Foreign Direct Investment & Sectoral Growth in India: Analysis of Select Period

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Under the right circumstances FDI can contribute to development by having a positive impact on the host economy and stimulating the local private sector through, creating jobs, buying inputs, and providing technology transfer and managerial skills. It can contribute in terms of net positive resource flows to a country and be a source for much needed foreign exchange which can be used to then finance critical imports. This article strives to examine whether or not the positive impacts of FDI are positive in terms of balanced sectoral growth also. To analyze the balance growth feature of FDI inflows the article discusses the impact of FDI inflows on primary, secondary and tertiary sectors.

Keywords: FDI, TNC,GDP

1.FDI IN PRIMARY, SECONDARY & TERTIARY SECTORS

1.1 FDI Inflows in Agriculture

It is believed that the opening up of the agriculture sector to FDI has failed to make any significant impact. One reason is that FDI in agriculture has been unable to keep pace with the overall increase. Food inflation in India over the last three years was to a large extent due to increases in the prices of perishable goods (fruits and vegetables, milk and milk products). While demand for perishable goods is high, supply is constrained by insufficient market infrastructure. A large proportion of production does not reach consumers because of the lack of roads and cold storage. Traders and middlemen put a wedge between the prices faced by consumers and farmers, and geographical and temporal market segmentations lead to regional and temporal price variability. In fact, the constraints discourage farmers from producing more of these otherwise high-value crops in the first place. Better functioning of markets and availability of

Table 1.1:-FDI in Agro-based Industries (Rs. Crore)

Year	Agriculture Machinery	Fermen- tation Industries	Fertilizers	Paper & Pulp including	Textiles (include Dyed,	Food Process- ing	Leather, Leather	Rubber Goods	Vanaspati oils,	Timber product	Sugar
2000-01	156.45	688.85	5	2599.53	80.99		132.55	162	0	0	0
2001-02	0	494.52	0	501.37	200.33	2857.37	320.06	30.75	0	2.24	0
2002-03	696.8	376.26	786.27	544.61	2203.94	9469.64	3.5	2221.04	0	0	190.79
2003-04	1.09	91.23	991.9	337.69	838.18	3076.28	321.71	834.07	55.51	7	2.47
2004-05	0	339.37	620	175.55	1784.77	3690.18	20.36	2012.55	271.38	0.67	135.09
2005-06	3.77	334.95	0	0.4	3138.98	1569.75	6.75	894.67	161.31	2.45	131.04
2006-07	2,527.51	198.68	228.23	225.68	5,268.03	2,463.12	357.53	850.52	199.97	0.1	703.81
2007-08	240.44	2,083.48	48.33	902.3	4,151.04	2,836.83	234.46	270.72	630.28	15.25	446.65
2008-09	249.31	15,978.68	1,414.31	9,532.48	8,696.24	6,360.28	201.79	3,656.71	2,010.39	97.78	226.8
2009-10	40.33	5,137.86	584.74	2,905.99	8,749.88	9,514.94	144.39	1,677.02	2,287.15	737.15	0
2010-11	68.81	1,066.03	857.98	703.35	8,923,79	9,730.81	84.71	797.48	2,940.57	77.36	10.29
Total	3984.51	26789.91	5,536.76	18428.95	54740.13	51569.2	1827.81	13407.53	8556.56	940	1846.94

Source:-1. GOI (2012), DIPP, Ministry of Commerce and Industry,
2. SIA Newsletter, Nov 2007, 2009 and various issues of SIA Newsletter.

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marketing channels would therefore greatly increase the supply of perishable items. Owing to the dismal situation in the agriculture, many economists and social reformists envisage Foreign Direct Investment (FDI) as a ray of hope.

However, FDI in India faced an unexpected decline in 2010-11 when inflows in other countries recovered strongly from the slump in the wake of the global financial crisis. Tuning the policy norms further to attract declining foreign investment, India has announced allowing 100 percent FDI in the agriculture sector including seeds, plantation, horticulture and cultivation of vegetables.

