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DIIPER RESEARCH SERIES

WORKING PAPER NO. 4



ISSN: 1902-8679

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**The Impact of the National Innovation Systems on the Flow and Benefits of
Foreign Direct Investment to National Economics**
Development, Innovation and International Political Economy Research (DIIPER)
Aalborg University
Denmark
DIIPER Research Series
Working Paper No. 4

ISSN 1902-8679

Published by
DIIPER & Department of History, International and Social Studies
Aalborg University

Distribution
Download as PDF on
<http://www.diiper.ihis.dk/>

Lay-out and word processing
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The Impact of the National Innovation Systems on the Flow and Benefits of Foreign Direct Investment to National Economies

Angathevar Baskaran¹ and Mammo Muchie²

1. Introduction

In the increasingly globalising economy, the flow of foreign direct investment (FDI) is seen as an important source for achieving greater and faster economic growth, particularly in the emerging market economies and other developing countries. Studies on FDI focus on different aspects such as impact of FDI on economic growth, its linkages to foreign trade, its contribution to technology diffusion and human capital formation in the local economy, its social and environmental impacts on host countries, the factors that determine different level of flow of FDI to different countries, the link between FDI and international production, trade and technology development. Such studies mainly highlighted that there are benefits as well as costs from FDI for the host countries (e.g. OECD, 2002; Wei, 2005; Chakraborty and Basu, 2002; Rajan, 2005).

The benefits include technology spillovers, human capital formation, international trade integration, competitive environment, and enterprise development, and so on. The costs include balance of payment problems due to repatriation of profit, failure to link with local communities, negative impact on local environment, social destabilisation due to rapid commercialisation, impact on competition in national market, host country failing to benefit from technology and know how transfer, and loss of political sovereignty. Although it is found that the overall benefits are greater than costs, it is pointed out that benefits of FDI are not automatic, particularly for developing countries. It is suggested that these countries need to pursue appropriate policy regimes and should have “a basic level of development”. Various studies suggest that not only the volume and nature of FDI flow varies greatly across the emerging and less developed economies, but also their ability to absorb and benefit from them and how effectively they use FDI to enhance their national productive systems varies greatly.

In this paper we would argue that this capacity is directly related to the degree of functioning of an economy’s national innovation system. If FDI is one key route for the introduction of knowledge, technology or innovation that is new to a

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national economy, it matters a lot how the network of institutions, ideas, policies, strategies, agents and incentives are organised, and work in tandem with logic and coherence and thus communicate and interact effectively to bring transformation. How well the latter are organised, interfacing the elements of the social-economic, productive and knowledge, intersectoralising the sectors and forging interdependent agents and structures is a question of the type of national innovation system (NIS) in place. FDI is not negative or positive a priori. Its role as positive or negative should emerge in relation to specific contexts and requires contextualising it within given national systems of innovation. And we propose that the weakness or strength of the system of innovation influences whether FDI's contribution is negative or positive. A study of FDI in relation to how different national systems with varied capacities and characteristics or the strengths and weaknesses inherent in their NIS deal and cope with FDI can yield fresh policy insight on the type of changes that must take priority to benefit from flows of FDI.

In this paper we analyse the nature of the flow of FDI in some selected emerging market economies such as China, India, South Africa and few smaller economies and its impact on these national economies. We analyse the volume, nature and characteristics of the FDI inflow in these countries and whether and how NIS has shaped the flow and the impact of FDI on these economies. We focus on the issue of managing and absorbing FDI to enhance national productive systems rather than whether FDI is positive or negative.

2. National Innovation System (NIS) and FDI: A Conceptual Framework

National innovation system (NIS), we would argue, is not just a tool to achieve the narrow goal of industrial/economic competitiveness, but it is about achieving a broader development and wider social benefits. Major elements of NIS can be identified as: 1. Conceptual framing of growth and wellbeing within politics and economics system; 2. Co-evolution of institutions/ technological capability/ knowledge; 3. Incentives; 4. Implementation/ learning/ outcomes; and 5. Feedback / socio-economic changes. All these elements (both economic and non-economic) need to be linked and co-evolved to achieve an efficient innovation system leading to higher level of technology accumulation and economic and social development. This is captured by Figure 1 and Figure 2 illustrates particularly the institutions, technologies, and incentives and linkages in the NIS.

Figure 1: Major Elements of National Innovation System (NIS)

