Empirical study on FDI in Indian Petroleum Sector

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Abstract

Petroleum oil and other products form a major part of our primary energy mix and touch our lives in more ways than one. Also Petroleum sector being a key economic driver for the economic growth influences some of the critical economic variables of any nation. The Indian oil and gas sector is one of the eight core industries in India and has very significant forward linkages with the entire economy. India has been growing at 8-9 per cent annually and is committed to accelerate the growth momentum in the years to come. This would translate into India's energy needs growing many times in the years to come. Hence, there is an emphasized need for wider and more intensive discussion on the trends, structure and development of the industry.

According to data released by the Department of Industrial Policy and Promotion (DIPP), the petroleum and natural gas sector attracted FDI worth US$ 6.67 billion between April 2000 and March 2016. The role of FDI in any industry is to bolster its development and contribute in economic growth. But the question is how well has FDI in petroleum sector in India impacted growth in petroleum industry for India see no reduction in import of Oil and Gas. Nevertheless, India has seen a progressive uptick in infrastructure for refining petroleum products and it homes the largest refinery in the world.

The study explores the investment trends and patterns along with discussing various initiatives taken by the Government of India to promote FDI influx in Oil and Gas sector. Further, a time series data analysis was undertaken to analyse whether there exists any long-run relationship between FDI in petroleum sector, contribution of the sector towards national economic growth and index of industrial production in the petroleum sector, and if so, what is the direction of the relationship. It further discusses the empirical influence of FDI on the capacity of the refining infrastructure currently operating in India. The exploratory research is a combination of quantitative and qualitative analysis. The time series data has been collected through secondary sources. CAGR and Pearson Correlation are the two tools used to assess the growth and relationship between variables.

Keywords: Foreign Direct Investment, Indian Petroleum Sector, Index of Industrial Production, Relation between GDP and FDI, Refining Capacity in India

INTRODUCTION

Fossil fuels play a key role in meeting the energy demand of the nation and are expected to continue doing so in the foreseeable future. Oil & gas, Coal and other mineral resources shape a major component of our prime energy mix and touch our lives in multiple dimensions. It caters importantly to domestic uses, manufacturing industries, transportation fuel and synthesis of organic and chemical products. The growth of consumption of petroleum products in every sector of the economy shows why each and every country has been heavily dependent on it.

Petroleum sector being a key economic driver for the economic growth influences some of the critical economic variables. For India, about 70 % of its petroleum demand is met by imports and hence international price volatility is certainly a matter of concern as it may have a cascading impact in terms of worsening inflation, exchange rate, current account deficit etc. In 2008, the world's fifth largest consumer of crude oil and petroleum products was India and in 2012 India has moved to fourth position, with consumption growing by over 5 per cent. India is forecast to become the world's third largest oil consumer in probable future.

The Indian oil and gas sector is one of the eight core industries in India and has very significant forward linkages with the entire economy. India grew at around 8-9 per cent annually and is committed to accelerate the growth momentum in the years to come. This would render into India's energy requirements mounting many folds higher in the years to come. Henceforth, there is a stressed requirement for broader and more exhaustive exploration for uncharted resources of energy to maintain long term sustainability.

Current energy policy in India, has contributed tangibly to increased fragility and instability in India's Central Government finances. This illustrates the huge impact of petroleum product pricing on the health of India's national budget and on India's macroeconomic stability as a whole. (IEA, 2009) This also questions the accountability, reliability as well as adequacy on investments that are pumped in the India oil sector. The current competitive environment and foreign investment opportunities within the P&NG market are key Indian economic and energy security concerns. In 1991, the Union Govt. instituted various policies to facilitate the influx of foreign capital and encourage entrepreneurs to invest in India. These policies included the deregulation and de-licensing of various petroleum products, simplification of the procedure to obtain industrial licenses, freedom to form joint venture companies, and allowance of 100% FDI in multiple segments of the oil and gas sector.

STATEMENT OF PROBLEM

India’s present petroleum product pricing and taxation regime has systemically contributed to huge losses for downstream marketing companies for several years, suggestively constrained their flow of money, as well as positioned a noteworthy financial load on upstream companies. Evidently, these policies have consequences for the occurrence of timely and required investments by domestic and international investors operating across the entire oil value chain and ecosystem. Also no enticement to make investments profitable questions the decision and demotivated the investors.

