

Crude Oil Prices and Its Impact on Indian Economy

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Abstract: With rapid economic growth, energy demand in India has been rising rapidly, and India is now the fourth largest consumer of crude oil in the world. Unfortunately, India has to import most of its oil requirement, which leads to severe pressure on the economy when the oil prices rise. Thus, estimations of crude oil demand and projections for the future should be useful to policy makers in making appropriate supply arrangements for the future.

In this paper empirically estimates falling of crude prices and position of India's oil industry. We analyze the relationship trend of production over its consumption and production with import. Then crude prices effect on India's inflation, its importance to Reserve Bank of India, its impact on fiscal and trade deficit and Indian oil companies. Finally by considering all these effect and impacts we figure out future hold for India considering crude prices.

Therefore, India should take various measures to improve efficiency in the use of petroleum products and try to enhance supplies such as through production sharing agreements by Indian oil companies with other countries. We also need to increase use of nuclear, hydro, solar, and other alternative energy sources, as Western European countries have been doing. Careful planning to ensure that future petroleum requirements can be met will be useful in sustaining rapid economic growth in the future.

Keywords: Fiscal Deficit, Inflation, OPEC, PPAC, RBI, Trade Deficit.

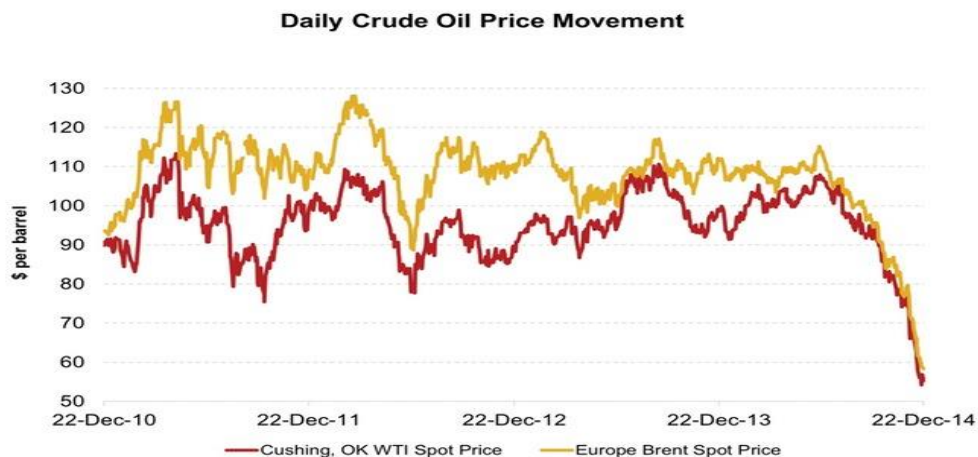
I. INTRODUCTION

Energy security is crucial for both sustaining high economic growth and controlling inflation. With rapid economic growth, energy demand in India has been rising rapidly, and India is now the fourth largest consumer of crude oil in the world. Unfortunately, India has to import most of its oil requirement, leading to severe pressure on the economy when the oil prices rise. Thus, estimations of crude oil demand and projections for the future should be useful to policy makers in making appropriate supply arrangements for the future.

There are many different sources of energy consumption, such as coal, crude oil, natural gas, hydroelectric, solar, wind, and nuclear energy. Out of India's total energy consumption, crude oil accounts for 24 per cent, natural gas 6 per cent, coal 40 per cent, combustible renewable and waste 27 per cent, hydroelectric power 2 per cent, and nuclear energy and wind energy about 1 per cent each; solar energy has an insignificant share. Thus, crude oil and coal account for about two-thirds of India's energy consumption.

II. FALLING OF CRUDE PRICES

Currently, you don't need three digits to write down crude oil prices. In fact, prices aren't just in double-digits; they've decreased to below \$60 per barrel. Right now it can be heard in two completely different tones from different parts of the world. Let's take a look at why oil prices fell.