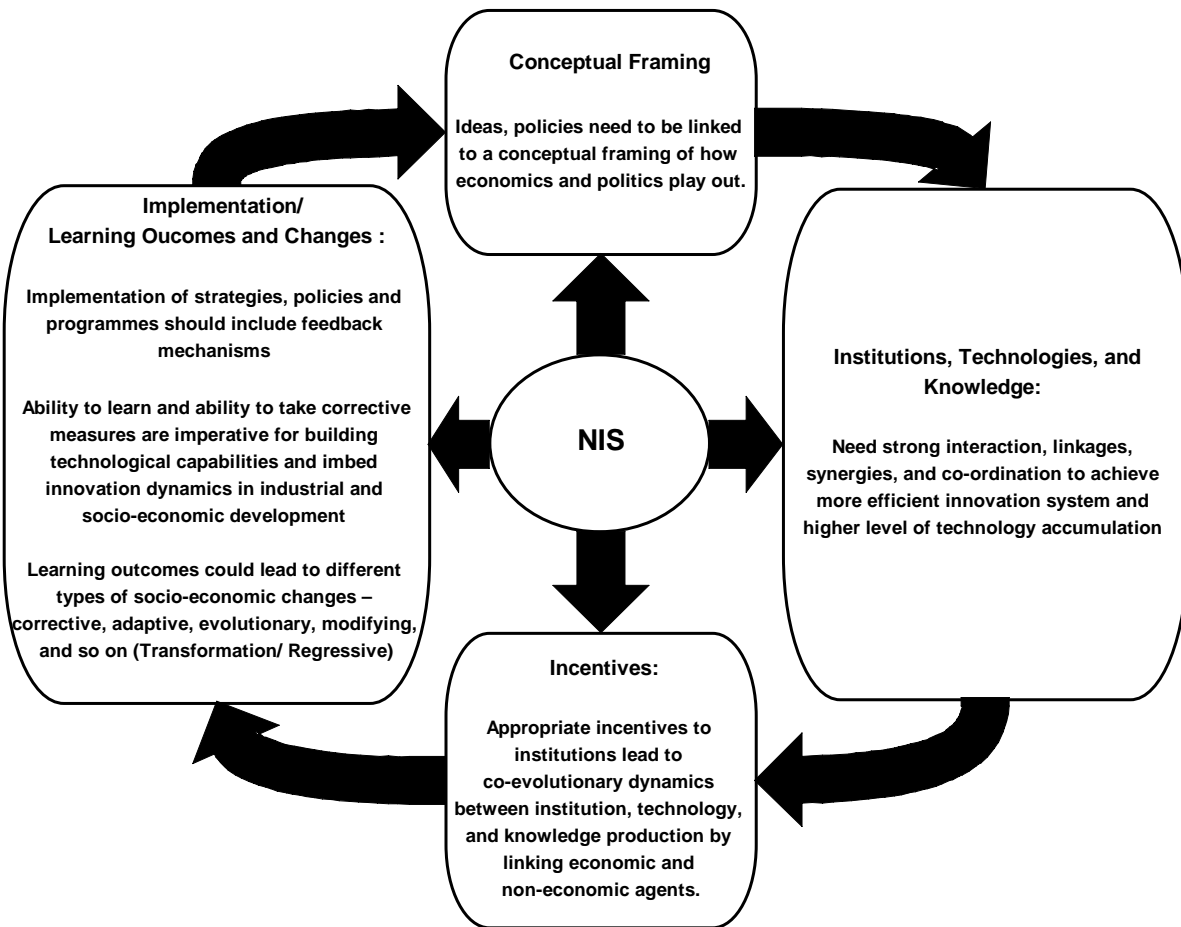
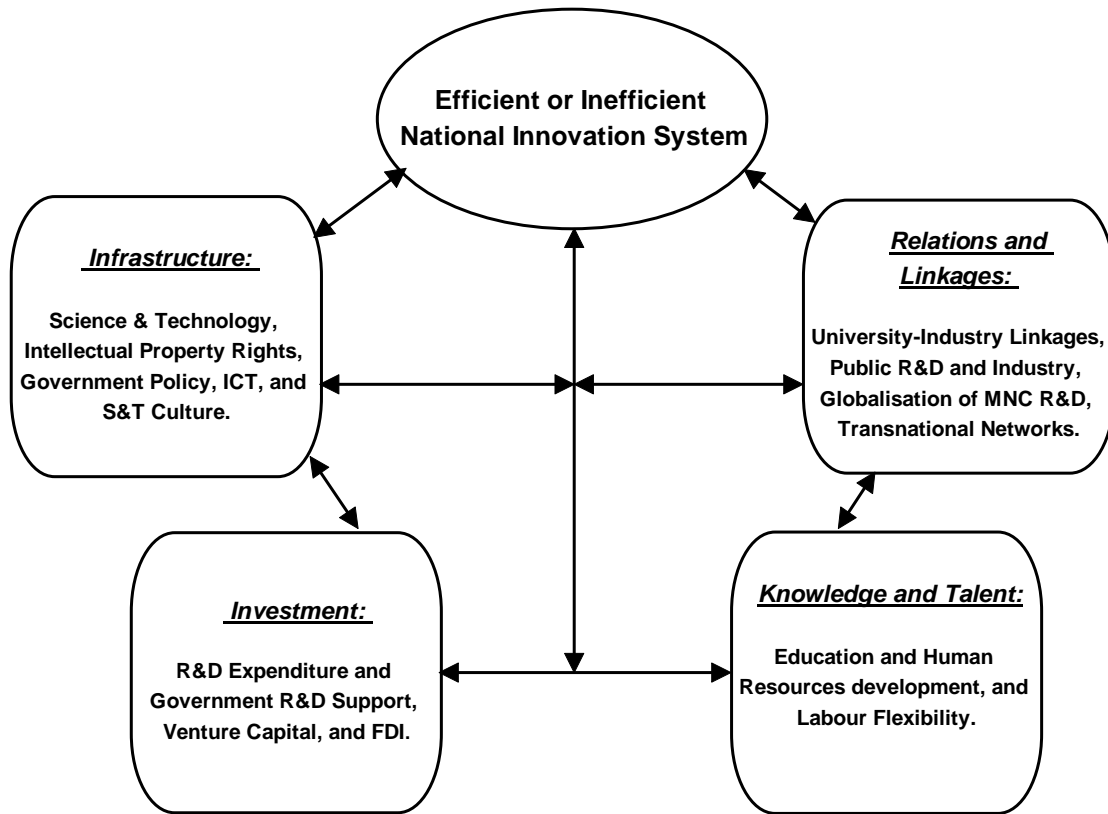


