

	2004-05	2005-06	2006-07	2007-08
HHI	2962	2750	2694	2730

Source: As calculated

Table-3

Surfactants Demand Supply Gap(in Kilo Ton)

Product	Demand		Capacity		Gap	
	2011-12	2016-17	11-12	16-17	11-12	16-17
LAB	480	627	530	530	50	-97

Source : Govt.of India report 2012

Table-4

Indian Oil LAB production, Sales and realization

	2005	2006	2007	2008	2009	2010	2011
Production	111431	121824	132810	128750	123693	126333	101188
Sales							
Domestic	107430	121725	136176	126706	124315	123946	100651
Realisation	52836	57244	58990	80809	67878	76679	95955
Export	20463	31304	38572	21423	19132	17377	5042
Realisation	49230	52214	53115	72034	61593	73445	91580

*Production and Sales in MT and realization in Rs./MT

Source : In house data-2004 figure were not considered as production has started in mid-year

Table-5

Industry data

DOMESTIC MARKET CAPACITY UTILISATION

	2004	2005	2006	2007	2008	2009	2010	2011
CAPACITY	405	449	449	497	497	497	530	530
PRODUCTION	362	468	460	471	434	464	460	454
CONSUMPTION	310	351	344	382	404	478	497	490
CAPACITY UTILISATION	89%	104%	102%	95%	87%	93%	87%	86%

*Industry indicated all LAB domestic industries

Source : In house report, all fig in KT

Table-6

LAB IMPORT EXPORT-INDIA

	2003	2004	2005	2006	2007	2008	2009	2010	2011
IMPORT									
IRAN		6,573	4,255	12,152	11,832	21,818	13,676	14,477	38,017
Qatar				6,089	13,995	24,188	32,187	38,973	46,134
SA				2,920	9,216	11,060	17,602	15,967	16,810
Others	2,791	2,860	616	309	3,479	3,105	13,196	5,027	5,223
TOTAL	2,791	9,433	4,871	21,470	38,522	60,171	76,661	74,444	1,06,184
Average Import Price excluding IRAN	45,576	44,508	53,683	54,512	55,321	70,014	70,087	75,780	93,028
Average Import Price-IRAN		40,178	46,608	52,764	55,594	65,590	59,712	84,907	85,819
EXPORT	40,920	58,707	1,05,087	1,27,397	1,29,118	83,595	86,863	1,20,626	65,878
Average Export Price	31,464	39,906	47,913	52,148	54,342	82,738	64,353	69,970	1,19,818

Source : Ministry of Commerce

Table-7

	2004	2005	2006	2007	2008	2009	2010	2011
Profit/MT OF DOMESTIC INDUSTRY(INDEXED)		100	74.95	59.27	100.5	100	80	88

2005&2009 considered base year

Table-8

Global supply/demand scenario**:**

Year	2008			2008		2010		2012		2014		2016
Country	Capacity	Capacity Addition by 2012	Total Capacity by 2012	Demand	%Gr.	Demand	%Gr.	Demand	%Gr.	Demand	%Gr.	Demand
North America	431		431	190	3	196	2.3	204	3	214	3	227
South America	378		378	554	6.1	588	3	633	3.9	681	3.9	735
West Europe	506		506	305	1.8	310	1.4	319	1.4	328	1.4	338
C-E Europe	60		60	100	4.5	105	1.8	112	3.1	118	3.1	126
Africa	150		150	185	5.4	200	4.8	221	5.7	247	5.7	276
Middle -East	390	80	470	270	4.4	289	5.2	315	3.8	338	3.8	364
Japan	90		90	62	4	64	2	66	0.7	67	0.7	68
China	500	200	700	518	10.3	624	7.8	735	8.5	863	8.5	1016
India	530		530	364	10.1	428	4.5	483	6.4	544	6.4	616
Other Asian countries	425		425	326	6.9	354	5.7	391	5.7	437	5.7	488
WORLD TOTAL	**3460**		**3740**	**2874**		**3159**		**3479**		**3837**		**4253**
ME + SEA TOTAL	**1935**		**2215**			**1759**		**1990**		**2249**		**2552**

Note :Capacity and demand in KT in 2008 as per in house report.