Since FDI in agriculture has taken pace in recent times only so the data available is for2000 onwards. We will see total FDI into various components of agriculture sector during 2000-2011.Table shows FDI into various agro-based industries. It is evident that FDI in Fermentation industry and Textile have improved significantly over the period of time.

It is evident from tables that maximum FDI has been concentrated in Fermentation, Textiles, and Food Processing Industries which are profit making industries in agriculture.
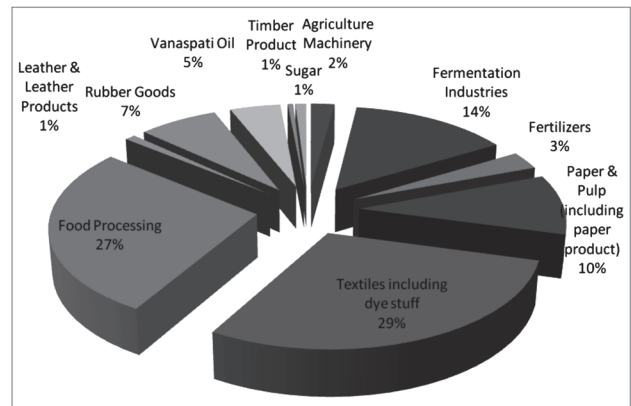
Fig.1. 2 Trend in FDI inflow in Primary Sector 2001-2011
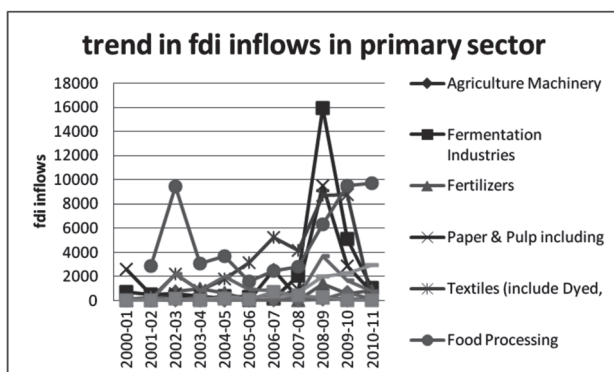
Source: SIA Newsletter, Nov 2007, 2009 and various issues of SIA Newsletter. Compiled and computed by author (s)

The figure 1.2 shows the trend of FDI inflows in various agro based industries for the time period 2000-01 to 2010-11. The trend clearly indicates that these years the food processing, textiles, fermentation industries have attracted most of the FDI. The slump in 2008-09 is supported by the global financial crisis when the entire world suffered from this scenario.

Pie chart 1.3:
Share of various agro based industries- 2001-2011

Source: SIA Newsletter, Nov 2007, 2009 and various issues of SIA Newsletter.
Compiled and computed by author

Pie chart 1.3 reveals share of each arro based industry in terms of FDI inflows. The textiles including dye stuff tops the share with 29%, Food-Processing is on 2nd position with 27% chunk and Fermentation industry with14% share is followed by paper & pulp with 10%.

2 FDI INFLOWS IN MANUFACTURING

The manufacturing sector plays a significant role in the Indian economy, contributing nearly 17 per cent to the GDP .Encouraged by the increasing presence of multinationals, the scaling up of operations by domestic companies and an ever-expanding domestic market, the Indian manufacturing sector has been growing. Rapidly in the past years. India as one of the fastest growing economies in the world has all the requisite skills in product, process and capital engineering, due to its long manufacturing history and higher education system. India's cheap, skilled manpower is attracting a number of companies across diverse industries, making India a global manufacturing powerhouse. FDI inflows into manufacturing have been computed based on FDI records provided by DIPP.