Figure 2: Linkages between Institutions, Technologies, Knowledge and Incentives in NIS



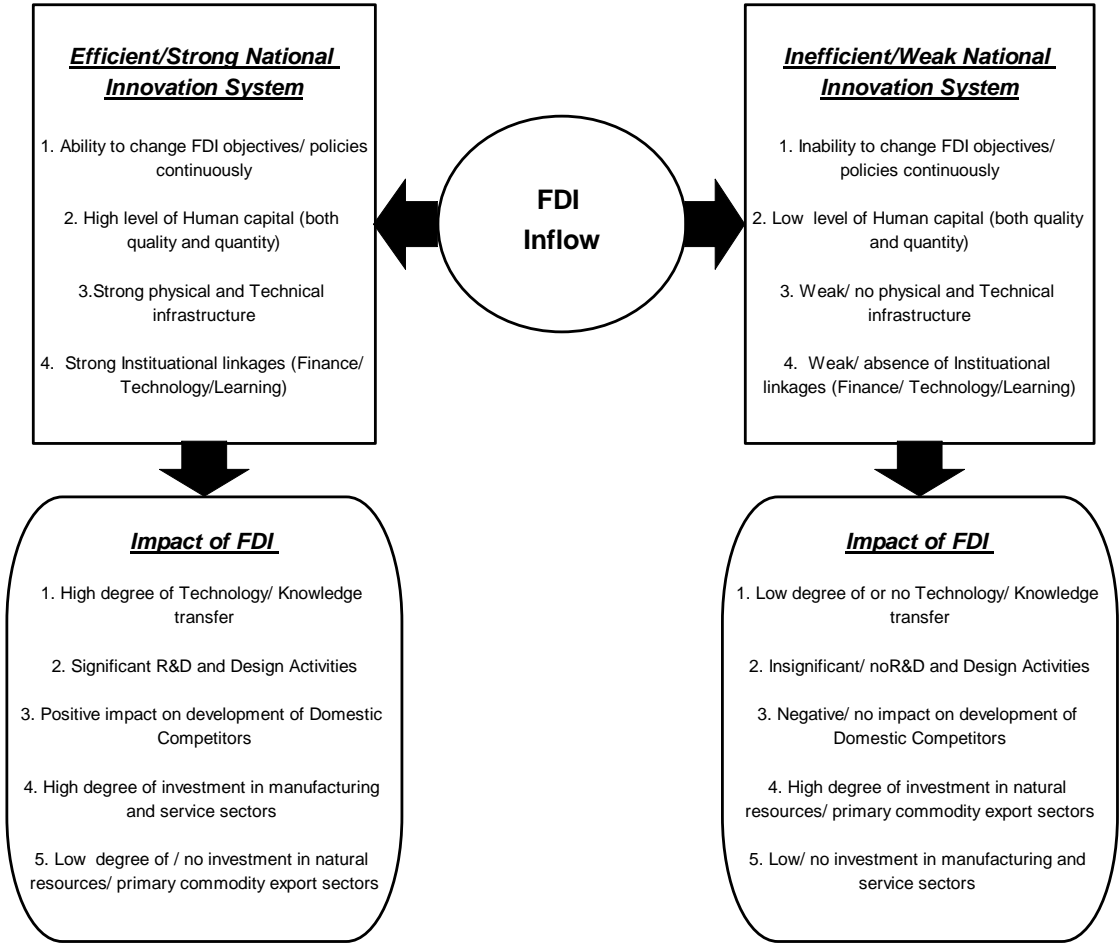
Foreign direct investment (FDI) is defined by IMF (1993, 2003) and OECD (1996) as a long term investment by a foreign direct investor in an enterprise resident in an economy other than that in which the foreign direct investor is based. In order to qualify as FDI the investment must afford the parent enterprise control over its foreign affiliate. The UNCTAD defines control in this case as owning 10 per cent or more of the ordinary shares or voting power of an incorporated firm or its equivalent for an unincorporated firm (see Website A). Other than having an equity stake in an enterprise, there are many other ways in which foreign investors may acquire an effective voice. Those include subcontracting, management contracts, turnkey arrangements, franchising, leasing, licensing and production-sharing. The components of FDI are equity capital, reinvested earnings and other capital (mainly intra-company loans).

Foreign direct investment in new facilities or the expansion of existing facilities is known as 'Greenfield investment'. This is the primary target of a host nation's promotional efforts because they create new production capacity and jobs, transfer technology and know-how, and can lead to linkages to the global marketplace. However, it often does this by crowding out local industry, as multinationals are able to produce goods more cheaply (because of advanced

technology and efficient processes) and uses up scarce resources (labor, intermediate goods, etc).

Transfer of existing assets from local firms to foreign firms takes place through mergers and acquisitions. Cross-border acquisitions occur when the control of assets and operations is transferred from a local to a foreign company, with the local company becoming an affiliate of the foreign company. Unlike Greenfield investment, acquisitions provide no long term benefits to the local economy--even in most deals the owners of the local firm are paid in stock from the acquiring firm, meaning that the money from the sale could never reach the local economy. There are other forms of FDI: (i) horizontal foreign direct investment is an investment in the same industry abroad as a firm operates in at home country; (ii) vertical foreign direct investment are in two forms: 1. backward vertical FDI, where an industry abroad provides inputs for a firm’s domestic production process; and 2. forward vertical FDI, in which an industry abroad sells the outputs of a firm's domestic production processes.