India has fallen behind its goals for domestic production. In 2007, the government put in place an ambitious plan that called for the country to produce 206.8 million tons of crude oil over the five-year period ending in 2012, but the nation’s production fell short by nearly 30 million tons. (Indian Oil & Gas: Endless Possibilities; GE, 2013) However, according to data released by the Department of Industrial Policy and Promotion (DIPP), the petroleum and natural gas sector attracted FDI worth US$ 6.67 billion between April 2000 and March 2016. The role of FDI in any industry is to bolster its development and contribute in economic growth. But the question is how well has FDI in petroleum sector in India impacted growth in petroleum industry for India see no reduction in import of Oil and Gas. Nevertheless, India has seen a progressive uptick in infrastructure for refining petroleum products and it homes the largest refinery in the world.

The hypothesis made in this study is ‘an increase in investment pattern in petroleum sector has been lucratively impacting the GDP contribution from Petroleum sector, Index of Industrial Production and the Refining Capacity in the nation’.

LITERATURE REVIEW

Frequently reported reason for Government's intervention is to insulate the domestic economy from the volatility of petroleum prices on the world market. It is dreaded that comprehensive pass-through of increase in world oil prices may cause inflation which may persist even when oil price comes down. (GoI, 2012)

The developing Indian economy has been constantly challenged for sourcing primary energy. India is dependent on imported crude oil to the extent that recently the US Energy Information Administration (EIA) has observed that India was the world’s fifth largest net importer of oil in 2010, importing more than 2.2 million bbl/d, or about 70 percent of consumption. All stakeholders, therefore, continue to remain engaged in quest for energy.

This provides immense opportunity to investors to develop business opportunities in a country where demand exists. The opportunities are backed by a democratic governance system and a powerful judiciary. India is becoming a global refining hub on the back of major capacity expansions and massive investments. The Indian refinery sector having established its ability to deliver in international markets is well poised to take advantage of this opportunity. (PwC, 2012) but the question of importance is if these investments in the petroleum sector in actuality serving.

Chakraborty and Mukherjee (2012) have discussed the relationship between FDI, domestic investment and economic growth of the and concludes that there is a unidirectional causality from India's economic growth to FDI but growth effects of the FDI on GDP are less pronounced. Likewise, there are several other studies studying the relationship between FDI and GDP along with its other determinants for specific country as well as various geographic regions. Jha and others (2013) are assessing the determinants of FDI for South Asia while Chen and Démurger (2002) are analysing relationship between Foreign Direct Investment and Manufacturing Productivity in China. But no research was found during this study which was specifically detailing the above analysis specifically for petroleum and gas sector.

FDI Limits in Petroleum Sector

Fortifying energy provisions is likely to remain on top of India's energy agenda for the foreseeable future. The following are the recent paradigms to support FDI influx in petroleum and natural gas sector have been prevailing:

- Exploration & Production – 100 per cent (automatic – no approvals required)
- Petroleum Product Pipeline & Marketing - 100 per cent (automatic)
- Natural Gas / LNG Pipeline - 100 per cent (non-automatic – Approvals required from the Foreign Investment Promotion Board, GoI)
- FDI up to 49% is permitted under automatic route in petroleum refining by Public Sector Undertakings (PSUs), without any disinvestment or dilution of domestic equity in the existing PSUs

According to the Ministry of Commerce and Industry's 2013 consolidated FDI policy, 100% FDI is allowed under the automatic route for E&P, infrastructure related to marketing of O&NG, marketing of natural gas and petroleum products, petroleum product pipelines, natural gas pipelines, liquefied natural gas regasification infrastructure, market study and formulation and petroleum refining in the private sector (all subject to the existing sector policy and regulatory framework).To allow 100 % FDI under an “automatic route” means that foreign companies are not required to obtain prior approval for investment from either the Union Govt. or the Reserve Bank of India (however, certain documents must still be filed with the RBI). For proposals on FDI that do not qualify under the automatic route, the Foreign Investment Promotion Board, a government body offers a single window clearance. Under this policy, ‘government approval’ route, up to 49% FDI is permitted in petroleum refining by PSUs without any disinvestment or dilution of domestic equity in the existing PSUs. From 2000-11, India’s O&NG sector attracted FDI worth US$ 3,152 million. (India Brand Equity Foundation, Oil and Gas Industry in India (June 2013))

