CHAPTER 5

IMPACT OF CRUDE OIL PRICES ON FISCAL DEFICIT

5.0 Introduction

Fiscal policy deals with the taxation and expenditure decisions of the government. Monetary policy deals with the supply of money in the economy and the rate of interest[33]. These are the main policy approaches used by economic managers to steer the broad aspects of the economy. In most modern economies, the government deals with fiscal policy while the central bank is responsible for monetary policy. Fiscal policy is composed of several parts. These include, tax policy, expenditure policy, investment or disinvestment strategies and debt or surplus management. Fiscal policy is an important constituent of the overall economic framework of a country and is therefore intimately linked with its general economic policy strategy.

Fiscal policy also feeds into economic trends and influences monetary policy. When the government receives more than it spends, it has a surplus. If the government spends more than it receives it runs a deficit. To meet the additional expenditures, it needs to borrow from domestic or foreign sources, draw upon its foreign exchange reserves or print an equivalent amount of money. This tends to influence other economic variables. On a broad generalisation, excessive printing of money leads to inflation[34]. If the government borrows too much from abroad it leads to a debt crisis. If it draws down on its foreign exchange reserves, a balance of payments crisis may arise. Excessive

[33] http://finmin.nic.in/workingpaper/FPI_trends_Trajectory.pdf
[34] http://www.economicshelp.org/blog/797/economics/why-printing-money-causes-inflation/

domestic borrowing by the government may lead to higher real interest rates and the domestic private sector being unable to access funds resulting in the crowding out of private investment. Sometimes a combination of these can occur. In any case, the impact of a large deficit on long run growth and economic well-being is negative. Therefore, there is broad agreement that it is not prudent for a government to run an unduly large deficit. However, in case of developing countries, where the need for infrastructure and social investments may be substantial, it sometimes argued that running surpluses at the cost of long-term growth might also not be wise (Fischer and Easterly, 1990). The challenge then for most developing country governments is to meet infrastructure and social needs while managing the government's finances in a way that the deficit or the accumulating debt burden is not too great.

5.1 **Revenue Deficit**

A spending item is a capital expenditure if it relates to the creation of an asset that is likely to last for a considerable period of time and includes loan disbursements[35]. Such expenditures are generally not routine in nature. By the same logic a capital receipt arises from the liquidation of an asset including the sale of government shares in public sector companies (disinvestments), the return of funds given on loan or the receipt of a loan. This again usually arises from a comparatively irregular event and is not routine. In contrast, revenue expenditures are fairly regular and generally intended to meet certain routine requirements like salaries, pensions, subsidies, interest payments, and the like. Revenue receipts represent regular earnings, for instance tax receipts and non-

[35] http://finmin.nic.in/workingpaper/FPI_trends_Trajectory.pdf

tax revenues including sales by government of India like sale of telecom spectrums.

There are various ways to represent and interpret a government's deficit. The simplest is the revenue deficit which is the difference between revenue receipts and revenue expenditures.

Revenue Deficit = Revenue Expenditure – Revenue Receipts ..... (5.1)

5.2 **Fiscal Deficit**

A more comprehensive indicator of the government's deficit is the fiscal deficit. This is the sum of revenue and capital expenditure less all revenue and capital receipts other than loans taken[36]. This gives a more holistic view of the government's funding situation since it gives the difference between all receipts and expenditures other than loans taken to meet such expenditures. Fiscal deficit is expressed in equation (2)

Fiscal Deficit = Total Expenditure (Revenue Expenditure + Capital Expenditure) – (Revenue Receipts + Recoveries of Loans + Other Capital Receipts (All Revenue and Capital Receipts other than loans taken)) ... (5.2)

The Gross Fiscal Deficit (GFD) of government is the excess of its total expenditure, current and capital, including loans net of recovery, over revenue receipts (including external grants) and non-debt capital receipts. The net fiscal deficit is the gross fiscal deficit reduced by net lending by government (Dasgupta and De, 2011). The gross primary deficit is the GFD less interest

[36] http://articles.economictimes.indiatimes.com/2009-03-01/news/27634240_1_revenue-deficit-fiscal-deficit-revenue-surplus

payments while the primary revenue deficit is the revenue deficit less interest payments.