Figure 3: National Innovation System and FDI: A Conceptual Framework



FDI determinants include: (i) market size: Gross Domestic Product GDP, GDP growth, per capita income growth; (ii) policy variables: degree of openness, corporate tax rates, import duties, quality of infrastructure; (iii) institutional characteristics: corruption indices, government stability, indices on rule of law; (iv) labor market conditions: illiteracy rates, wage rates; and (v) global supply of FDI.

FDI is often mentioned as a lead driver for economic growth and thought to bring certain benefits to national economies. It is believed to contribute to growth of GDP, Gross Fixed Capital Formation (GFCF) (total investment in a host economy) and balance of payments. Over the years, FDI has grown in importance in the global economy with FDI stocks now constituting over 20% of global GDP.

Figure 3 presents a conceptual framework to understand the influence of NIS on the impact of FDI in a national economy. It suggests that when a country's NIS is stronger and efficient, then it possesses: (a) the ability to change continuously its policies and objectives towards FDI; (b) high level of human capital (both in quantity and quality); (c) high level of physical and technical infrastructure; and (d) a high degree of institutional linkages (among financial institutions, technology institutions, and industry sectors). In such case it is likely that FDI will have greater positive impacts and outcomes in terms of technology and knowledge transfers, R&D and design activities, developing competitiveness of domestic firms, and high level of activities in manufacturing and service sectors and less intensive or no activity in natural resources sectors.

On the other hand, when a country's NIS is weak and inefficient, it is characterized by: (a) inability to change continuously its policies and objectives towards FDI; (b) low level of human capital (both in quantity and quality); (c) low level/absence of physical and technical infrastructure; and (d) low degree or absence of institutional linkages (among financial institutions, technology institutions, and industry sectors). In such case it is likely that FDI will have less or no positive impacts and outcomes in terms of technology and knowledge transfers, R&D and design activities, developing competitiveness of domestic firms, and it is likely to witness high level of activities in natural resources or primary commodity export sectors than in manufacturing and service sectors.

In the following sections the nature and impact of FDI flow into selected economies will be analyzed employing the conceptual framework illustrated by Figure 3.

3. FDI in China

FDI has been an import aspect of economic reforms in China since late 1970s. The growth of FDI, especially since the 1990s, in China has been very significant. Particularly, it appears to have played an important role in the economic development of China over the last 20 years.

Between 1949 and 1976, China spurned foreign investment, except its relationship with the Soviet Union. After the death of Mao Tse-Tung, in the 1980s, Deng Xiaoping opened up China to foreign trade and investment (joint ventures) through setting up of Special Economic Zones (SEZs) and ‘Open Cities’. Four SEZs were set up in Shenzhen, Zhuhai, Shantou, and Xiamen and rights of autonomy were awarded to Guangdong and Fujian provinces to absorb direct investment from Hong Kong and elsewhere.

During the 1980s, FDI inflows grew steadily but remained relatively low, confined largely to joint ventures with Chinese state-owned enterprises. In 1984 China opened the economy further and the SEZs were extended to another 14 coastal cities and Hainan Island. In 1985, 12 of the 14 cities were designated ‘Technology Promotion Zones’ to facilitate technology transfers. In 1986, China set up incentives to attract FDI for setting up export-oriented joint ventures and joint ventures using advanced technologies. These proactive policies led to increasing FDI inflow in the 1980s and 1990s.

Since the early 1990s, China encouraged a further and much more massive wave of foreign direct investment, increasingly in the form of wholly-owned subsidiaries of foreign companies. This appears to have contributed to significant GDP growth. FDI inflows reached over US\$45 billion a year in 1997-98. FDI flow witnessed a further increase by the time China joined the World Trade Organization (WTO) in December 2001. By 2003 China became the top FDI destination. To recapitulate, China’s FDI policies can be seen in three stages: (i) gradual and limited opening; (ii) actively promoting FDI with incentives, and (iii) promoting FDI to achieve domestic industrial objectives (Fung et al., 2002).

China’s FDI policy objectives included (i) building its industrial base and enhancing the domestic value-added; (ii) increasing the level of exports; (iii) promoting regional development; and (iv) technology transfer. However, China’s FDI policy priorities have been changing. Since the mid-1990s there has been increasing focus on following areas: (i) effort to transform and modernize traditional agriculture; (ii) strengthening transportation infrastructure, energy and other basic industries; (iii) building high-tech sectors such as electronic information, bioengineering, new materials and aviation; (iv) establishing R&D centers of excellence; (v) upgrade traditional industries such

as textiles, machinery and consumer goods industries; (vi) encouraging export-oriented FDI projects and (vii) developing the industry in the Western region of China (Website C, Long, p.319,321).

Over the years, China attracted three forms of FDI: (i) foreign loans (loans from foreign governments, foreign financial institutions, commercial loans, bonds issued to foreign governments); (ii) direct foreign investment (equity and contractual joint ventures, wholly foreign owned enterprises, share-holding companies, and joint explorations); (iii) other foreign investment (shares issued to foreigners, international leasing, etc). In the early 1990s, contracted FDI exceeded actually used FDI by a large margin. This gap narrowed in the second half of the decade as the authorities became more realistic in registering inflows and as the pace of increase slowed, but it has widened again sharply in recent years. By 2003 contracted FDI was more than double of utilized FDI. Actually used FDI amounted to US\$60.6 billion in 2004. This amounted to an increase of nearly 13 percent. Total contracted FDI reached US\$153.5 billion in 2004, up 33.4 percent on the previous year (Website B).