The O&NG industry is currently dominated by the Union Govt. PSUs. In PSUs, 51% or more of the paid up share capital is owned by Union Govt. or the various state governments. Leading PSUs in the Indian O&NG industry include ONGC (74% State owned), OIL (98.1% State owned), IOCL (89% State owned), Gas Authority of India (57% State owned), BPCL (66% State owned), and HPCL (51% State owned). ONGC accounts for approximately 67% of oil and gas production, while IOC and its subsidiaries control the largest market share in petroleum products. (Ministry of Commerce and Industry, Consolidated FDI Policy (Effective 05 Apr 2013))

Analysis of Foreign Direct Investments in Petroleum Sector in India

According to data released by the Department of Industrial Policy and Promotion (DIPP), the petroleum and natural gas sector attracted FDI worth US$ 6.67 billion between April 2000 and March 2016. British Petroleum (UK), Cairn Energy (India), Shell (UK), BG Group (Scotland), Niko Resources (Canada) have been the major foreign investors in Indian Petroleum Sector. Recently, BG Energy Holdings has expanded in India with inducting to set up three wholly owned subsidiaries in India with around US$28 million investment in each for setting up gas distribution and transmission infrastructure over the next several years. India has not only promoted FDI influx in Petroleum and Natural Gas Sector but India’s Essar and ONGC Videsh Ltd. have been also associated with investing in avenues abroad.

The Indian Government has taken several intiatives to show its inclination to allow more foreign direct investment in the country. India has not only relaxed the norms pertaining to area restriction and FDI limits but have promoted the Invest in India model especially under the honourable Narendra Modi government. India has further extended embarking on bilateral relationships to extend cooperation with various countries like Iran, Norway to promote production of oil and natural gas and hydrocarbon exploration together.

While exploration activity in India has been majorly undertaken on land and in shallow basins across the country, it is supposed that deep water and ultra-deep water oil and gas resources shall embrace the key to substantially in future increasing domestic production. This creates opportunities for global strategic investors having pertinent procedural knowhow and economic might to enter Indian Petroleum and Natural Gas market.

Government of India has taken some major steps in last six seven years in the lieu of promoting oil and gas sector. The Union Cabinet has approved the National Mineral Exploration Policy (NMEP), which will welcome auction of 100 prospective mineral blocks to attract private sector in exploration, besides involving state-run agencies. The following table indicates the % of FDI in the Petroleum Sector in the total FDI inflow which has been increasing very slowly except the outlier in 2007-08 wherein the % increase went as high as 5.81. It is observed that the growth hence been un-skewed. The % with total inflow of FDI in the Petroleum and Natural gas sector has been 2.68 % (12th position) amongst 60 specified sectors from 2000 to 2014. (Assessed from the data provided by Ministry of Commerce and Industry, Govt. of India)

Table1: FDI inflow trends in Petroleum Sector

(Amount in Millions INR)					
Year	FDI Inflow		%age of FDI in P&NG to Total FDI	Annual Growth (%)	
	Total All Sector	P&NG Sector		All Sectors	P&NG Sector
2005-06	245840	636	0.26	67.77	-87.73
2006-07	563900	4010	0.71	129.38	530.5
2007-08	986420	57290	5.81	74.93	1328.68
2008-09	1428290	19310	1.35	44.8	-66.29
2009-10	1231200	13280	1.08	-13.8	-31.23

(Amount in Millions INR)					
Year	FDI Inflow		%age of FDI in P&NG to Total FDI	Annual Growth (%)	
	Total All Sector	P&NG Sector		All Sectors	P&NG Sector
2010-11	973200	25430	2.61	-20.96	91.49
2011-12	1651460	99550	6.03	69.69	291.47
2012-13	1219067	11925	0.97	-26.18	-88.02
2013-14	1475177	6783	0.45	21.01	-43.12
2014-15	1891071	64732	3.4	28.19	854.20

Source: Ministry of Petroleum & Natural Gas, Govt. of India

Correlation between Percentage to GDP and Percentage FDI in Petroleum Sector

Correlations			
		Percentage to GDP	Percentage FDI Petroleum Overall
Percentage to GDP	Pearson Correlation	1	-.618
	Sig. (2-tailed)		.139
	N	7	7
Percentage FDI Petroleum Overall	Pearson Correlation	-.618	1
	Sig. (2-tailed)	.139	
	N	7	7

Figure 1: SPSS output for Correlation between FDI in Petroleum Sector and % Contribution towards GDP

Petroleum and Natural Gas sector constitutes over 15 percent of India's GDP (2013) and influences industrial production, logistics as well as overall economy of India. Hence it can be considered to be the most noteworthy sector in India which influences the EXIM, budgets and policies significantly.