Based on table 2.1 the pie-chart 2.2 reveals that in the second decade of post liberalization i.e. from 2001-2011 the manufacturing industry which grabbed the maximum of FDI inflows is Electrical & Electronics (including software & hardware)-25% of the total

Table-2.1 FDI inflows in various manufacturing industries 2001-2011 (in Rs. Crores)

Sector	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
ELECTRICALS EQUIPMENT (INCL S/W & ELEC)	20566.93	31908.64	13550.09	39666.61	8224.57	139332.28	127021.23	89328.19	69669.26	47310.72
DRUGS AND PHARMACEUTICALS	4081.79	2510.52	2793.28	15711.08	152.48	9,757.29	11,405.68	11,085.87	9,468.28	10,039.65
CHEMICALS (OTHER THAN FERTILIZERS)	2952.1	5799.58	2849.05	8677.14	3258.94	17,944.83	10,170.23	26,360.71	19,494.91	20,450.74
METALLURGICAL INDUSTRIES	1505.8	2095.59	1454.52	8583.79	748.34	7,846.58	20,298.60	62,668.48	21,509.87	47,404.47
FUELS (POWER & OIL REFINERY)	17411.75	31076.68	7418.51	7159.79	1467.91	11643.96	24144.32	111027.89	97317.5	75763.06
MACHINE TOOLS	218.13	655.41	385.49	2652.7	10	1,579.25	1,966.07	2,144.64	5,504.59	781.48
CERAMICS	128.57	13.91	65.98	1208.24	26.17	1,985.78	4,198.52	9,506.24	154.13	4,451.42
MISCELLANEOUS MECHANICAL & ENGINEERING	3484.57	1333.58	1910.24	717.26	30.53	2,345.78	7,962.33	7,131.08	6,688.34	4,403.40
TRADING	2204.38	1824.16	831.46	682.16	262.75	3,861.07	23,141.85	27,698.55	22,775.03	25,780.55
INDUSTRIAL MACHINERY	1251.55	781.82	476.71	430.76	81.11	1,169.92	901.3	6,426.65	7,671.45	26,889.81
GLASS	375.17	2150.6	250.95	384.74	2.71	66.86	415.91	550.27	537.22	354.84
MEDICAL AND SURGICAL APPLIANCES	1925.74	1177.43	99.14	229.27	28.53	89.54	643.93	3,623.63	2,932.40	2,509.84
COMMERCIAL, OFFICE & HOUSEHOLD EQUIPMENT	150.57	121.96	495.47	108.16	516.74	281.13	2,031.87	551.52	3,523.40	1,280.39
INDUSTRIAL INSTRUMENTS	273.68	41.7	61.96	49.45	0	15.77	88.14	836.49	368.49	1,142.43
SOAPS, COSMETICS AND TOILET PREPARATIONS	0	0	0	40.95	5	72.65	398.36	643.11	1,784.86	1,743.56
PHOTOGRAPHIC RAW FILM AND PAPER	0	17.05	23.88	12.75	264.33	26.03	2,091.72	44.44	0	36.1
CEMENT AND GYPSUM PRODUCTS	6221.28	1103.5	440.4	7.3	89	9,520.07	1,844.91	28,869.39	3,760.47	28,210.82
EARTH-MOVING MACHINERY	4.79	661.17	0	5.22	0	45.79	2,611.36	20.25	94.65	81.23
PRIME MOVERS OTHER THAN ELECTRICAL	0	0	0	2.49	0	0	11.6	164.21	0	4,988.74
SCIENTIFIC INSTRUMENTS	218.49	9.16	0.74	1.37	0	3.4	0.13	35.6	0	96.52
BOILERS AND STEAM GENERATING PLANTS	0	0	1.97	0	23.4	149.85	42.3	21.15	184.78	28.74
MATHEMATICAL, SURVEYING & DRAWING	0	0.15	0	0	0	0	0.2	50	0.1	0
GLUE AND GELATIN	0	295.76	0	0	0	0	67.5	22.54	12.64	0.36
MISCELLANEOUS INDUSTRIES	22948.8	12148.1	14568.58	13400.28	4598.44	12,051.93	17,295.30	68,839.35	37,534.37	76,416.52
ACQUISITION OF SHARES	0	0	0	0	0	0	0	0	0	0
ADVANCE OF INFLOW	7066.1	19771.23	18807.56	24851.48	0	0	0	0	0	0
STOCK SWAPPED	0	840	1725	0	0	283.71	142,405.77	433.03	21.75	0
NRI-RBI SCHEMES	2292.5	110.8	0	0	0	0	0	0	0	0
GRAND TOTAL	95282.69	116448.5	68210.98	124582.99	19790.95	220073.47	401159.13	458083.3	311008.5	380165.39