Table 1: FDI in China (Total and US) 1995-2005											
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
I. Total Foreign Direct Investment (FDI)											
Number of Contracts*	37,011	24,556	21,001	19,799	16,918	22,347	26,139	34,171	41,081	43,664	44,001
Amount Contracted (\$ billion)	91.28	73.28	51.00	52.10	41.22	62.38	69.19	82.77	115.07	153.47	NA*
Amount Utilized (\$ billion)	37.52	41.73	45.26	45.46	40.32	40.72	46.85	52.74	53.51	60.63	60.33
II. US Direct Investment											
Number of Contracts	3,474	2,517	2,188	2,238	2,028	2,609	2,594	3,363	4,060	3,925	3,741
Amount Contracted (\$ billion)	7.47	6.92	4.94	6.48	6.02	8.00	7.51	8.20	10.16	12.17	NA*
Amount Utilized (\$ billion)	3.08	3.44	3.24	3.90	4.22	4.38	4.86	5.40	4.20	3.94	3.06
III. US Share of Contracted Investment											
	8.20%	9.44%	9.68%	12.44%	14.59%	12.83%	10.85%	9.91%	8.83%	7.93%	5%*

Source: Ministry of Commerce (MOFCOM) (see http://www.uschina.org/statistics/fdi_cumulative.html)

* MOFCOM stopped reporting contracted foreign investment figures in December 2005. Beginning in 2005, the number of contracts refers to the number of projects and the contracted value refers to actual investment levels.

Table 1 shows the growth of FDI in China between 1995 and 2005. Table 2 illustrates various types of FDI during 2004 -2005. Industries such as equipment manufacturing and electronic machinery attracted most of the foreign investment. By 2004, over 700 research and development centers had been set up in the mainland China by foreign companies and 30 multinationals also had set up their regional headquarters. In recent years, the North East has become the driver of FDI inflow, as the central government is promoting a strategy of

rejuvenation. And the actual and contracted investment increased by 78 and 40 percent respectively in the region.

Table 2: China - Foreign Direct Investment by Vehicle Type, 2004 and 2005

	Number of Projects			Utilized FDI Value (\$ billion)		
	2005	2004	% Change	2005	2004	% Change
Total FDI	44,001	43,664	0.77	60.33	60.63	-0.50
EJVs	10,480	11,570	-9.42	14.61	16.39	-10.81
CJVs	1,166	1,343	-13.18	1.83	3.11	-41.15
WFOEs	32,308	30,708	5.21	42.96	40.22	6.81
Foreign-invested shareholding ventures	47	43	9.3	0.92	0.78	18.21

Note: FDI=foreign direct investment; EJVs=equity joint ventures; CJVs=cooperative joint ventures; WFOEs=wholly foreign-owned enterprises

Source: PRC Ministry of Commerce

(See http://www.uschina.org/statistics/fdi_cumulative.html)

Table 3: China - Share of Exports by Foreign Invested Enterprises (FIEs) - 1986 to 2003

Year	Total Exports	Exports By FIEs	% Share of FIEs in Total
1986	30.9	0.6	1.94
1987	39.4	1.2	3.05
1988	47.5	2.5	5.26
1989	32.5	4.9	15.08
1990	62.1	7.8	12.56
1991	71.9	12.0	16.69
1992	84.9	17.4	20.49
1993	91.7	25.2	27.48
1994	122.7	34.7	28.42
1995	148.8	46.9	31.52
1996	151.1	61.5	40.70
1997	182.7	74.9	41.00
1998	183.8	81.0	44.07
1999	194.9	88.6	45.46
2000	249.2	119.4	47.91
2001	266.1	133.2	50.06
2002	325.6	169.9	52.18
2003	438.4	240.3	54.81

Source: China General Custom, *Custom Statistics, 2003*, China Ministry of Commerce (2003) (See Website C: Guoqiang Long, "China's Policies on FDI: Review and Evaluation,")

Between 1990 and 2004 the US, Japan, British Virgin Islands and South Korea were among the top sources of FDI other than Hong Kong and Taiwan. According to the National Bureau of Statistics of China (2005), the FDI in China was about US\$ 545 billion between 1990 and 2004. Of this 45 per cent came from Hong Kong and Macau. During this period both the US and Japan contributed about 9 per cent of the FDI in China. Seven per cent of foreign investments in China came directly from Taiwan. And Singapore, South Korea

and the Virgin Islands contributed between 5 and 6 per cent. However, Great Britain, Germany, and France contributed only between 1 and 2 per cent of the cumulated FDI in China since 1990. It appears that foreign investments to China are frequently channeled through Hong Kong, Macau or the British Virgin Islands which has strong global financial links.

There are some skepticism about the amount of FDI flow into China, as it is not very clear how much of FDI that was channeled through Hong Kong and Macau was done by *foreigners*, and how much was from Chinese investors located in Hong Kong or Macau. It is argued that some of these investments that have flowed out of mainland China and returned by “round-tripping” as apparent FDI to access the fiscal incentives and improved investor protection offered in China to foreign investors (Erskine, 2004).

