

OIL SECTOR : CURRENT PERSPECTIVE OF INDIA

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Introduction

In 2015-16, India emerged as the main driver of oil demand growth in the world when international demand was growing at its strongest rate at 1.8 million barrels per day (mb/d). However, in contrast with 2010, when demand growth was largely affected by the global financial downturn, demand growth in 2015-16 was independent of these factors, although the 25% fall in oil prices provided a significant boost to consumer demand.

In the last decade, the main oil demand growth was driven by USA and China which accounted for almost two third of the total growth rate. In this era of economic slowdown and deliberate rebalancing policy, a new contender has emerged—India.

Previously, Indian oil demand failed to compete with China due to the dominant share of its service sector, as compared to manufacturing in GDP, and partly because a situation of ‘political paralysis’ over the last few years was unattractive for industrial investment. However, 2015-16 saw a ‘New India’ emerge, with oil demand growth jumping to 0.3 mb/d per year, a record high. India is soon likely to overtake Japan as the second-largest oil consuming economy in Asia.

The global oil price downturn shows the indication of substantial fiscal improvement and a 10% decrease in oil prices in 16-17 which will increase import of oil up to 0.5%. (World Bank Report)

In this paper, we argue that in addition to the boost from low oil prices, structural and policy-driven changes are underway which could result in India’s oil demand growth in a similar way to China’s during the late 1990s, when Chinese oil demand was at levels roughly equivalent to current Indian oil demand. India’s per capita oil consumption has increased as a result of the increased affordability of oil in various uses (on the back of the drop in the oil price) for a large section of its population who could not previously afford it. This is also becoming visible in the motorization of the Indian economy. Furthermore, the Indian government’s target of increasing the manufacturing sector’s share of GDP to 25 percent by the beginning of the next decade (from roughly 15 percent at present) could lead to higher oil consumption in manufacturing. Finally, the programme of infrastructure construction, (roads and national highways) that is being partly funded through revenues from the higher taxation of oil and oil products, is also likely to support oil demand growth.

Historical Background

Historically, Indian oil consumption shows a steady growth rate over the past decade which roughly comes 0.15 mb/d annually. This steady growth shows that income effect beats the price effect in this decade, implying a low price elasticity of demand in India. The IMF in 2011, for instance, predicted that between 2015 and 2018 the Indian economy would grow at around 6 percent on average which matches

the income elasticity of oil. In addition to this expected long-term trend, however, there was an upsurge in oil demand in India during 2014 and 2015 due to fall in prices.

This demand pattern can be better understood by a further examination of data from 2014 and 2015 as oil demand remained largely depressed during 2013 due to an economic downturn in India. It picked up in June 2014 with the strongest demand growth since January 2013, but remained relatively muted through 2014 and registered its first fall in August 2014 and continued till October 2014. Demand rebounded from November 2014 onwards, showing a then-record increase of 9.4 percent in February 2015, the second highest growth on record at the time. Demand growth remained robust through 2015, with occasional dips due to a weakening rural sector. In the September 2015 year by year demand growth reached 0.5mb/d and a record of 0.62mb/d in October.

While November 2015 demand growth eased back to a more realistic 6.4 percent (0.24mb/d), December 2015 demand growth picked back up to 0.31mb/d. Average oil demand growth from April 2014 to December 2015 was around 0.22mb/d, while average growth from January to December 2015 was 0.29mb/d, both figures being considerably higher than the historical average demand growth of roughly 0.1–0.15mb/d between 2000 and 2015. Demand stayed near the record high at 3.95mb/d in January, higher y/y by 0.45mb/d, continuing with the momentum seen in 2015.

The Concept of Growth

The concept of growth depends on three conditions. The process of economic growth as centering on a relatively brief time interval of two or three decades when an economy, and the society of which it is a part, transform themselves in ways that economic growth is subsequently more or less automatic. The sequence of growth is taken to consist of three periods: a long period (amounting to several decades) when the preconditions for growth are established, the growth itself, defined within two or three decades, and a long period when growth becomes normal and relatively automatic. These three stages do not preclude the possibility of growth giving way to secular stagnation and decline.

The three conditions are:

- (a) A rise in the rate of productive investment from 5% to over 10 % of national income or net national product
- (b) The development of one or more substantial manufacturing sectors, with a high rate of growth; and,
- (c) The existence or emergence of a political, social, institutional framework which supports economic growth

As per Rostow's theory (1956) in a developing economy like India, four basic factors must be present:

- (i) There must be an enlarged effective demand for the product or products of sectors which have the potential to generate a rapid rate of growth in output
- (ii) There must be an introduction into these sectors of new production functions as well as an expansion of capacity
- (iii) The society must be capable of generating the capital initially required to catalyse the growth in these key sectors.

- (iv) The leading sector(s) must be such that their expansion and technical transformation induce a chain of Leontief input-output requirements for increased capacity and the potential for new production functions in other sectors.

Conclusively we can say that growth is a normative idea to which most developing country governments aspire and one which they consequently attempt to catalyse through specific policies.