There are three main reasons why crude prices fell:-

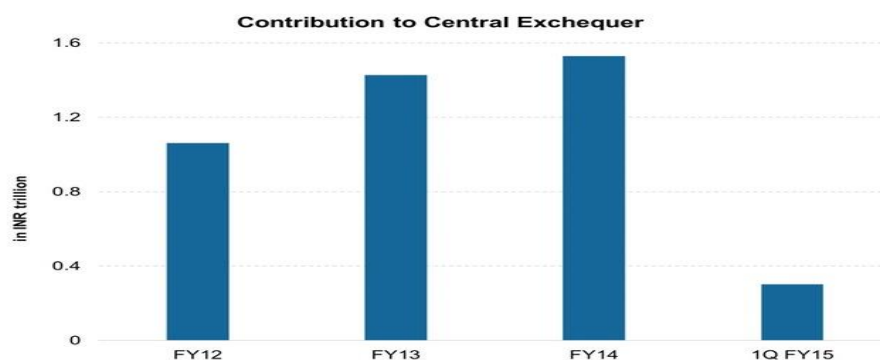
1. Weak demand – A slowdown in global economic activity led to weak demand. In its monthly report in December, OPEC (Organization of the Petroleum Exporting Countries) projected world oil demand to “grow by 0.93 million barrels per day (or mb/d) to average around 91.13 mb/d. These projections represent a decline of 0.12 mb/d from the previous report.” The main reason for this is the decline in demand in the OECD (Organization for Economic Co-operation and Development) region. The OECD is a group of 34 countries.
2. US oil production – The US has become the largest oil producer. Although it’s the largest consumer as well, it needs to import much less than it used to because of a surge in domestic supply.
3. OPEC production – In its 166th meeting held on November 27, the OPEC nations “decided to maintain the production level of 30.0 mb/d, as was agreed in December 2011.” There were expectations of a supply reduction to restore crude oil prices, but OPEC decided against it.

As a result of these three reasons and OPEC’s decision, crude oil prices tanked. Exchange-traded funds also fell—like the United States oil fund, the SPDR oil & gas exploration & production exchange-traded fund, and the market vectors oil services exchange-traded fund. These exchange-traded funds are down 40.4%, 27.7%, and 24.6%, respectively, as of December 24, 2014.

Oil giants like ExxonMobil and chevron corp. are down 7.3% and 9.2% this year. They’re down 10.2% and 14.7%, respectively, from their peaks in July.^[2]

III. POSITION OF INDIA’S OIL INDUSTRY

The oil and gas industry is part of India’s six core industries. India was the fourth largest consumer of crude oil and petroleum products in the world. In 2013, it was behind the US, China, and Japan. It’s a net importer of crude oil. India’s import dependency is ~80%. For domestic consumption, it requires imports of ~77% of demand. To fulfill their fuel needs, retail consumers had 51,868 outlets at the end of March 2014.



source:- petroleum planning & analysis cell

The petroleum sector contributed 1.53 trillion rupees to the Indian Exchequer from April 2013 to March 2014. At 63 rupees to one US dollar, it works out to be \$24.3 billion. In the same period, the sector contributed 1.52 trillion rupees to the states. Its total contribution was 3.05 trillion rupees.^[3]

A. Subsidies:

Subsidies have been an important aspect of India's spending. However, subsidies are debilitating. They're like double-edged swords. When a country is growing, they're necessary to help certain sections of society and the industry. They pressure government finances. Consumers also get used to unrealistically low prices. That's what low gasoline and diesel prices did to Indians.

The pressing need for fiscal consolidation led the government to deregulate gas and diesel. Through a notification on June 25, 2010, gas prices were determined by the market. However, diesel prices were only partially set free. From that period, due to a surge in gasoline prices, a huge difference was created between gasoline and diesel prices. During that time, diesel passenger vehicle sales surged.

Gradually, diesel prices were also let go. The final notification for complete deregulation was issued on October 18. Intermittently, public sector diesel retailers were allowed to raise diesel retail prices by 40 to 50 paise—\$0.01—per liter per month. This was good news for oil retailers.

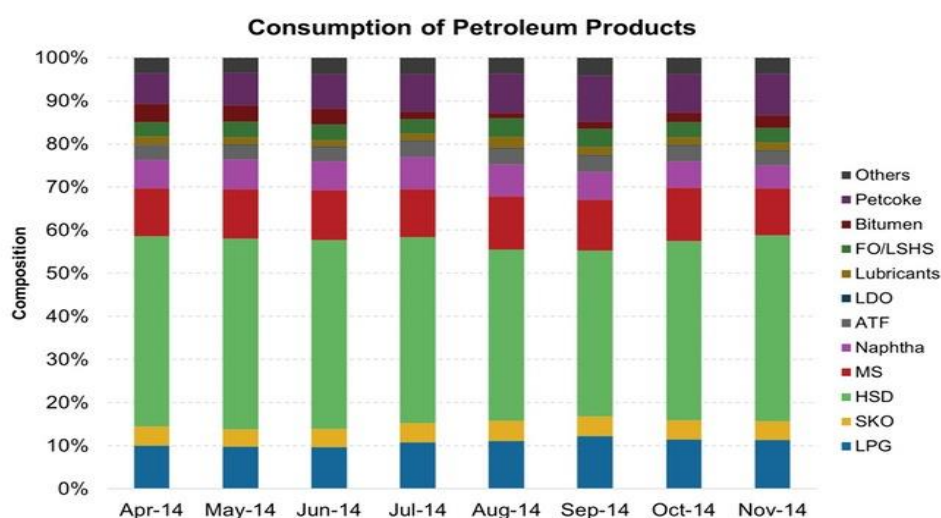
It was also good for Indian exchange-traded funds that have exposure to these companies—like the Wisdom Tree India Earnings Fund, the Power Shares India Portfolio, and the iShares MSCI India exchange-traded fund—due to the reduction in government finances. An improvement in the deficit situation is also good for exchange-traded funds that have sizeable exposure to India.