Table 4: China - Export Share in Industrial Output: Comparison of Domestic Enterprises (DEs) and Foreign Invested Enterprises (FIEs) between 1998 and 2002 (US\$ billion)

Year	Exports by Domestic Enterprises (DEs)	Industrial Output of DEs	Exports Tendency by DEs (%)	Exports by Foreign Invested Enterprises (FIEs)	Industrial Output of FIEs	Export Tendency of FIEs (%)
1998	85.32	509.8	16.74	67.23	167.6	40.12
1999	88.23	537.5	16.41	73.54	189.5	38.80
2000	107.73	622.1	17.32	99.10	234.6	42.24
2001	110.31	682.3	16.17	110.56	272.2	40.62
2002	129.23	784.8	16.47	141.02	319.3	44.17

Source: China Statistical Abstract 2003; China Customs Statistics, Various Years (See Website C: Guoqiang Long, “China’s Policies on FDI: Review and Evaluation,”)

Table 5: China -Technological Level of Foreign Invested Enterprises (FIEs) in China (%)

Technological Level	1997	2002
Technology at the same level as their parent company	13	60
Technology Lagging 2-3 years behind their parent company	54	40
Technology that their parent company has phased out	33	--

Source: Website C: Guoqiang Long, “China’s Policies on FDI: Review and Evaluation,” p.330.

Table 6: China - Share of Foreign Invested Enterprises (FIEs) in Selected Industrial Sectors

Industrial Sectors	No. of Firms (%)		Industrial Output (%)		Value-Added (%)	
	1995	2000	1995	2000	1995	2000
TOTAL	9.7	17.5	19.5	27.4	16.7	24.0
Food Processing	6.2	10.8	20.4	23.1	20.6	20.7
Food Production	11.8	18.5	30.2	39.1	32.4	41.9
Beverage Production	8.2	12.7	23.5	29.4	21.2	27.9
Textile Industry	16.4	18.8	17.9	21.2	20.3	20.7
Garments and Other Fiber Products	29.8	43.3	50.1	48.5	50.0	48.8
Leather, Furs and related products	24.0	40.3	53.6	56.5	51.2	54.6
Timber Processing and Related Products	8.2	21.4	28.3	31.6	24.6	28.0
Furniture Manufacturing	8.5	28.1	29.9	44.9	27.8	43.9
Paper Making and Paper Products	7.8	14.4	17.0	31.6	15.9	28.8
Cultural, Educational and Sports Goods	21.4	47.0	50.1	59.7	40.6	59.5
Raw Chemical Materials and Ch. Products	9.3	12.9	13.2	20.6	13.6	21.5
Medical and Pharmaceutical Products	16.1	16.4	19.6	22.7	25.6	24.6
Chemical Fiber	27.2	25.4	13.7	35.1	10.0	39.3
Rubber Products	10.1	18.4	25.0	35.3	23.3	35.6
Plastic Products	15.8	30.3	33.4	43.6	31.1	44.3
Smelting and Pressing of Non-ferrous Metals	9.9	11.4	12.6	13.4	10.1	11.2
Metal Products	7.7	19.5	26.6	38.0	23.6	34.8
Transport Equipment and Manufacturing	7.2	12.9	24.6	30.3	23.5	30.8
Special Purpose Equipment Manufacturing	7.0	10.3	8.9	15.3	10.0	14.9
Electric Equipment and Machinery	11.3	21.2	24.3	33.2	23.1	34.2
Electronic and Telecommunications Equipment	36.3	47.4	60.0	71.6	58.8	65.4
Instruments, Meters, and Office Machinery	17.7	27.1	39.7	56.7	36.9	49.4

Source: China Statistical Yearbook, 1996, 2001 (see Fung et al., 2002)

Impact of FDI on China's Economy:

One of the impacts of FDI on China appears to be in the growth of GDP, which grew by 9 per cent annually an average from 1978 to 2000. GDP per capita also increased at the annual rate of 8.3 per cent from RMB 379 to RMB 7, 078. Also the regions such as Southern and South Eastern provinces where the FDI played a major role registered higher growth than others. FDI has become an important part of total investment in assets in China and has played a significant role in capital accumulation in the domestic economy.

The most important development, as a result of FDI, has been the rapid increase in China's foreign trade, which increased from US\$ 38 billion in 1980 to over US\$ 474 billion in 2000 (see Tables 3 and 4). FDI and FIEs have played an important role in this growth, especially since the 1990s. The increasing share of FIEs in total trade reflects this. In the 1970s and 1980s, FDI from Taiwan and Hong Kong helped China's export growth, as by then they were well established exporters. In the 1990s, various incentives offered to FIEs by the government led them to promote exports.

In the area of technology transfer the impact of FDI on China appears to be limited. This is because in the 1980s FDI from Hong Kong, Taiwan and others were concentrated on low and intermediate technology areas such as garment industry. But China gained managerial and marketing skills and knowledge.

However, since 1990s there has been an increase in the number of FIEs involved in relatively high technology sectors such as electric equipment and machinery and electronic and telecommunication equipment. This trend is suggested by Table 5. For example, in 2000 FIEs accounted for about half of the firms in electronic and telecommunication equipment. One of the important developments in recent years is increasing FDI in setting up R&D centres and R&D related activities. Table 6 suggests that FIEs have contributed to increasing industrial output and industrial value-added since mid 1990s. Table 6 also highlights that labour intensive and traditional industrial sectors such as textiles, garments, leather, and food production have contributed to value-added. It is also argued that by increasing competition in the domestic market the FIEs have made an impact on the domestic enterprises and made them to change in the way they respond to market signals (Fung, et al, 2002, pp.11-15).