Besides the annual budgetary process, since 1950, India has followed a system of five-year plans for ensuring long-term economic objectives. This process is steered by the Planning Commission for which there is no specific provision in the Constitution. The main fiscal impact of the planning process is the division of expenditures into plan and non-plan components. The plan components relate to items dealing with long-term socio-economic goals as determined by the ongoing plan process. They often relate to specific schemes and projects. Furthermore, they are usually routed through central ministries to state governments for achieving certain desired objectives. These funds are generally in addition to the assignment of central taxes as determined by the Finance Commissions. In some cases, the state governments also contribute their own funds to the schemes. Non-plan expenditures broadly relate to routine expenditures of the government for administration, salaries, and the like. While these institutional arrangements initially appeared adequate for driving the development agenda, the sharp deterioration of the fiscal situation in the 1980s resulted in the balance of payments crisis of 1991. Following economic liberalisation in 1991, when the fiscal deficit and debt situation again seemed to head towards unsustainable levels around 2000, a new fiscal discipline framework was instituted. At the central level this framework was initiated in 2003 when the Parliament passed the FRBMA[37].

This Act gave a medium term target for balancing current revenues and expenditures and set overall limits to the fiscal deficit at 3 percent of GDP to be

[37] http://finmin.nic.in/law/frbmact2003.pdf

achieved according to a phased deficit reduction roadmap. The FRBMA enhanced budgetary transparency by requiring the government to place before the Parliament on an annual basis reports related to its economic assessments, taxation and expenditure strategy and three-year rolling targets for the revenue and fiscal balance.

5.3 **Import of Oil**

India imports more than 80 percent of its oil and the import bill is rising steadily. Table 5.1 gives the import bill vs cost of one barrel of crude oil since 2002.

Table 5.1: Cost Per Barrel Vs Import Bill Of Crude Oil

S.No	Year	US $ in Billion	Cost per Barrel in US $
1.	2002	16.46	24.95
2.	2003	19.599	28.89
3.	2004	27.281	37.76
4.	2005	39.928	53.35
5.	2006	56.284	64.27
6.	2007	67.564	71.13
7.	2008	90.182	97.04
8.	2009	88.762	61.78
9.	2010	76.812	79.03
10.	2011	101	104.01
11.	2012	141	106.00

It can be seen from Table 5.1that India's oil import bill leaped 40 per cent to a record $140 billion in 2011-12 as high oil prices shaved off much of the nation's GDP growth rate. The cost of one Barrel of oil has risen from $24.95 in 2002 to $106 in 2012. A multiplication factor of 4.24 in a span of 10 years. For the same period the cost of import of oil has increased from $16.46 billion in 2002 to $ 140 billion in 2012. The import bill had gone up by 8.5 times where as the cost of fuel has gone up by only 4.24 times. Thus the doubling of import bill can be attributed to the weakening rupees in comparison to the dollar and surge in demand. Figure 5.1 depicts the comparison of trends between Crude Oil Price and the import bill.