However, subsidies on all petroleum products haven't ended. Kerosene and domestic LPG (liquefied petroleum gas) are still subsidized by the government. Kerosene and domestic LPG are used for cooking and other uses.^[7]

IV. RELATION BETWEEN PRODUCTION AND CONSUMPTION

Before moving on to India's petroleum consumption, production, and refining, it would be beneficial to take a look at the various products that India produces and consumes. We'll also look at how the products are used.

Looking at the products will help you get a more "refined" view of India's production and consumption patterns. Also, since crude oil prices impact most of the products, it's important to understand them. They also impact Indian exchange-traded funds.



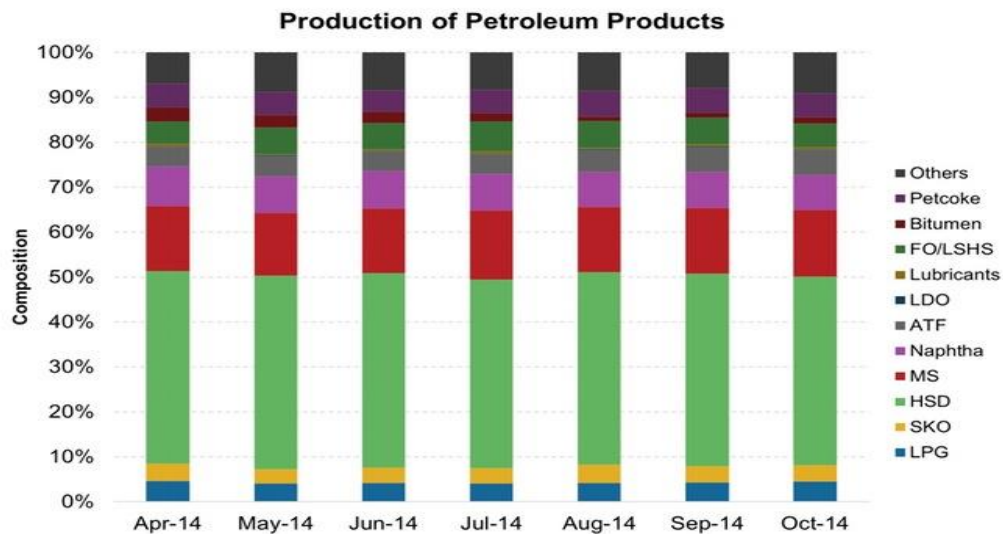
Source: - petroleum planning & analysis cell

The Ministry of Petroleum and Natural Gas divides these products into three broad categories:

1. Sensitive products

2. Major decontrolled products^[3]

Let's look at these products in more detail.



Source:- petroleum planning & analysis cell

A. Sensitive products:

These products' prices are watched closely by the government. They're also beneficiaries of the government's subsidies.

- LPG (liquefied petroleum gas) – it's mainly used for cooking in urban Indian homes. It's subsidized by the government, although prices have been raised from time to time.
- SKO (superior kerosene oil) – it's used for cooking in Indian villages. It's also used as an illuminant in lamps, a solvent in paints, and a low sulfur fuel in boilers and furnaces.
- HSD (high speed diesel) – it's mainly used as fuel in compression engines that operate above 750 RPM (revolutions per minute). It's used in commercial vehicles, stationary diesel engines, locomotives, and pumps. It has the highest consumption among all of the products.

B. Major decontrolled products:

- MS (Motor Spirit) – it's also known as petrol, motor gasoline, or simply gasoline.
- Naphtha – it's used as fuel in gas turbine units, power plants, and petrochemical plants. It's also used as feedstock for fertilizers.
- ATF (aviation turbine fuel) – ATF, or jet fuel, is used for airplanes and helicopters.
- LDO (light diesel oil) – LDO is used in lower RPM engines than HSD.
- FO or LSHS (furnace oil or low sulfur heavy stock) – FO is used for power generation in diesel generator sets. It's also used as feedstock for fertilizer plants and fuel for boilers or furnaces. LSHS is used for the same applications. It's used instead of FO.
- Bitumen – it's a common binder. It's used in road construction.