4. FDI in India

India allows Foreign Direct Investment (FDI) in the form of: (i) financial collaborations; (ii) joint ventures and technical collaborations; (iii) capital markets via Euro issues; and (iv) private placements or preferential allotments. Indian companies are allowed to raise equity capital in the international market through the issue of Global Depository Receipt (GDRs) -- Euro Issues and this is treated as FDI. GDRs are designated in dollars and are not subject to any ceilings on investment. The proceeds of the GDRs can be used for financing capital goods imports, capital expenditure including domestic purchase/installation of plant, equipment and building and investment in software development, prepayment or scheduled repayment of earlier external borrowings, and equity investment in India. FDI in India are approved through two routes: 1. Automatic approval by the Reserve Bank of India (RBI) to all proposals involving specific areas/ industries identified. Investments in high-priority industries or for trading companies primarily engaged in exporting are given almost automatic approval by the RBI; and 2. The Foreign Investment Promotion Board (FIPB) Route: approves all other cases where the parameters of automatic approval are not met. Its approach is liberal for all sectors and all types of proposals, and rejections are few. While considering proposals priority is given to proposals involving infrastructure sector, export potential, large scale employment potential and especially for rural people, a direct or backward linkage with agro business/farm sector, greater social relevance such as hospitals, human resource development, life saving drugs and equipment, and induction of technology or infusion of capital. FIPB considers favorably proposals for 100 per cent foreign owned holding/subsidiary companies that propose to bring in sophisticated technology, export of at least 50% of production, consultancy; and industrial model towns/industrial parks or estates. India allows FDI in all sectors including the services sector, except a few sectors

where the existing and notified sectoral policy does not permit FDI beyond a ceiling (See Website D). FDI limits for some major sectors are given in Table 7.

If purchasing power parity is taken in to account, India is the fifth largest economy in the world (ranking above France, Italy, the United Kingdom, and Russia) and has the third largest GDP in the entire continent of Asia. It is also the second largest among emerging nations. India is also one of the few markets in the world which offers high prospects for growth and earning potential in practically all areas of business. Although interest of foreign investors in India is growing substantially, FDI flows are not high compared to other emerging economies, particularly China. According to IMF the FDI flow has been hindered in India by a difficult investment climate, caps on FDI in certain sectors, and inadequate infrastructure. However, India has established itself as an outsourcing destination and is attracting large financial inflows. For example, in 2004, it accounted for one-fourth of the portfolio flows to emerging Asia (Website E).

Table 7: India -- FDI Limits in Different Sectors

Sector	FDI Limit in %
Banking	74
Non-banking financial companies (stock broking, credit cards, financial consulting, etc.)	100
Insurance	26
Telecommunications	74
Private petrol refining	100
Construction development	100
Coal & lignite	74
Trading	51
Electricity	100
Pharmaceuticals	100
Transportation infrastructure	100
Tourism	100
Mining	74
Advertising	100
Airports	74
Films	100
Domestic airlines	49
Mass transit	100
Pollution control	100
Print media - for newspapers and current events,	26
For Scientific and Technical periodicals	100
Retailing	10

Source: See <<http://indiafdiwatch.org/index.php?id=63>>

There has been some skepticism about the official FDI inflow data of China and it is felt that the figures were inflated. On the other hand, it has been felt that

FDI flow to India has been under-reported because of non-conformity of India's method of measuring FDI to the international standards. For example, when the factors involved for these problems are taken into account, in 2000 the net FDI inflows into China fell from roughly \$40.7 billion to \$20.3 billion and India's net annual FDI inflow figures went up from around \$3.2 billion to about \$8.1 billion (Bajpai and Dasgupta, 2004). Table 8 shows the FDI inflow under various categories to India between 1991 and 2005 amounted to over US\$ 43 billion which is very low compared to FDI inflow to China.

Wenhui Wei (2005) identified the reasons for the big difference between the flow of FDI to China and India. That is, higher level of FDI flow to China is mainly due to larger domestic market and higher international trade ties with OECD countries and the flow of FDI to India is mainly influenced by cheap skilled labour, lower country risk, and cultural similarities.

Table 8: FDI Inflows to India (Equity + Additional Components of FDI) – As per revised definitions (In US\$ Millions)

Year (April-March)	Equity	Re-invested Earning	Other Capital	Total FDI Inflows	Portfolio Investment including GDR/ADR, FIIs and Offshore Funds
1991-92	129	--	--	129	4
1992-93	315	--	--	315	244
1993-94	586	--	--	586	3 567
1994-95	1 314	--	--	1 314	3 824
1995-96	2 144	--	--	2 144	2 748
1996-97	2 821	--	--	2 821	3 312
1997-98	3 557	--	--	3 557	1 828
1998-99	2 462	--	--	2 462	(-) 61
1999-2000	2 155	--	--	2 155	3 026
2000-01	2 400	1 350	279	4 029	2 760
2001-02	4 095	1 645	390	6 130	2 021
2002-03	2 764	1 833	438	5 035	979
2003-04	2 387	1 798	488	4 673	11 377
2004-05	3 362	1 816*	357*	5 535	8 909
2005-06 (up to Sept. 2005)	2 327	465*	63*	2 855	5 106
Total (Aug. 1991 to Sept. 2005)	32 818	8 907		43 740	34 178

Source: Reserve Bank of India Bulletin, December 2005 (Table No. 46)

(See <http://dipp.nic.in/fdi_statistics/india_fdi_index.htm>)

Note: (*) Data are provisional

Table 9 lists the country-wise FDI inflow to India between 1991 and 2005. The top 10 sources of FDI include Mauritius, US, Japan, Netherlands, UK, and Germany. A steady and growing market size, abundant availability of natural resources for manufacturing, cost attractiveness, reliable business community, high levels of intellectual manpower, engineering expertise and a reform process

that has brought about economic liberalization appear to have made India an attractive destination for FDI.