Per Capita Oil Consumption

India's per capita oil consumption is relatively low in comparison to the world's largest consuming economies. The wealthiest 10 percent of its population accounts for a quarter of household energy expenditure. Furthermore, household expenditure on energy is two and a half times higher in urban areas than in rural areas, with the most affluent sectors of the urban population spending around eight times as much as the poorest, whereas in rural areas the most affluent only spend four and a half times as much as the poorest (IEA, 2015). The drop in oil prices (the price of the Indian crude oil basket has fallen from 109 US\$/barrel in June 2014 to 25 US\$/barrel in January 2016) has been sufficient to increase affordability for a whole new segment of the growing middle-class population. The effect of prices is reflected in both higher consumption of fuels as well as a switch away from bioenergy and kerosene towards commercial fuels such as LPG.

Vehicle Ownership

The effect on per capita oil consumption is best observed in the transportation sector, which accounts for roughly 40 percent of India's oil consumption. Car ownership growth rate has improved in the Indian economy i.e. 3 per 1000 in 1990 to 23 per 1000 in 2015, and penetrated growth (car plus two-wheeler) raised to 150 per 1000 in 2015 from 18 per 1000 in 1990.

Car sales are indicative of the effect of rising incomes and the move towards higher-end private transportation. However, two-wheeler sales are much more reflective of the number of new consumers entering the market for personal transportation, on the back of the increased affordability of oil. The purchasing of two-wheelers is, therefore, a closer reflection of a step up on the energy ladder towards motorization. It can be expected that much of the two-wheeler fleet will be replaced by cars, as consumers continue to climb the energy ladder on the back of rising economic growth and per capita income. India is now the world's sixth largest car market, with 26 million units sold in 2014. From 2010 to 2015, car sales have been increasing by around 2 million units annually. Percentage growth rates are misleading here, even if the market slows down, the crucial factor for oil markets is that the vast majority of new car sales in India go to fleet expansion. Between 2007 and 2015 the size of India's vehicle fleet nearly doubled, rising from around 96 million vehicles to 200 million vehicles.

Collectively, this evidence implies that India's vehicle ownership pattern is indicative of the motorization stage, with consequent implications for oil consumption.

Infrastructure and Road Building

Per capita consumption is taken as the primary determinant of vehicle ownership growth and saturation levels, but the development of infrastructure, particularly roads in developing countries, is assumed to

follow the trajectory seen in developed countries. India's government has embarked upon a massive programme of infrastructure creation, aiming to construct 30 km of highway roads per day. Highway construction has been extremely erratic during the past decade, with substantial additions seen in some years @ 13% in 2004 and 2012 and no progress in others. Given that personal transportation (namely, the car fleet) is likely to grow in line with per capita income levels, this expansion in national highways holds significant implications, primarily for road transportation, particularly for diesel consumption.

The broad conclusion from this is that the 'boom' in road construction if successfully achieved, will further lift the expansion of the goods vehicle fleet and concomitantly increase diesel consumption. In a recently released 'Global Construction 2030' report, the Indian construction market is highlighted as the key driver of growth – being set to overtake Japan as the third-largest construction market within the next five years.

Environmental Factors

The largely ignored factor with regard to growth-based motorization is that of environmental constraints, imposed through policy measures on pollution, aimed at curbing particulate matter emissions from vehicles. While this constraint is unlikely to alter the trend in motorization, it will alter the demand for oil products used in enabling motorization. In India, this is likely to affect diesel demand, as diesel-powered vehicles account for over 90 percent of SUVs, 34 percent of small cars, and 70 percent of large/medium cars. In December 2015, India's Supreme Court placed restrictions on the use of high-end diesel passenger vehicles in India's National Capital Region these restrictions ban such high-end vehicles from new registrations until 31 March 2016. The Court has also banned diesel goods vehicles registered prior to 2005 from entering Delhi. Furthermore, all taxis in the capital must mandatorily switch to Compressed Natural Gas (CNG); this is estimated to impact around 30,000 vehicles. The impact of the ban on overall diesel demand in January 2016 was relatively small (around 10-20 thousand b/d), more than offset by higher demand from manufacturing.

Delhi's state administration has also imposed a 'green-cess' on light and heavy commercial vehicles which will push up the cost of maintaining diesel vehicles. Indian policymakers are increasingly concerned about rising urban air pollution levels. In January 2016, Delhi's government carried out a 15-day pilot programme when private cars were allowed to operate on public roads only on alternate days, depending on whether their license plates end in an even or an odd number.

Manufacturing - Impact of "Make in India Initiative"

In September 2014, India's government announced a major policy initiative entitled 'Make in India'; this was aimed at expanding the share of manufacturing from 15 percent of GDP to 25 percent by the year 2022. It has been estimated that 220 million additional jobs will be required by 2025 (GoI, 2011). India's manufacturing sector currently comprises roughly 11 percent of total employment, in contrast with the position in other emerging markets where the share of manufacturing employment ranges from 15 to 30 percent (GoI, 2013), and the 'Make in India' policy aims to generate 100 million additional manufacturing jobs by 2022. Target annual average growth rate of 12 percent for the manufacturing sector as a whole is expected during the Twelfth Five-Year Plan (2012–17) and until 2025.