Source:-1. GOI (2012), Ministry of Commerce and Industry, DIPP

2. SIA Newsletter, Nov 2007, 2009 and various issues of SIA Newsletter.

Note: - Industries are selected on the basis of data availability since 2001

inflows to the manufacturing sector. The second position is obtained by Fuels (power & oil refinery) with 18%, followed by Metallurgical Industries with 10% share, Drugs & Pharmaceuticals with 9% share & Chemicals with 6% share. The share gained by fuels (power & oil refinery) can be very positive for the economy as exploration capacity and technological assistance from foreign firms with respect to oil & natural gas can be very significant in fulfilling the supply demand gap in the economy. The positive spillover effects of FDI in the economy will lead to the growth of the manufacturing sector.

3 FDI IN SERVICES

Services is the fastest growing sector in India, contributing significantly to GDP, GDP growth, employment, trade and investment. Labour productivity in services is the highest and it has increased overtime. India is a major proponent of liberalizing services both in the WTO and in its bilateral trade agreements. The growth of India's services sector, its contribution to GDP, and its increasing share in trade and investment has drawn global attention. Unlike other countries, where economic growth has led to a shift from agriculture to industries, in India, there has been a shift from agriculture to the services sector. The FDI inflows in the service sector accounts for 44% of total FDI inflows. The trend and pattern of FDI inflows in the service sector could be analyzed with the help of Table 5.3.1

Table-3.1 FDI in Services in (Rs. Crore)

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
CONSULTANCY SERVICES	2922.91	1003.04	2480.26	11843.5	966.83	5,554.05	7,040.92	15,414.99	19,538.40	11,946.40	13,027.64
SERVICE SECTOR	8202.24	15431.39	13903.59	11455.83	11765.72	175,032.22	145,099.52	339,475.12	274,102.08	161,538.68	179,886.33
TELECOMMUNICATIONS	42671.49	9090.7	7272.59	6087.84	810.22	41,699.46	43,541.50	115,954.81	118,130.83	69,144.60	103,668.65
HOTEL & TOURISM	471.54	2237.89	2594.21	1527.23	1688.24	8,174.86	10,581.23	22,729.27	27,680.73	22,790.82	26,222.20
TRANSPORTATION INDUSTRY	13820.05	21242.48	15133.84	8063.68	2425.61	5406.42	8569.66	5312.46	13312.05	20025.13	5767.26
Total	68088.23	49005.5	41384.49	38978.08	17656.62	235867	214832.8	498886.7	452764.1	285445.6	328572.1

Source: SIA Newsletter, Nov 2007, 2009 and various issues of SIA Newsletter.
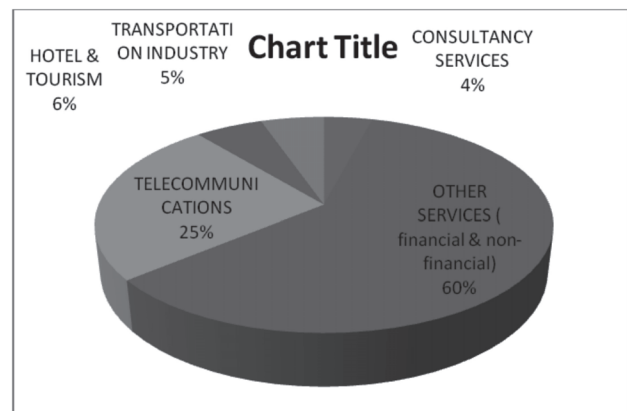
Fig 3.2:- Trend Line FDI in Services
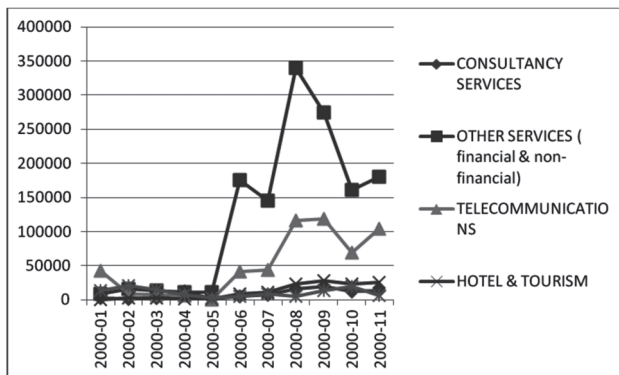
Source: SIA Newsletter, Nov 2007, 2009 and various issues of SIA Newsletter. Compiled and computed by author

