

# Growth and Trends in the Production and Imports of Crude Oil and POL Products in India in the Post-Liberalization Period

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## Abstract

Global crude oil production and consumption rise, and while crude oil consumption rises in India, crude oil output remains low. India's crude oil imports are hence reliant on its trading partners. The study's goal is to determine the increase and trends in crude oil and POL product output and imports following liberalization. Secondary data from the Directorate of Economics and Statistics – Government of India – Reserve Bank of India-handbook of statistics on the Indian economy-2016-17 were utilized to achieve the study's goal. The study identified that the simple growth rate of production and the import of crude oil and POL products during the post liberalization period; the highest growth rate obtained in the 1994-95 for 18.52per cent in the production of crude oil and 22.06 per cent of POL production in 1999-00 period and the import of crude oil was 45 per cent in 1999-00 and the POL products 44.44 per cent in 2005-06 period. The Compound annual growth rate of crude oil and POL product production and imports shows that crude oil imports are in a stronger position than crude oil production. POL product production is in a better position than POL product import. The trends in crude oil and POL product imports reveal that during the post-liberalization period, the rate was 0.3983 for POL goods and 8.1925 for crude oil.

**Keyword:** Production, Import, Growth rate, Compound annual growth rate, Liberalization

## Introduction

Crude oil and petroleum are the most important energy sources on the planet. Aviation and motor gasoline, naphtha, kerosene, jet fuel, distillate fuel oil, liquefied petroleum gas, lubricants paraffin wax, petroleum coke, asphalt, and other by products are obtained from the processing of crude oil; additionally, these by products are used as feedback for the manufacture of petrochemicals such as plastics, polystyrene, polyethylene, and many other products that we use every day. Crude oil is thus the foundation for a wide range of sectors, from automobiles to pharmaceuticals. As a result, crude oil prices and volatility have a direct impact on the prices of lubricants, petrochemicals, fertilizers, paints, and transportation costs, all of which have a direct impact on our economy. As a result, oil prices and volatility have a significant impact on exchange rates, which in turn has a significant impact on oil prices, particularly for oil exporting and importing nations. Petroleum, commonly known as crude oil, is a fossil fuel similar to coal and natural gas,

generated from the leftovers of ancient major organisms including as plants, algae, and bacteria. Accordingly, Hiranya Mukhopadhyay and Bishwanath Goldar (1990). " An Econometric Analysis of India's Petroleum Imports" An econometric analysis of India's petroleum imports is presented in this research. Demand functions for various petroleum products, as well as an import function for petroleum, have been estimated for this purpose. The findings of the study reveal that the difference between domestic demand for petroleum products and local production of crude oil is the most important determinant of petroleum imports, and that both domestic and import demand for petroleum are rather unresponsive to price. The "Prospects of biodiesel from jatropha in India," Sidharth Jain and M.P. Sharma (2010). The world's expanding industrialization and modernity has resulted in an increase in petroleum product demand. Energy demand has skyrocketed as a result of economic development in developing countries. The demand for electricity in India is growing at a 6.5 percent annual rate. About 80% of the country's crude oil requirement is fulfilled by imported crude oil. As a result, the nation's energy security has become a top priority. Anurag Goyal, Priyanshi Gupta (2015). "The Impacts of Oil Price Changes on the Indian Economy" The influence of oil price fluctuations on the Indian economy is examined experimentally through many channels, including the real sector, monetary policy, foreign trade, exchange rate, and investment. Oil is pro-cyclical to production, price level, stock market, gold, interest rate, and foreign currency reserves, according to the results of cyclical correlation research, whereas it is counter-cyclical to money supply, net exports, and exchange rate.

### **Objective**

To analyze the Growth and Trends in Crude Oil and POL Product Production and Imports in India after the Post-Liberalization Period.