% growth taken as per actual in 2009 to 2012 based on IMF, World Economic outlook, January 2013 in line with GDP growth rate in 2009

In 2009 negative(-) growth has not been considered

ME-Middle East

SEA-South East Asia

C-E Europe : Central & East Europe

Annexure-1

(Calculations on multivariate correlation on import impact on Indian domestic market)

How production, sales, export of table 4 are correlated with imports in table 6 -comparison with IRAN and with others:

	production	sales	export	import(IRAN)
production	1	0.99925	0.80129	0.44782
sales	0.99925	1	0.81287	0.44889
export	0.80129	0.81287	1	0.00361
import(IRAN)	0.44782	0.44889	0.00361	1

Now correlation coefficient between production and import from IRAN is 0.44782 which nearly 0.5.So, we can say that there is a moderate correlation coefficient between production and import from IRAN. Correlation coefficient between sales and import from IRAN is 0.44889 which is also nearly 0.5. So, we can also say that there is a positive moderate correlation coefficient between sales and import from IRAN.

On the other hand, the correlation coefficient between export and import from IRAN is 0.00361, which is very much low and nearly 0. Here we can say that here is very small positive correlation coefficient between export and import from IRAN which may lead us to conclude that there is a minimal impact on export by import from Iran.

	production	sales	export	import(others)
production	1	0.99925	0.80129	0.52746
Sales	0.99925	1	0.81287	0.5305
export	0.80129	0.81287	1	0.03906
import(others)	0.52746	0.5305	0.03906	1

Again, the correlation coefficient between production and import from other countries is 0.52746 which is higher than that of IRAN. And correlation coefficient between sales and import from other countries is 0.5305 which is also higher than that of IRAN. But in this two case, the raise in correlation coefficient is not that much higher. But if we consider the correlation coefficient between export and import from the other countries, the result is 0.03906 which is significantly higher from that of IRAN. So, we can conclude that the impact on export by import from other countries is significant if we compare with that by IRAN.

How realisation of domestic and exports of table 4 are correlated with import price and volume in table 6 –with IRAN and with others:

	domestic realisation	export realisation	import price(Iran)
Domestic	1	0.99841	0.88063
export realisation	0.99841	1	0.89067
import price(IRAN)	0.88063	0.89067	1

The correlation coefficient between realisation from, domestic sales and import price of IRAN is 0.88063 which is very high. That means there is a significant impact of import price of IRAN on domestic realisation. And the correlation coefficient between export realisation and import price of IRAN is 0.89067 which is also nearly 1, from which we can conclude that the impact of import price of IRAN on export realisation is very remarkable.

	domestic realisation	export realisation	import volume(IRAN)
Domestic	1	0.99841	0.79336
export realisation	0.99841	1	0.80245
import vol(IRAN)	0.79336	0.80245	1

If we do the comparison volume-wise, the correlation coefficient between domestic realisation and import volume from IRAN is 0.79336 and that of between export realisation and import volume from IRAN is 0.80245. Both of the results are very high. We can also conclude in this case that the impact of import volume from IRAN on domestic realisation and export realisation is significant.

	domestic realisation	export realisation	import price(others)
Domestic	1	0.99841	0.86936
export realisation	0.99841	1	0.88594
import price(others)	0.86936	0.88594	1

On the other hand, in case of other countries than IRAN, in the case of price wise comparison, the correlation coefficient between domestic realisation and import price is 0.86936 and correlation coefficient between export realisation and import price is 0.88594 which both are smaller than that of IRAN. So, we can conclude that the domestic and export realisation is more effected by the impact of import price of IRAN than import price of other countries.

	domestic realisation	export realisation	import volume(others)
Domestic	1	0.99841	0.77481
export realisation	0.99841	1	0.78512
import volume(others)	0.77481	0.78512	1

In case of volume wise comparison, the correlation coefficient between domestic realisation and import volume is 0.77481 and correlation coefficient between export realisation and import volume is 0.78512 which both are again smaller than that of IRAN. So, here also we can conclude that the domestic and export realisation is more effected by the impact of import volume of IRAN than import volume of other countries.