The Pearson correlation -0.618 is significantly indicating that the relationship between the percentage of FDI inflow in petroleum sector and Percentage contribution to GDP by the Petroleum Sector is inversely related but very strong. This is a finding which doesn't resembles in tandem to the theoretical expectations wherein it is assumed more of Investment would lead to growth of the industry and generate more returns to GDP share. The reason behind the mis-match majorly can be the relatively lesser growth increase in GDP contribution from the Petroleum Sector in accordance to other sectors which are growing faster, leading to reducing the percentage contribution from the same.

Correlation between Petroleum Refining Capacity and Percentage FDI in Petroleum Sector

India is already a refining hub with 21 refineries and expansions planned for tapping foreign investment in export-oriented infrastructure, including product pipelines and export terminals. (Gupta, 2014)

The domestic demand of petroleum products is expected to grow at a CAGR of 7.5% during the next five years. The projected expansion of refinery capacity from 232 MMTPA (4.66 MMbbls per day) in 2012-13 to 311 MMTPA (6.3 MMbbls per day) in 2016-17 is in line with India's aspiration of becoming a global refining hub. Out of the 17 Public Sector refineries 7 are owned by Indian Oil Corporation Limited (IOCL), 2 each by Chennai Petroleum Corporation Limited (a subsidiary of IOCL), Hindustan Petroleum Corporation Limited (HPCL), Bharat Petroleum Corporation Limited (BPCL) and Oil and Natural Gas Corporation Limited, 1 each by Numaligarh Refinery Limited (a subsidiary of BPCL) and Bangaigaon Refinery and Petrochemicals Ltd. (a subsidiary of IOCL). The private sector refineries belong to Reliance Industries Limited and Essar Oil Limited.

Indian refineries have been performing well in contributing to the domestic availability of sensitive petroleum products as well as in exports. During the first half of the current year, the average capacity utilization of our refineries has been 104%.

The Pearson correlation 0.424 is significantly indicating that the relationship between the percentage of FDI inflow in petroleum sector and Petroleum Refining Capacity is moderately less strong. However theoretically it was expected to be more impactful for India from the market structure and scope India has. This is one sector wherein India can earn revenue from exports and establish itself as a player in the global market seeing to the present scenario.

Correlations			
		Percentage FDI Petroleum Overall	Petroleum Refining Capacity
Percentage FDI Petroleum Overall	Pearson Correlation	1	.424
	Sig. (2-tailed)		.343
	N	7	7
Petroleum Refining Capacity	Pearson Correlation	.424	1
	Sig. (2-tailed)	.343	
	N	7	7

Figure 22: SPSS output for Correlation between FDI in Petroleum Sector and Refining Capacity

Correlation between Petroleum IIP and Percentage FDI in Petroleum Sector

The majority of crude oil production in India is from ageing fields majorly at Bombay High (almost 80% of the overall production) except new fields viz., Rajasthan and Krishna Godavari deep-water blocks. Crude oil production for the year 2013-14 was 37.788 Million Metric Tonne (MMT) as against 37.862 MMT for the previous year viz. 2012-13 and 38.09 in 2011-12, showing a marginal decrease of about 0.20%. (Ministry of Petroleum and Natural Gas) It is to be noted however that in 2014, India’s crude oil production only accounted for 22% of its domestic consumption.

The Pearson correlation 0.107 is significantly indicating that the relationship between the percentage of FDI inflow in petroleum sector and Index of Investment in Petroleum Sector is directly related but it isn't strong enough to predict any trend. This again is insufficiently away from the theoretical understanding wherein it is assumed that increase in investments would prominently lead to increase in industrial production.