### **Methodology**

Secondary data was used to achieve the goals of growth and trends in India's production and import of crude oil and petroleum, oil and lubricants (POL) products. The Ministry of Petroleum and Natural Gas, Government of India, PPAC. - Reserve Bank of India-handbook of statistics on the Indian economy-2016-17 provided the data on the crude oil and POL products production and import in India in the Post-Liberalization (1991-92 to 2016-17) for the analysis of the data. The tools like simple growth rate, compound annual growth rate (CAGR), trend line and moving average were used for the analysis of the data.

### **Findings and Discussion**

The growth and trends in the production and imports of crude oil and POL products in India in the post liberalization period examine by the simple growth rate of production and import are shown in the table 1.

Table 1

**Simple Growth Rate of Production and Import of Crude Oil and POL Products**

Million Metric Tonnes

Year	Production				Imports			
	Crude oil	Simple Growth Rate	POL products	Simple Growth Rate	Crude oil	Simple Growth Rate	POL products	Simple Growth Rate
1991-92	28	-	51	-	30	-	10	-
1992-93	27	-3.57	50	-1.96	30	0.00	12	20.00
1993-94	27	0.00	51	2.00	31	3.33	12	0.00
1994-95	32	18.52	53	3.92	27	-12.90	14	16.67
1995-96	35	9.38	55	3.77	27	0.00	20	42.86
1996-97	33	-5.71	59	7.27	34	25.93	20	0.00
1997-98	34	3.03	65	10.17	34	0.00	23	15.00
1998-99	33	-2.94	68	4.62	40	17.65	24	4.35
1999-00	32	-3.03	83	22.06	58	45.00	17	-29.17
2000-01	32	0.00	100	20.48	74	27.59	9	-47.06
2001-02	32	0.00	104	4.00	79	6.76	7	-22.22
2002-03	33	3.13	109	4.81	82	3.80	7	0.00
2003-04	33	0.00	118	8.26	90	9.76	8	14.29
2004-05	34	3.03	123	4.24	96	6.67	9	12.50
2005-06	32	-5.88	125	1.63	99	3.13	13	44.44
2006-07	34	6.25	141	12.80	112	13.13	18	38.46
2007-08	34	0.00	150	6.38	122	8.93	22	22.22
2008-09	33	-2.94	158	5.33	133	9.02	19	-13.64
2009-10	33	0.00	186	17.72	159	19.55	15	-21.05
2010-11	38	15.15	196	5.38	164	3.14	17	13.33
2011-12	38	0.00	204	4.08	172	4.88	16	-5.88
2012-13	38	0.00	218	6.86	185	7.56	16	0.00
2013-14	38	0.00	221	1.38	189	2.16	17	6.25
2014-15	37	-2.63	221	0.00	189	0.00	21	23.53
2015-16	37	0.00	232	4.98	203	7.41	29	38.10
2016-17	36	-2.70	244	5.17	214	5.42	36	24.14

POL: Petroleum, oil and lubricants.

Source: Ministry of Petroleum and Natural Gas, Government of India, PPAC. Reserve Bank of India-handbook of statistics on the Indian economy-2016-17. Author calculation

Table 1 indicates that the simple growth rate of production and the import of crude oil and POL products during the post liberalization period; the highest growth rate obtained in the 1994-95 for 18.52 per cent in the production of crude oil and 22.06 per cent of POL production in 1999-00 period. Similar way the import of crude oil was 45 per cent in 1999-00 and the POL products 44.44 per cent in 2005-06 period.