C. Historical trend:

In India, the consumption of oil products saw steady growth over the years. The CAGR (compound annual growth rate) for the ten years ending in March 2014 is above 3.5%. There has been growth across the three categories:

Sensitive products

- LPG (liquefied petroleum gas)

- SKO (superior kerosene oil)
 - HSD (high speed diesel)
- Major decontrolled products
- MS (Motor Spirit)
 - Naphtha
 - ATF (aviation turbine fuel)
 - LDO (light diesel oil)
 - FO or LSHS (furnace oil or low sulfur heavy stock)
 - Bitumen

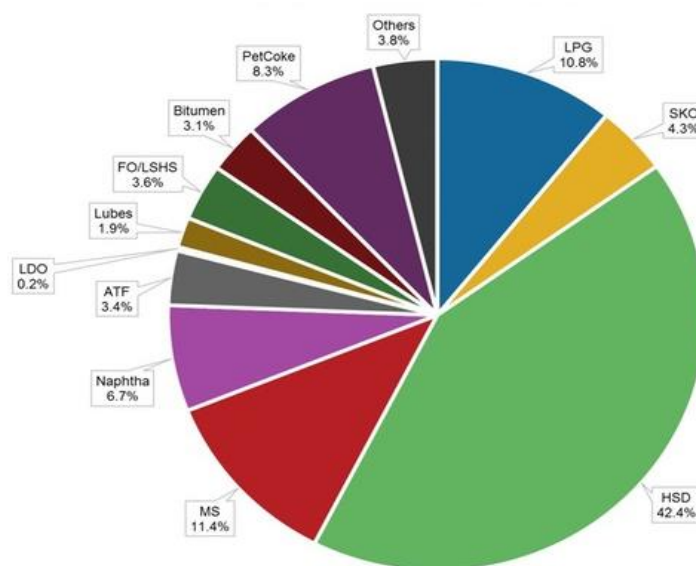


Fig. Estimate consumption of all petroleum products in 2015-16

Source:- petroleum planning & analysis cell

In terms of annual growth, other minor decontrolled products are the most volatile category. In this category, the consumption of products fell by over 20% in fiscal year 2011 year-over-year. It saw a surge of over 41% in fiscal year 2013.

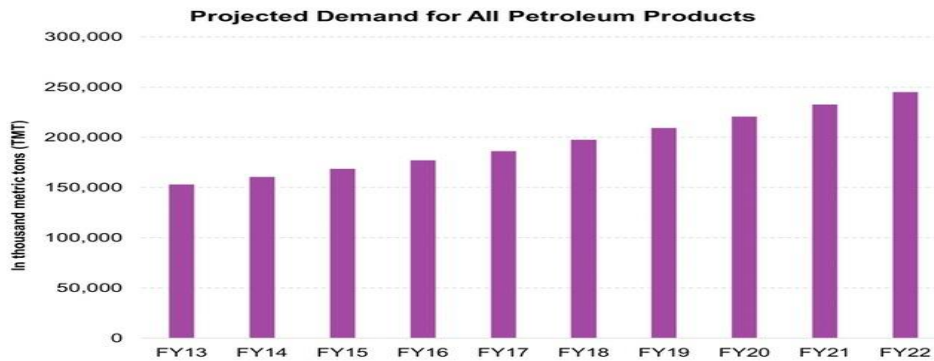
The other two categories saw a fall in consumption in fiscal year 2014. Consumption of sensitive products fell by 0.4%. Consumption of major decontrolled products fell by 0.7%.^[4]

D. Current trend:

Despite the minor fall in the previous year, the growth trend is continuing this year. Overall growth is 3.7%—compared to the same period last year. The data for fiscal year 2015 is from April to November 2014. Sensitive products have been consumed by over 2.6% this year. Major decontrolled products' consumption increased by 2.1%. Other minor decontrolled products' usage increased 13.8%.

E. World trend:

According to IES (International Energy Statistics) presented by the EIA (US Energy Information Administration), the CAGR (compound annual growth rate) for total petroleum consumption for the world was 0.8% from 2005 to 2013. This consumption has been measured in thousand barrels per day. In the same period, China saw its consumption increase by 5.1%. In CAGR (compound annual growth rate) terms, India's consumption increased by 4.1%. In contrast, the US saw its consumption decrease by 1.2%.