The trend line clearly indicates that gradually the service sector has increased its share in the total FDI inflows although we can see disparity that financial and non financial services enjoy the majority of chunk, followed bu telecommunications. The trend indicated that overa period of time these two have dominated the sector with hotel & tourism and consultancy keeping a low profile.

Pie chart 3.3 FDI in Services 2001-2011

Source: SIA Newsletter, Nov 2007, 2009 and various issues of SIA Newsletter.
Compiled and computed by author(s)

The pie chart for the time period 2001-2011 indicates the share of various sectors in the services. Financial

and non financial receives majority of chunk with 60% of total FDI inflows in the services sector. Telecommunications receives 25% and is followed by hotel & tourism with 6%, transportation industry with 5% and consultancy services with 4%.

Hypotheses of the Study

Null Hypotheses

4. ESTIMATION PROCEDURE & DATA DESCRIPTION

In order to analyze the impact of FDI Inflows on primary, secondary and tertiary sectors the linear regression technique is applied. To assess the impact, GDP of primary sector and FDI inflows in agro based industries is considered. In the same manner GDP of manufacturing sector and FDI inflows in manufacturing sector and GDP in tertiary sector and FDI inflows in tertiary sector is being considered. The entire date is for the time period 2000-01 to 2010-11. The data is extracted from RBI's Handbook on Indian Economy, Economic Survey various issues and the calculation and compilation is done by the author. Due to non availability of data on agro based industries the data can be extracted only for 2000-2010.

4.1 Model Specification:-

.Considering that the FDI Inflows in all three sectors has impacted the GDP of all three sectors the following equations are built.

Model 1:- GDPP=f (FDIIP)……………. (1)

Model 2:- GDPM=f (FDIIM)……………. (2)

Model 3:- GDPS=f (FDIIS)……………. (3)

Where:

GDPP = GDP of Primary sector

FDIIP = Foreign Direct Investment in Primary sector.

GDPM = GDP of Manufacturing sector

FDIIM = Foreign Direct Investment in Manufacturing sector.

GDPS = GDP of Secondary sector

FDIIS = Foreign Direct Investment in Service sector.

The statistical form of the model is thus:

GDPP = $\alpha 0 + \alpha 1$ FDIIP + e …… (1)

$GDPM = \beta 0 + \beta 1$ FDIIM + e …… (2)

$GDPS = \gamma 0 + \gamma 1$ FDIIS + e …… (3)

Where:

$\alpha 0$ = the intercept for equation 1

$\alpha 1$ = the parameter estimate of FDIIP

$\beta 0$ = the intercept for equation 2

$\beta 1$ = the parameter estimate of FDIIM

$\gamma 0$ = the intercept for equation 3

$\gamma 1$ = the parameter estimate of FDIIS

e = the random variable or error term.

4.2 Result & Discussion for Primary Sector

After running the relevant regressions, the following results were obtained and are presented below:

Table 5.4.5 Regression Model Result for primary sector using the following equation:-

GDPP = $\alpha 0 + \alpha 1$ FDIIP + e

Statistics		Coefficients β	T-Ratios
R	.559		
R-Square	.312		
Adj R-Square	.236		
F-Value	4.088		
DW	1.121		
Df	1, 9		
FDIP		.559	2.022

Source : Generated by the Researcher

The Table 4.2 shows the regression results of aforementioned equation. The low F-value dose not support the regression model for the primary sector.. The selected independent variable (FDIP) is able to explain just 55.9 per cent variation in the GDP of primary sector (GDPP). From the regressions result, the R squared (R^2) value of 0.312 shows that at 31.2% the explanatory variables explain changes in the dependent variable. This means that at 31.2 % the independent variables (FDIP) explain changes on the GDPP. Although, the problem of Autocorrelation is present as reflected from Durbin-Watson (DW) ratio i.e. 1.121, probably introduction of time variable may absorb auto- correlated error if we introduce the Time variable in the model. The values of the estimated Coefficients are larger than their standard- error as reflected by high t-ratios.