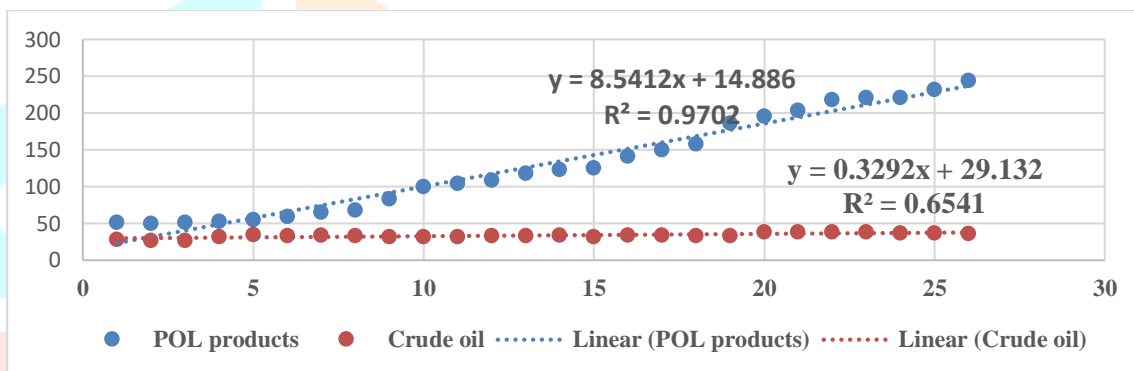
Table 2  
**CAGR of Production and Import of Crude Oil and POL Products**

Year	Production		Imports	
	Crude oil	POL products	Crude oil	POL products
1991-92 to 2016-17	1.010	6.462	8.176	5.257

Source: Author Calculation.

CAGR of production and imports of crude oil and POL products shows in the table indicate that the import of crude oil production is better than the production of crude oil. Similar way, the production of POL products is better than the import of POL products.

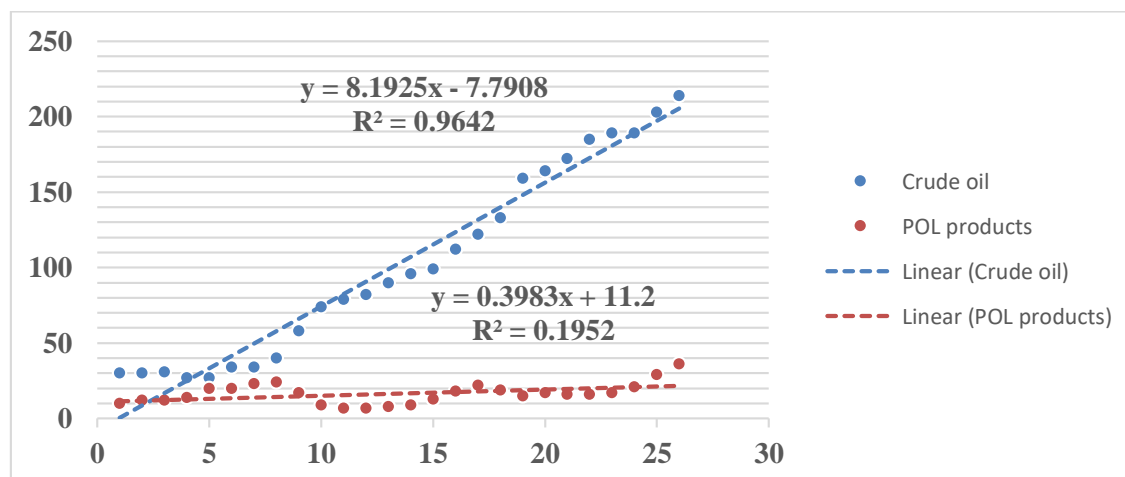
Figure 1  
**Trend in the Production of Crude Oil and POL Products**



Source: Author calculation

Figure 1 depicted that the trends in the production of crude oil and POL products; shows that the rate was 8.5412 in POL products and 0.3292 for the crude oil during the post liberalization period. The intercept of the POL products and the crude oils were 14.886 and 29.132 for the period.

Figure 2  
**Trend in the Import of Crude Oil and POL Products**



Source: Author calculation

Figure 2 depicted that the trends in the import of crude oil and POL products; shows that the rate was 0.3983 in POL products and 8.1925 for the crude oil during the post liberalization period. The intercept of the POL products and the crude oils were 11.2 and 7.7908 for the period.