India's push to expand its share of manufacturing in GDP implies a concomitant increase in oil consumption, subject to improvements in the energy efficiency of GDP. Manufacturing GDP in India in 2014 was estimated at US\$153 billion, or roughly 15 percent of total GDP, which is estimated at around US\$1 trillion (Planning Commission Databook, 2014).

By analyzing historical data of 2007-2015, projections show a clear upward trend from 2016 onwards, with oil consumption in manufacturing in 2022 estimated at around a third higher than the figure for 2015. However, it must be stressed that this is a broad and somewhat conservative estimate, based on a set of assumptions. The actual trend could well be non-linear and is contingent upon the effectiveness of government policy in catalyzing the required ramp-up in manufacturing GDP. Furthermore, improvements in energy efficiency could temper oil consumption growth in manufacturing.

Diesel will not be the sole beneficiary of the push toward manufacturing, as Naptha and bitumen consumption is also likely to increase. Indeed, naphtha demand has grown considerably since March 2015, reaching a double-digit growth figure in July 2015. Between July and November 2015, naphtha demand growth averaged 29 percent, with November growth a massive 40 percent.

The Indian petrochemical industry has grown rapidly in the last 10 years, capacity expansions have led to much self-sufficiency for major petrochemical building blocks such as ethylene, propylene, and aromatics amongst others.

Trade Flow Impact

Our analysis suggests that oil consumption in India is at a potential inflection point, mimicking the third stage of economic growth. It can be argued that the relationships between creation of infrastructure, the push towards manufacturing and oil consumption, generally hold true for emerging markets. A simple correlation of India's merchandise exports with its oil consumption yields a strong positive coefficient of 0.92. However, the growth in oil consumption also holds implications for trade flows, both with specific regard to India's trade balance and its recent status as an oil products exporter, as well as for international oil trade flows. Already, oil product exports have fallen for eight of the first eleven months of 2015, with average product exports over the same period lower by over 0.1 mb/d compared to the same period in 2014.

The area where the change in trade flows has been the most apparent has been in naphtha. Indian naphtha exports have fallen by around 21 thousand b/d between January and November 2015, with the decline extending to 44 thousand b/d between September and November, as the country consumes more of its own output due to the rapid growth in the demand discussed above. India has long been a key short-haul naphtha supplier for the Asian market, so the decline in exports has been felt very rapidly.

Diesel exports have also fallen, by an average of 39 thousand b/d in 2015. While part of this is tied to heavy refinery maintenance, growing demand also played a part in a trend that is likely to continue. Growth in domestic oil demand could, therefore, reverse India's recently achieved status as a net oil products exporter, with significant implications for international trade flows.

Conclusion

India's oil demand has soared over the last year, reaching an average figure for oil demand growth y/y of 0.30 mb/d in 2015, compared with 0.1–0.15 mb/d over the previous decade. This jump in demand reflects a number of underlying dynamics at play, which indicates that India's oil demand may be on the verge of growth. The magnitude of this growth can be gauged by the fact that Indian oil demand is demonstrating trends that were visible in China around a decade ago, during the country's industrialization 'boom'. Furthermore, an analysis of motorization, widely regarded as an acceptable metric in gauging oil consumption patterns and economic growth, shows that car ownership trends in India (per thousand population) are at around the levels which China reached a decade ago. India's per capita income on a purchasing power parity basis is also estimated to have breached the threshold beyond which motorization rapidly ensues.

While the drop in oil prices since June 2014 has aided the expansion in oil demand (the increased affordability of oil to a very large section of the population is reflected, for instance, in massive additions of two-wheelers to the total vehicle fleet over 2015-16) this paper has also shown that recent policy initiatives are likely to further lift oil demand, a process which is already apparent in the data. Specifically, this paper has estimated the impact on oil demand, and specifically on oil products such as diesel and naphtha, of the push to increase manufacturing's share within GDP from 15 per cent at present to 25 percent by 2022. Such an increase could add at least a third to India's current demand levels, based on a broad and conservative linear estimate. A concomitant programme of creating road infrastructure targeting the addition of 30 km a day will add to this, although this paper has argued that growing environmental and air pollution restricted could constrain growth in oil demand in the transportation sector. In terms of the bigger picture: while China's oil demand growth has slowed to around 0.30mb/d since 2013 from levels of 0.50mb/d in the previous decade, India appears to not have long to go in terms of achieving the same levels of oil demand growth. This rise in demand also has implications for India's recently acquired status as a net exporter of oil products, which, as discussed, could well be reversed. Finally, the question of whether India will manage to soar to a higher plane of development and consumption is contingent to a great extent upon its ability to carry out and sustain structural reforms to support economic growth.

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