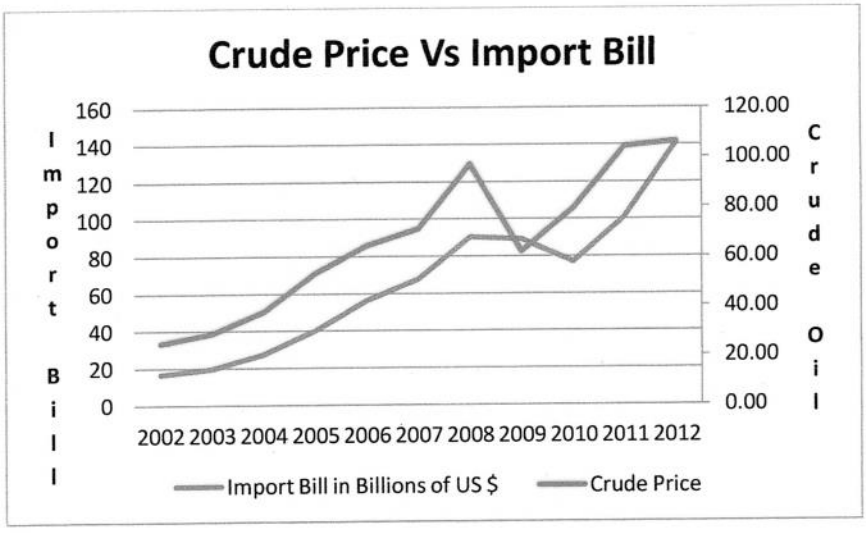

Figure 5.1: Crude price vs Import Bill Source : www.rbi.gov.in and ministry of petroleum

The crude oil price and the import bill continuously rose from 2002 to 2008. There was a sudden drop in crude oil price in 2008 -2009 but this sudden drop

is not seen in the import bill where bur there has been a reduction. After 2009 both the import bill and the crude price have risen simultaneously.

The huge import bill pushes up the government subsidy and under recoveries by oil companies. The sharp rise and volatility of prices of oil and petroleum products in the international market since 2001 has become a major concern. The Indian basket of crude oil which averaged $79.25 per barrel during 2007-2008 had gone up to nearly $ 100 per barrel in Jul 2008 before declining sharply. However, the crude prices have been rising steadily in the last 3 years and presently the price is $109 in Jan 2013. As Indian imports more than 80% of their oil requirement the international oil price plays a decisive role in domestic pricing of petroleum products. The Public Sector Oil Marketing Companies (OMCs) viz Indian Oil Corporation Ltd, Bharat Petroleum Corporation Ltd and Hindustan Petroleum corporation Ltd pay trade parity price to refineries when they buy diesel and pay import parity price for PDS Kerosene and Domestic LPG. Accordingly they ought to fix retail prices based on this cost but the retail prices are modulated by government, which are lower and thus results in under recoveries. The difference between the required price based on trade parity/import parity and the actual selling price realised represents the under recoveries of OMCs.

5.4 **Under Recoveries**

Under-recoveries are the difference between the total desired price and the price charged to dealers or the depot price. The total desired price is arrived at by adding the refinery transfer price, premium recovered for BS-IV grade (for diesel), inland freight and delivery charges, marketing costs and marketing

margins of OMCs. The refinery transfer price is equated in terms of trade-parity price—a weighted average of import and export-parity prices. Consumers have to pay a higher price than the total desired price of oil companies as VAT; specific excise duty and dealers commission is added to the fuel bill.

In Feb 2006, report by a committee headed by C. Rangarajan recommended for trade-parity price of 80:20—import price with a weighting of 80%, and export-parity price with a weighting of 20%[38]. The trade-parity price is always higher than the export-parity price due to a higher weighting of imports (India has to import four-fifth of the fuel it consumes) resulting in increase in under recoveries.

. The details of under recovery incurred by OMC on sale of petroleum products in the last 6 years are at Table 5.2

Table 5.2: Under Recoveries by OMC's(In Rs Crores)

S.No	Product	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
1.	Petrol	2723	2027	7332	5181	5151	2227	-
2.	Diesel	12647	18776	35166	52286	9279	34706	81192
3.	Domestic LPG	10246	10701	15523	17600	14257	21772	29997
4.	PDS Kerosene	14384	17883	19102	28225	17364	19484	27352
	Total	40000	49387	77123	103292	46051	78190	138541

[38] http://crisil.com/Ratings/Brochureware/News/rangarajan-committee-recommendations_230206.pdf accessed on 12 Jan 2013

It can be seen that the under recoveries have increased from Rs 40000 Crores in 2005-06 to Rs 138541 Crores in 2011-12. To see relationship between under recoveries and crude price a figure depicting under recoveries and crude oil price is given at figure 5.2