4.3 Result & Discussion for Manufacturing Sector

After running the relevant regressions, the following results were obtained and are presented below:

Table 4.3 Regression Model Result for manufacturing sector using the following equation:-

$$GDPM = \beta_0 + \beta_1 \, FDIIM + e$$

Statistics	Coefficients β	T-Ratios
R	.897		
R-Square	.805		
Adj R-Square	.783		
F-Value	37.082		
DW	1.304		
Df	1, 9		
FDIM		.897	6.089

Source : Generated by the Researcher

The Table 4.3 shows the regression results of aforementioned equation. The F-Value shows that overall regression model is significant and fit. The selected independent variable (FDIM,) is able to explain more than 89.7 per cent variation in the GDP of manufacturing sector (GDPM). From the regressions result, the R squared (R²) value of 0.805 shows that at 80.5% the explanatory variables explain changes in the dependent variable. This means that at 80.5 % the independent variables (FDI) explain changes on GDPM) . The problem of Autocorrelation is present as reflected from Durbin-Watson (DW) ratio i.e. 1.304 which can be overruled if time variable is considered in the analysis. The values of the estimated Coefficient of FDI, reflects that GDPM is influenced highly. The values of the estimated Coefficients are significantly larger than their standard- error as reflected by high t-ratios.

4.4 Result & Discussion for Service Sector

After running the relevant regressions, the following results were obtained and are presented below:

The Table 4.4 shows the regression results of aforementioned equation. The F-Value shows that overall regression model is significant and fit. The selected independent variable (FDIS,) is able to explain more than 79.8 per cent variation in the GDP of service sector (GDPS). From the regressions result, the R squared (R²) value of 0.636 shows that at 63.6% the explanatory variables explain changes in the

Table 4.4 Regression Model Result for service sector using the following equation

Statistics	Coefficients β	T-Ratios
R	.798		
R-Square	.636		
Adj R-Square	.596		
F-Value	15.727		
DW	.968		
Df	1, 9		
FDIS		.798	3.966

Source : Generated by the Researcher

dependent variable. This means that at 63.6 % the independent variables (FDIS) explain changes on GDPS) . The problem of Autocorrelation is present as reflected from Durbin-Watson (DW) ratio i.e. .968 which can be overruled if time variable is considered in the analysis. The values of the estimated Coefficient of FDI, reflects that GDPS is influenced highly. The values of the estimated Coefficients are significantly larger than their standard- error as reflected by high t-ratios.

4.5 CONCLUSION & SUGGESTION

The tables of regression results reveal that the impact of FDI inflows sectorwise has different impact on their respective GDP also. In primary sector the influence is not significant as the coefficient is comparatively low in comparision to the coeffecient of determination in the manufacturing and services sector. The influence of FDI inlows is significantly high in services and manufacturing sectors and it is highest in manufacturing sector.

For the greater part of humanity, primarily in developing countries, agriculture remains at the core of thei exsistence: it provides sustenance, supports people's livelioods and defines their traditions, The lack of investment in agriculture is one of the factors contributing to poverty.

The renewal of interest by TNC's and foreign governments in the agriculture industriesof developing host countries represents an opportunity to raise the level of investment in this critical sector even further. At the same time their is evidence that the developing countries are reviewing their policy frameworks and legislation to encourage and permit foreign participation in their agriculture sector encouraging

and utilising TNC participation in their agriculture.

There is scope to examine the role of TNC in agriculture and its implication for the development and growth of primary sector.

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