How domestic capacity utilisation of table 5 is correlated with imports of table 6-with IRAN and with others and against total:

	domestic capacity utilisation	import volume(IRAN)
domestic capacity utilisation	1	0.33791
import vol(IRAN)	0.33791	1

	domestic capacity utilisation	import volume(others)
domestic capacity utilisation	1	0.23161
import vol(others)	0.23161	1

	domestic capacity utilisation	import volume(total)
domestic capacity utilisation	1	0.27556
import vol(total)	0.27556	1

The correlation coefficient between the domestic capacity utilisation and import price from IRAN is 0.33791. the correlation coefficient between domestic capacity utilisation and import price from other countries is 0.23161 and that of between the domestic capacity utilisation and import price from all countries is 0.27556. it shows that all correlation coefficients are lower than moderate, but impact by import price from IRAN on domestic capacity utilisation is higher than the other countries.

How export prices are correlated with import price in table 6-with IRAN and with others:

	export price	import price(Iran)	import price(others)
export price	1	0.806	0.95389
import price(iran)	0.806	1	0.83598
import price(others)	0.95389	0.83598	1

The correlation coefficient between export price and the import price from IRAN is 0.806 and the correlation coefficient between export price and the import from other countries is 0.95389. This shows us that the impact of import price from IRAN on export price is lower than by the other countries.

How domestic profitability index in table 7 is correlated with import and export price and quantity of table 6-compare with IRAN and others separately.

	domestic profitability index	import price(Iran)
domestic profitability index	1	0.71366
import price(Iran)	0.71366	1

The correlation coefficient between domestic profitability index and import price from IRAN is 0.71366. It's quite a high value which means the import price of IRAN has a good impact on domestic profitability index.

	domestic profitability index	export price
domestic profitability index	1	0.60051
export price	0.60051	1

The correlation coefficient between domestic profitability index and the export price is 0.60051 which is slightly greater than 0.5. From this, we can say that there is a moderately good impact of export price on domestic profitability index.

	domestic profitability index	import price(others)
domestic profitability index	1	0.65376
import price(others)	0.65376	1

The correlation coefficient between domestic profitability index and the import price of other countries is 0.65376. From which we can conclude that the impact of import price of other countries on domestic profitability index is above moderate but not as good as the impact by import price of IRAN.

	domestic profitability index	import volume(Iran)
domestic profitability index	1	0.52283
import volume(Iran)	0.52283	1

The correlation coefficient between domestic profitability index and import volume from IRAN is 0.52283 which leads us to conclude that the impact of import volume from IRAN on domestic profitability index is moderate.

	domestic profitability index	import volume(others)
domestic profitability index	1	0.56285
import volume(others)	0.56285	1

The correlation coefficient between domestic profitability index and the import volume from other countries is 0.56285. From this result we can say that the impact of import volume from other countries on domestic profitability index is moderate, but higher than the impact by import volume from IRAN.

Objective is to see how domestic market price, capacity and realisation is impacted by import and which has the strongest correlation and which has least correlation.

From the above analysis, we can conclude that the impact of import is positive on domestic market price, capacity utilisation and realisation. Now, impact on domestic market price by import is more or less moderate. But the impact on capacity utilisation is very small. And the impact on realisation is significantly remarkable. Hence, the impact of import on realisation is the strongest and the least impact of import is on capacity utilisation.