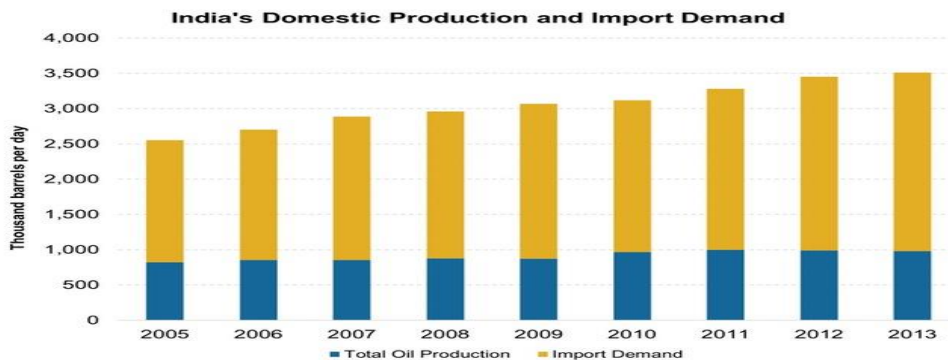


Source:- petroleum planning & analysis cell

This shows that India hasn't been plagued by a demand reduction. Its demand remains higher than the world's demand. This is important to know. If India's demand had fallen, like the US, then analyzing the impact of a fall in crude oil price wouldn't mean much.^[1]

V. RELATION BETWEEN PRODUCTION AND IMPORT

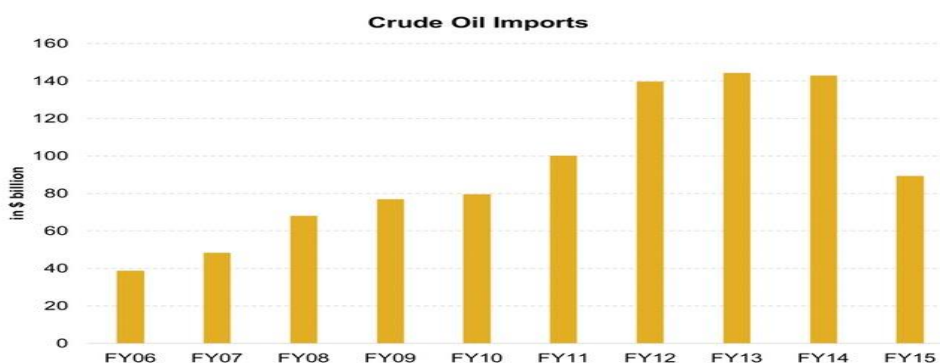
India produces a little under a quarter of its crude oil demand. According to the PETROLEUM PLANNING & ANALYSIS CELL (Petroleum Planning & Analysis Cell), in fiscal year 2014 the country produced ~37,800 TMT (thousand metric tons) of crude oil. The total consumption for the year was 158,400 TMT. As a result, 77.6% of the requirement was fulfilled by imports. This trend continues to date. In November 2014, India's crude oil production only accounted for 22% of its domestic consumption.



Source:- US energy information and administration

A. Reserves:

The EIA (US Energy Information Administration) estimates that India had close to 5.7 billion barrels of proven oil reserves at the beginning of 2014. About 44% of the reserves are onshore resources. The rest of the reserves are offshore resources. However, domestic production of oil remained very slow. It hasn't kept pace with the rising demand.



Source:- petroleum planning & analysis cell

In the past 20 years, India's petroleum production has been growing at a pace below 2%. According to the EIA, its production peaked at 996,000 barrels per day in 2011. For a requirement of ~3,509,000 barrels per day in 2013, the production was grossly insufficient.

B. Why has production been low?

The ONGC (Oil and Natural Gas Corporation) has been the dominant upstream producer in India. Its primary drilling site is the Mumbai High Basin—earlier it was the Bombay High. The site is offshore. However, this basin and other basins have become mature. They've witnessed production declines.

As noted in this series, less than half of the crude oil reserves in India are onshore. As a result, upstream companies have to look at offshore reserves. However, that presents technical challenges. It requires companies to enhance their capabilities. This is cost intensive. For this reason, upstream companies have been looking to acquire assets overseas.

Indian oil and gas companies are well represented in Indian exchange-traded funds, that have over 10% exposure to these companies. Some US energy giants—like Chevron and ExxonMobil—are also present in India.