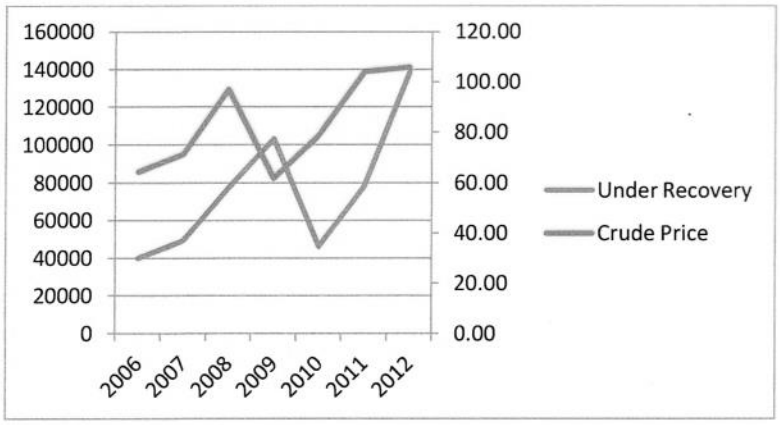

Figure 5.2 : Under recoveries vs Crude oil price

The net under-recovery for OMCs are almost nil as the entire under-recovery burden is compensated by way of government of India cash compensation and discount from upstream companies. This cash compensation by the government of India which is approx 50% leads to increase in fiscal deficit.

5.5 Role of Oil PSU's in Under Recoveries

'Upstream' Companies. These include companies such as ONGC and OIL, which supply crude to the oil marketing companies. Importantly, they also bear a significant part of the fuel subsidy by giving discounts on the crude they sell to the refiners. In 2011-12, for instance, such discounts accounted for about 40% of the total assistance to oil companies[39].

[39] http://articles.economictimes.indiatimes.com/2012-09-23/news/34022985_1_fuel-subsidy-fuel-price-ongc-and-oil

Oil Marketing Companies. The 'refiners-cum-marketers' companies like IOC, BPCL and HPCL(called 'OMCs') buy crude from upstream companies, and refine it into diesel, petrol and other 'products'. The 'refinery' arm of the OMC then sells it to the marketing arm of the OMC at the international benchmark price, which sell it to the end-customer. By selling at controlled prices, the marketing arms of OMCs sustain a loss.

Central Government. Mobilised about Rs 83,700 crore in taxes on various fuel products in 2011-12. The total subsidy payout, on the other hand, to the oil companies to compensate them for under-recoveries, was about Rs 70,000 crore. In 2011-12, it bore around half the total 'under-recoveries' of oil companies.[40]

5.6 Fiscal Subsidy on PDS Kerosene and Domestic LPG

In addition to the above under recoveries the government of India gives Fiscal subsidy on PDS Kerosene and Domestic LPG, under subsidy scheme 2002. This is met out of fiscal budget and has been fixed on a specified flat rate basis for each depot/bottling plant based on the difference between the cost price and the issue price per selling unit. . The details of subsidy are as under:-

[40] http://articles.economictimes.indiatimes.com/2012-09-23/news/34022985_1_fuel-subsidy-fuel-price-ongc-and-oil

Table 5.3: PDS Kerosene and Domestic LPG Subsidy

Year	2002-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12
PDS Kerosene	2098	2657	1147	1057	970	978	974	956	931	863
Domestic LPG	2398	3635	1783	1605	1554	1663	1714	1814	1974	2137
Total	4496	6292	2930	2662	2524	2641	2688	2770	2904	3000

It can be seen that the subsidy have generally remained constant and there is a drive on part of government to reduce this subsidy. The Subsidy given in 2011-12 is Rs 4496 Crores which is greater than Rs 3000 Crores, the subsidy given in 2011-12. Inspite of this subsidy reducing over the years, it is still adding towards overall subsidy.