Table 3  
Moving average of Production and Import of Crude Oil and POL Products

Million Metric Tonnes

Year	Production				Imports			
	Crude oil	5 yearly moving average	POL products	5 yearly moving average	Crude oil	5 yearly moving average	POL products	5 yearly moving average
1991-92	28		51		30		10	
1992-93	27		50		30		12	
1993-94	27		51		31		12	
1994-95	32		53		27		14	
1995-96	35	29.8	55	53.6	27	29	20	13.6
1996-97	33	30.8	59	56.6	34	29.8	20	15.6
1997-98	34	32.2	65	60	34	30.6	23	17.8
1998-99	33	33.4	68	66	40	32.4	24	20.2
1999-00	32	33.4	83	75	58	38.6	17	20.8
2000-01	32	32.8	100	84	74	48	9	18.6
2001-02	32	32.6	104	92.8	79	57	7	16
2002-03	33	32.4	109	102.8	82	66.6	7	12.8
2003-04	33	32.4	118	110.8	90	76.6	8	9.6
2004-05	34	32.8	123	115.8	96	84.2	9	8
2005-06	32	32.8	125	123.2	99	89.2	13	8.8
2006-07	34	33.2	141	131.4	112	95.8	18	11
2007-08	34	33.4	150	139.4	122	103.8	22	14
2008-09	33	33.4	158	152	133	112.4	19	16.2
2009-10	33	33.2	186	166.2	159	125	15	17.4
2010-11	38	34.4	196	178.8	164	138	17	18.2
2011-12	38	35.2	204	192.4	172	150	16	17.8
2012-13	38	36	218	205	185	162.6	16	16.6
2013-14	38	37	221	212	189	173.8	17	16.2
2014-15	37	37.8	221	219.2	189	179.8	21	17.4
2015-16	37	37.6	232	227.2	203	187.6	29	19.8
2016-17	36	37.2	244		214	196	36	23.8

POL: Petroleum, oil and lubricants.

Source: Ministry of Petroleum and Natural Gas, Government of India, PPAC. Reserve Bank of India-handbook of statistics on the Indian economy-2016-17. Author calculation.

Table 3 highlight that the five yearly moving average of the production and import of crude oil and POL products during the post liberalization period from 1991-92 to 2016-17, the five yearly highest average production of crude oil were 2014-15 period with POL products 227.2 in 2015-16. As in the five yearly moving average of the import of the crude oil and POL products 196 in 2016-17 and 23.8 in the same year for the post liberalization period.

## Conclusion

India's crude oil consumption is rising, while the country's crude oil output remains low. The study's goal is to determine the increase and trends in crude oil and POL product output and imports following liberalization. The study found that the simple growth rate of crude oil and POL product production and imports during the post-liberalization period was the highest in 1994-95, with 18.52 percent crude oil output and 22.06 percent POL production in the 1999-00 period. Similarly, crude oil imports were 45 percent in 1999-00 and POL products were 44.44 percent in 2005-06. The CAGR of crude oil and POL product production and imports shown in the table indicates that crude oil imports are better than crude oil production. In a similar vein, POL product manufacture is superior to POL product importation. The trends in crude oil and POL product output reveal that during the post-liberalization period, the rate was 8.5412 for POL products and 0.3292 for crude oil. For the time, the intercepts of POL products and crude oils were 14.886 and 29.132, respectively. The trends in crude oil and POL product imports reveal that during the post-liberalization period, the rate was 0.3983 for POL goods and 8.1925 for crude oil. For the period, the intercepts of POL products and crude oils were 11.2 and 7.7908, respectively. The five-year moving average of crude oil and POL product production and imports during the post-liberalization period from 1991-92 to 2016-17 shows that the five-year highest average crude oil output was in 2014-15, with POL products 227.2 in 2015-16. In the post-liberalization period, the five-year moving average of crude oil and POL product imports was 196 in 2016-17 and 23.8 in the same year.

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