Correlations			
		Percentage FDI Petroleum Overall	Petroleum IIP
Percentage FDI Petroleum Overall	Pearson Correlation	1	.107
	Sig. (2-tailed)		.820
	N	7	7
Petroleum IIP	Pearson Correlation	.107	1
	Sig. (2-tailed)	.820	
	N	7	7

Figure 3: SPSS output for Correlation between FDI in Petroleum Sector and Petroleum IIP

FINDINGS AND CONCLUSION

With relaxation in FDI norms, allowing 100% FDI under the automatic route for E&P, infrastructure related to marketing of O&NG, marketing of natural gas and petroleum products, petroleum product pipelines, natural gas pipelines, liquefied natural gas regasification infrastructure, market study and formulation and petroleum refining in the private sector, is certainly a welcome step as it would encourage future investments in near future. However, it has not impacted the financial and economic performance of the industry in a very lucrative manner.

In the final analysis, it must be noted that from an economical and financial perspective, investment in O&NG is lucrative with substantial prospects in India. The elaborate regulatory framework and the participative nature of framing policies also ensure that all stakeholders are duly represented when O&NG policy is framed. Given the growing demand for crude oil in India and its wide application in household and industrial activities, it would be seen that demand for this investment is not likely to decline in India. While the Union Govt. resolves teething issues in the O&NG sector, the landscape in the O&NG sector promises to be dynamic with scope for growth for business entities and development of the sector. Also ensuring long-term energy self-sufficiency will be a challenging task for India given the scale of the country's energy requirement, the large investments essential, and the intricacy of technologies involved.

Hence it is very crucial for India to tap benefits from the FDI influx in Petroleum Sector which has not been achieved to its fullest potential.

REFERENCES

Agrawal Pradeep (2012), *India's Petroleum Demand: Empirical Estimations and Projections for the Future*, IEG Working Paper 319

Chakraborty Debashis and Mukherjee Jaydeep, 2012, Is There Any Relationship Between Foreign Direct Investment, Domestic Investment and Economic Growth in India? A Time Series Analysis, Review of Market Integration, December 2012 vol. 4 no. 3 309-337

Chen Yu and Demurger Sylvie, 2002, Foreign Direct Investment and Manufacturing Productivity in China, *http://www.bm.ust.hk/~ced/Yu%20CHEN.pdf*

Das Surajit (2012), On Deregulation in the Petroleum Sector in India, *http://www.macroscan.org/fet/oct12/pdf/Petroleum_Deregulation.pdf* (accessed on May 17, 2016)

GE, Indian Oil & Gas: Endless Possibilities, *https://www.ge.com/in/sites/www.ge.com.in/files/GE-Oil-and-Gas-India-Fact-sheet.pdf* (accessed on May 14, 2016)

Gupta Ajay Kr., 2014, Investment Opportunities: Oil and Gas Sector in India, NPCS

Jha G M, Agrawal A, Gupta A and Mishra A K (January 2013), Determinants of FDI in South Asia, International Research Journal of Social Sciences, Vol. 2(1), 1-6, ISSN 2319– 3565

Kieran Clarke (2010), India’s Downstream Petroleum Sector Refined Product Pricing and Refinery Investment, International Energy Agency

PwC and IBEF (2006), India Oil and Gas, Davos, January 2006

PwC (2012), Emerging opportunities and challenges Oil and Gas, WEC-IMC, 23rd January 2012

Government Reports and Databases

Government of India (a) Indian Public Finance Statistics, Ministry of Finance, New Delhi, various issues

Handbook on Statistics, Reserve Bank of India, New Delhi

India Brand Equity Foundation, Oil and Gas Industry in India (June 2013), *http://www.ibef.org/industry/oil-gas-india.aspx* (accessed on Feb 15, 2016)

Ministry of Petroleum and Natural Gas, FDI Policy for Petroleum & Natural Gas Sector, *http://petroleum.nic.in/fdi.pdf* (Accessed on June 16, 2016)

Ministry of Commerce and Industry, Consolidated FDI Policy (Effective 05 Apr 2013), *http://www.dipp.nic.in/English/Policies/FDI_Circular_01_2013.pdf* (Accessed on March 05, 2016)

Ministry of Petroleum & Natural Gas Government of India, Basic Statistics on Indian Petroleum & Natural Gas, New Delhi, various issues

Petstat Report, Ministry of Petroleum & Natural Gas Government of India