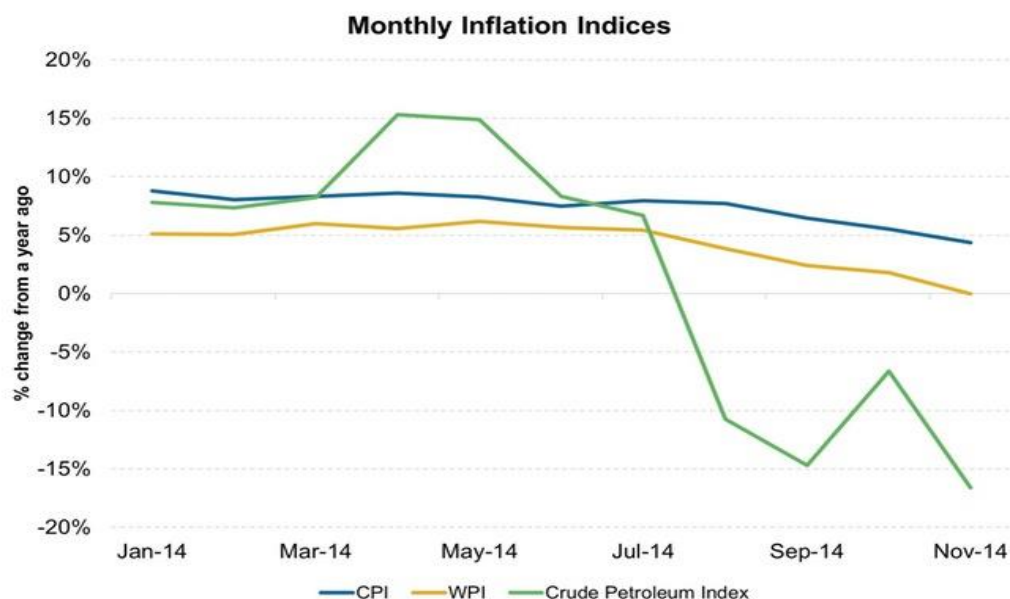
VI. INDIA'S INFLATION REACTED TO THE FALL IN CRUDE PRICES

In India, inflation has two popular measures:

CPI (consumer price index)

WPI (wholesale price index)

The CPI measures prices at the retail consumer level. The WPI measures prices at the wholesale level. In regards to fuel, the WPI is more sensitive to fuel prices. It assigns a weight of 14.91% to fuel—compared to 9.49% assigned to fuel by the CPI.



Source:- central statistics office

Looking at the trend this year, both measures of inflation have slowed their pace. The WPI came to a halt. It was impacted by the falling crude oil prices. The sharpest decline in prices came in the last four months—the same period when crude prices fell.

The Crude Petroleum Index is used as an input to calculate the WPI. It has been declining since August. Its sharpest decline was seen in November—the index slumped 16.6%.

A fall in fuel prices also impacts food prices as transportation costs come down. Food articles account for 14.3% of the WPI and 39.7% of the CPI. As a result, the impact of falling crude prices is magnified.

A. Impact:

Since inflation's high pace has been plaguing India for the last five years, this fall is a welcome change. It eases pressure on the RBI (Reserve Bank of India). It will help the RBI reduce India's key rate—the repo rate. Currently, it's 8%. A reduction in this rate would make loans cheaper. It would be an incentive for people to spend. This would help increase India's economic growth.

VII. IMPORTANCE OF CRUDE OIL PRICES TO RESERVE BANK OF INDIA

In its latest bi-monthly policy review on December 2, the RBI (Reserve Bank of India) didn't increase its key repo rate. The RBI is India's central bank. This "no action" decision was contrary to market expectations. Market expectations were asking for a rate cut—given the slowing pace of inflation.

The disappointment was greater this time. The RBI maintained the status quo on rates for the second meeting in a row—even after calls for a cut.



Source: - central statistics office

Even after expectations for a rate cut, the RBI didn't oblige. At this point, it thought that a rate cut would be premature. It wanted to be sure that the slowing of the inflation rate, or disinflation, is sustainable. Disinflation needs to be here to stay. The central bank revised down its forecast of CPI (consumer price index) inflation to 6% by March 2015—from the earlier target of 8% by January 2015.