Thus it is evident that under recoveries are increasing the fiscal deficit. The same is statistically tested through hypotheses testing

5.7 **Hypotheses**

Since the research objective is to study the impact of international crude price on fiscal deficit there is a need to first make the hypotheses, Based on data between crude oil price and fiscal deficit, a statistical analysis will give us the relationship between crude oil price and fiscal deficit. The hypotheses constructed are:-

H_o = Increase in oil prices have no impact on fiscal deficit

H_I = Increase in oil prices has an impact on fiscal deficit

5.8 Gross Fiscal Deficit and Crude Oil price

Table 5.4: Fiscal Deficit and Crude Oil price

Year	India Gross Fiscal Deficit in billion US$	Crude Oil price in US $
1992	13.616	19.34
1993	13.595	16.79
1994	20.579	15.95
1995	17.156	17.2
1996	15.801	20.37
1997	17.263	19.27
1998	20.373	13.07
1999	23.137	17.98
2000	25.723	28.23
2001	27.805	24.33
2002	31.638	24.95
2003	34.867	28.89
2004	30.993	37.76
2005	31.538	53.35
2006	36.339	64.27
2007	38.043	71.13
2008	32.536	97.04
2009	74.627	61.78
2010	103.866	79.03
2011	82.131	104.01
2012	104.977	106

Table 5.4 gives the fiscal deficit and crude oil price from 1992 to 2012. Based on data given in Table 5.4, figure can be drawn between fiscal deficit and crude price which is given at figure 5.3

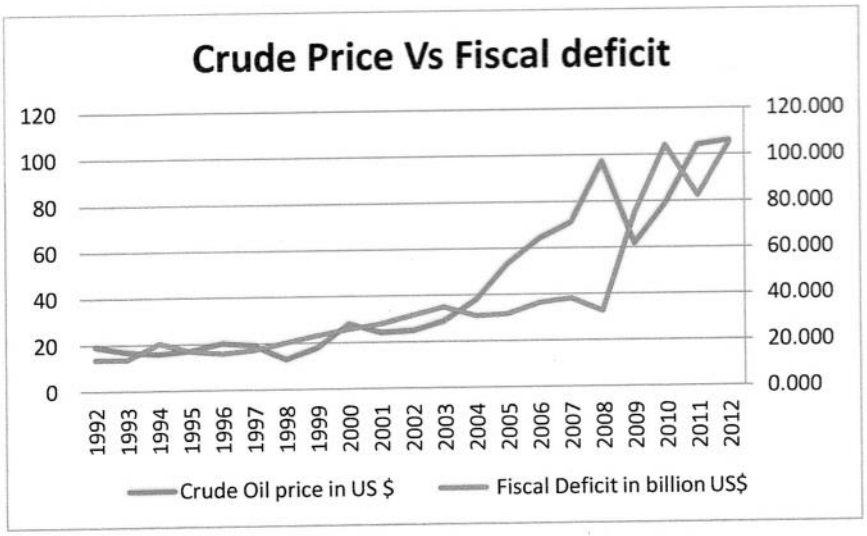

Figure 5.3: Crude oil Price Vs Gross Fiscal Deficit Source: www.imf.org

Figure 5.3 depicts the trend in the increase in Fiscal deficit and Crude Oil price from 1992 to 2012. From the figure it can be seen that barring for two years i.e. in 2008 and 2009, the rise in crude oil price and rise in the Fiscal deficit are similar. Thus it is evident that a relationship exists between crude oil price and fiscal deficit. To analyse the relationship statistically a hypotheses testing is conducted in next section.

5.9 **Scatter Plot**

Before the correlation is checked it is necessary to see the scatter plot to see if any relationship exists