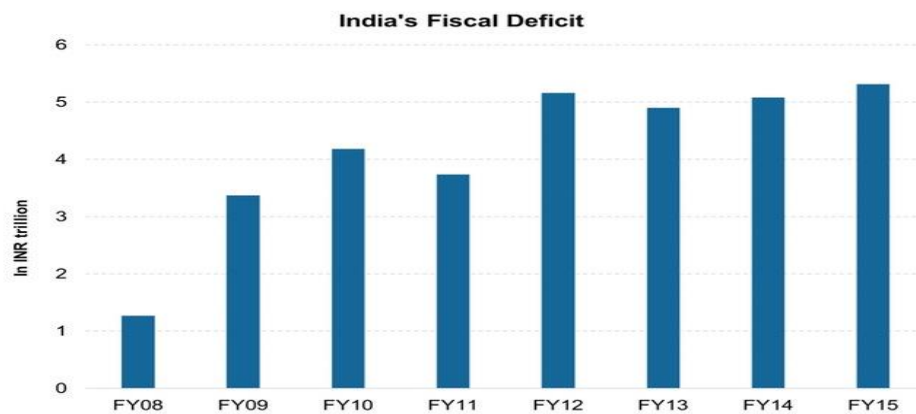
The RBI's medium-term outlook on inflation depends on international crude prices, among two other factors. One of the factors is no change in administered prices in the fuel group. It also stated that "Further softening of international crude prices in October eased price pressures in transport and communication."

As a result, if crude oil prices remained low for some time, it would help the RBI better judge the course of inflation. It would help the RBI make changes to its policy stance. Even the government is waiting for this change. It would help the government put India on a faster growth path.

Faster economic growth would benefit exchange-traded funds. Apart from these, stocks that are sensitive to the interest rate—like the ICICI Bank and HDFC Bank—are also expected to benefit. Lower rates will help these banks give out more loans.

VIII. CRUDE OIL PRICES IMPACT ON FISCAL DEFICIT

The difference between a government's revenues—without including borrowings—and expenditures shows its financial situation. If expenditures exceed revenues, then there is a deficit—else a surplus is reported. For more information on India's fiscal deficit, read why are there fiscal and revenue deficits in India?



Source: - Indian budget document

A. India's state:

Fiscal deficit has been plaguing India's economy for a long time. Previous governments' efforts to reduce the deficit to zero were nullified by the global economic crisis. The crisis caused the government to take stimulus measures. This increased expenditures. It decreased revenues. Also, it increased the deficit manifold. As of fiscal year 2014—April to March—the fiscal deficit was 4.5% of the GDP (gross domestic product). The current government intends to bring it down to 4.1% of the GDP in fiscal year 2015.

B. Impact of crude oil prices:

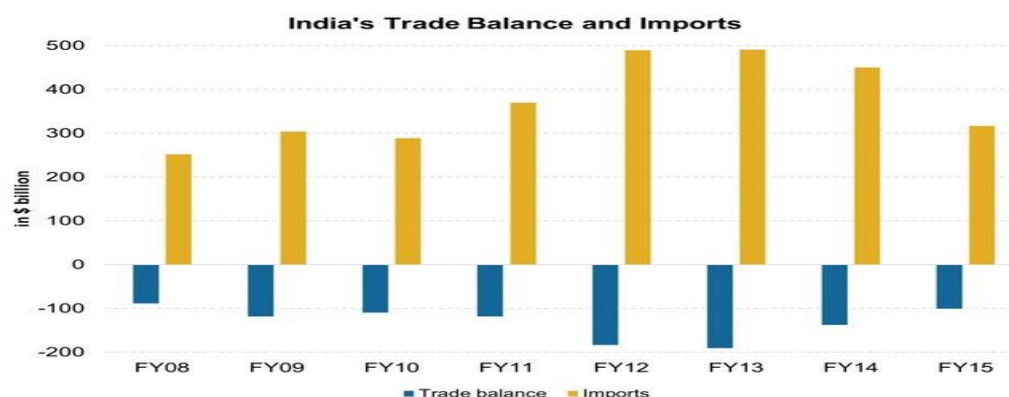
Lower crude prices would reduce the government's expenditure. It subsidizes petroleum products—like kerosene, fertilizers, and LPG (liquefied petroleum gas). The budgeted estimate for crude oil prices is \$105–\$110 per barrel. With petroleum and fertilizer subsidies standing at 634.3 billion rupees and 729.7 billion rupees, respectively, soft crude oil prices will help reduce the value of these subsidies. Soft crude oil prices will also help reduce the government's fiscal deficit.

C. Excise duty hike:

Due to over-recoveries, or profits, by government-owned oil marketing companies, the government raised the excise duty on gasoline and diesel. The hike occurred twice—first on November 13 and then on December 2. This hike wasn't passed on to consumers. However, the government would make 105 billion rupees in additional revenues. This was possible because of a fall in global crude oil prices.^[5]

IX. CRUDE OIL PRICES IMPACT INDIA'S TRADE DEFICIT

Like other “balance” indicators, trade can either be in surplus or in deficit. A surplus occurs when exports are more than imports. A deficit occurs when the situation is reversed. In the following graph, the figures for fiscal year 2015 are for April–November 2014.

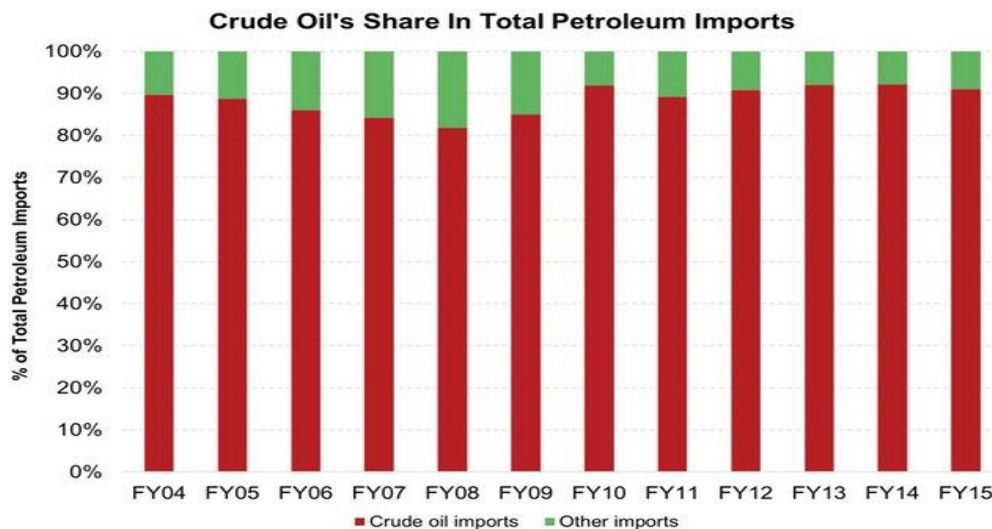


Source: - ministry of commerce and industry

India has been a net importer of goods and services for several decades—mainly because of imports' high growth. Mineral oils and associated petroleum products commanded a lion's share of imports. Crude oil forms a significant portion. To learn more about India's trade and trading goods, refer to Why India's trade balance impacts investors.^[3]

A. Impact of price fall:

As you can see in the following graph, crude oil formed over 80% of petroleum imports by value for over ten years. In fiscal year 2014, April 2013–March 2014, crude oil formed 92.1% of all petroleum imports. This included petroleum products. During the year, India imported nearly 189,238 TMT (thousand metric tons) of crude oil.



Source:- petroleum planning & analysis cell

The CAGR (compound annual growth rate) for the import of crude, by volume, in the past five years was 3.5%. If we consider a jump in consumption this year by 5%, at \$110 per barrel, the import value of crude for fiscal year 2015 would have been \$160 billion. If crude oil prices average \$90 per barrel for fiscal year 2015, April 2014–March 2015, this value will come down to \$131 billion. If prices average \$80 per barrel for the period, the value will reduce to \$116 billion. In the respective cases, the country's savings is \$30 billion and 44 billion.

The savings would reduce the trade deficit, all other things remaining constant. A reduction in either imports or trade balance doesn't directly impact India-related exchange-traded funds—like the Wisdom Tree India Earnings Fund, the Power Shares India Portfolio, the iShares MSCI India exchange-traded fund, the Vanguard FTSE Emerging Markets exchange-traded fund, and the iShares MSCI Emerging Markets Index Fund. However, it reduces a lot of pressure on the government's finances. It also improves India's macro picture.^[6]

X. CONCLUSION

India's imports of oil are increasing. Our dependence has reached 80% and is likely to keep growing. At the same time 2008 saw an unprecedented rise in oil price on the world market. Oil price volatility has also increased. Through future oil prices are difficult to predict, they are generally expected to rise. Given our increasing dependence on imports effects to the Indian economy, by the increase in the price of crude oil the inflation increases, government have to spend too much on subsidy, our exports become weaker, investment decreases and GDP is also affected.

Thus, to meet the growing demand for crude oil, diesel and petrol etc. in the long run, India should take various measures for efficiency improvement in energy use such as market linked relative prices, minimizing subsidies, and targeting them well. It also needs to enhance petroleum supplies through increased domestic explorations as well as other measures, such as participation in exploration and production in foreign oil fields by Indian oil companies (which the Chinese are using extensively) to avoid excessive dependence on imported crude oil. India also needs to more vigorously pursue the use of renewable energy sources like hydro, wind, solar, bio-fuels, nuclear, etc., as the Western European countries have done. India should take measures to increase exports to be able to meet its growing future oil import requirements. Careful

planning to ensure that future petroleum requirements can be met will be crucial in sustaining rapid economic growth in the future.

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