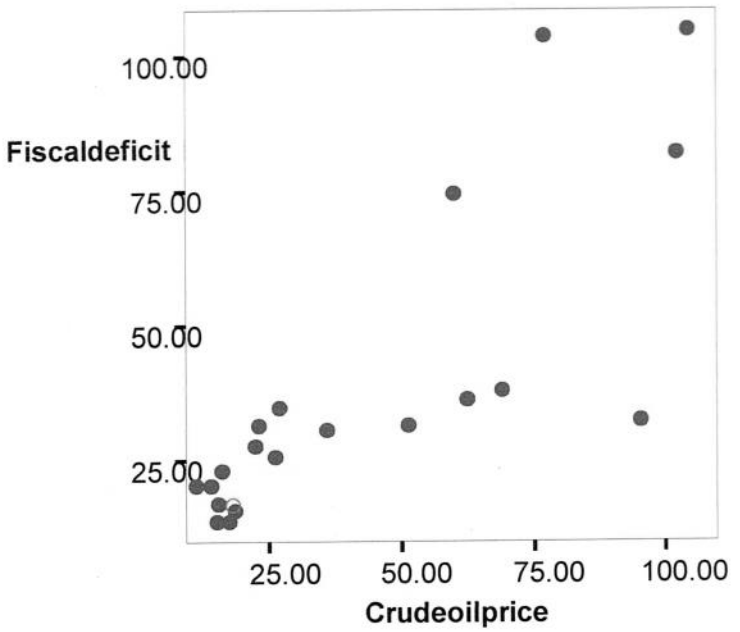

Figure 5.4: Scatter plot between Crude oil price and Fiscal Deficit

Figure 5.4 gives the scatter plot between crude oil price and Fiscal deficit. From the scatter plot it is seen that it is not a linear relationship and thus linear correlation does not exist and thus it is necessary that curve estimation is carried out for prediction.

5.10 **Statistical Output**

Table 5.5 summarizes all linear and curvilinear models with various parameter estimates. The model summary gives R Square which defines that amount of variation in dependent variable explained by the Independent variable. The significance value gives the P value of the ANOVA test conducted in Regression to check the overall validity of the model. A model to be significant,

its P value should be less than α, the level of significance. The parameter estimates gives the value of constant and other estimates used in the model.

Table 5.5: Model Summary and Parameter Estimates

Dependent Variable: Fiscal deficit

Equation	Model Summary					Parameter Estimates			
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	.640	33.814	1	19	.000	6.596	.715		
Logarithmic	.604	28.984	1	19	.000	-72.441	31.173		
Inverse	.508	19.646	1	19	.000	72.193	-959.941		
Quadratic	.640	16.027	2	18	.000	7.582	.662	.000	
Cubic	.642	10.142	3	17	.000	.354	1.227	-.011	6.24E-005
Compound	.695	43.298	1	19	.000	15.048	1.017		
Power	.716	47.858	1	19	.000	2.188	.748		
S	.654	35.938	1	19	.000	4.287	-23.998		
Growth	.695	43.298	1	19	.000	2.711	.016		
Exponential	.695	43.298	1	19	.000	15.048	.016		
Logistic	.695	43.298	1	19	.000	.066	.984		

The independent variable is Crudeoilprice.

From Table 5.5 it is seen that in all cases the P value is 0.000 and is < α (0.01). Thus P values in all cases are statistically significant. The R square in case of Power has the max value which is 0.716 implying that 71.6% variation in Fiscal deficit is explained by independent variable crude oil. Thus the equation for this model will be

$\check{y} = (2.18)^* (x^{0.748})$ ... (5.1)

Where $\check{y}$ is the fiscal deficit and X is the crude oil price

Thus for a crude oil price of 120$, we can predict that the fiscal deficit will touch $126.35 billion

5.11 **Implication**

Government of India has been trying to reduce the fiscal deficit over a period of time. Sudden unforeseen expenditure increases the fiscal deficit which leads to more borrowing, higher inflation etc. International crude price is one of the reasons for increase in fiscal deficit. Thus a tool is now available to predict the fiscal deficit

5.12 **Conclusion**

The Fiscal Responsibility and Budget Management Act (FRBMA) passed by parliament have not been able to control the fiscal deficit and cap it at 3% of GDP. The fiscal deficit has been hovering between 5 and 6% of GDP. One of the main reasons for this is the increase in international crude price. Thus this model can be used to predict the Gross Fiscal Deficit based on International crude oil price. This would help the Government of India to tighten its budget and reduce the Gross fiscal deficit.