Table 10 shows the most attractive sectors for FDI inflow in India. These include Electrical Equipment (including computer software & electronics), Transportation Industry, Services Sector, Telecommunications, Fuel (Power & Oil Refinery), Food Processing Industries, and Drugs and Pharmaceuticals. A number of leading foreign companies have entered India through joint venture or fully owned businesses. Some examples from selected sectors are discussed here.

(a) Automotive sector:

Ford India, a joint venture between Ford and Mahindra & Mahindra (M&M) was set up in 1995. The company became *Ford India Limited* in February 1999, following a change in equity pattern with Ford holding the majority stake. The company has made an investment of over US\$ 350 million and has the capacity to manufacture over 50,000 vehicles per annum. Ford India has exported over 28,000 CKDs (completely knocked down kits) to South Africa and Mexico in 2001, constituting over 66 per cent of total car exports from India. It has entered into a strategic tie-up with Hindustan Motors to manufacture engines and transmission units for its cars. Apart from entering Indian car market, Mercedes has started tapping into the auto components market too. The company has been manufacturing auto components in India and exported them leveraging the cost advantages.

Hyundai Motors India, a wholly owned subsidiary was set up operations in India in 1996. The company brought rigorous quality standards and technology innovation. It has set up a fully integrated state-of-the-art manufacturing plant near Chennai. The plant is considered to have one of the most advanced production, quality and testing capabilities in the world. *Honda Motorcycles & Scooter India* was incorporated in 1999. The company manufactured 40,000 units in 2001-02. After good response from the market it has increased its target by 40 per cent for 2002-03 and advanced its plan to increase production capacity. *Yamaha Motor India* started its operations in India in 2001. The company is the only 100 per cent Yamaha Company in Asia, outside Japan.

(b) Consumer Electronics sector:

Samsung India entered India in 1995 and now it has positioned itself as a leader in the high-tech consumer electronics and home appliances market in the country. It has set up an R&D Centre which serves as the regional R&D hub for India, Middle East and South East Asian region. Samsung Electronics India Information and Telecommunications limited formed in May 2000 has product portfolio that constitutes of PC monitors, hard disk drivers, laser printers,

multifunctional products and mobile phones. Samsung has also set up its software operations unit in Bangalore. In the information technology sector *Oracle India* started its Indian operations in 1993. It set up software development facilities in Bangalore and Hyderabad with over 600 people. Oracle sells more call-centre software in India than in the rest of Asia Pacific combined

(c) Telecommunications sector:

Motorola India first entered India through a joint venture with Blue Star to manufacture modems. It then went on to become a wholly owned subsidiary. In 1991, Motorola set up its first software centre in Bangalore and in 1999 it set up two chip designing units around Delhi, and a third one in Hyderabad. All of these units including the software centre are 100 per cent export units. India is now well-established as a source of software and chip design, also helping Motorola to maintain its competitiveness globally. By 2000, it employed over 2000 software engineers in India. *Singapore Telecom* has invested over US\$400 million which is the largest investment by an international investor in the Indian telecom sector. Global telecom equipment manufacturers like Motorola, Ericsson, and Nokia are also active in the Indian telecom sector.

(d) Financial services sector:

GE Capital India, a wholly owned subsidiary of GE, was set up in 1993. It began operations in India through its financing activities, primarily serving the local market. GE capital has grown rapidly and by 2002 it employed over 6000.

(e) Infrastructure sector:

P&O (Peninsular & Oriental), Ports of Australia and Port of Singapore Authority International (PSA International) are among the largest investors in the port sector in India (Website F).

Table 9: Country-wise FDI Inflows from August 1991 to December 2005
(US\$ million)

Ranking	Sector	FDI inflows	% of Total Inflows
1	Mauritius	11,115.47	37.25
2	U.S.A.	4,912.75	15.8
3	Japan	2,059.33	6.79
4	Netherlands	1,987.18	6.65
5	U.K.	1,911.77	6.26
6	Germany	1,338.88	4.27
7	Singapore	962.41	3.14
8	France	772.99	2.55
9	South Korea	748.98	2.28
10	Switzerland	613.58	1.98
11	Italy	485.74	1.58
12	Sweden	471.99	1.56
13	Hong Kong	366.11	1.05
14	Australia	154.79	0.51
15	Denmark	156.49	0.51
16	U.A.E.	140.95	0.5
17	Belgium	142.41	0.46
18	Malaysia	135.82	0.46
19	Cyprus	117.47	0.4
20	Russia	116.33	0.39
21	Cayman Island	103.46	0.37
22	Canada	105.39	0.35
23	British Virginia	81.42	0.28
24	Bermuda	70.51	0.23
25	Thailand	74.73	0.22
26	Philippines	52.35	0.15
27	Finland	43.25	0.14
28	Luxemburg	41.05	0.14
29	Israel	43.62	0.13
30	Austria	39.62	0.13
Total		30,452.54	100
(All countries)			
Grand Total	Including others such as RBI's-NRI Schemes	37,051.18	--

Source: See <<http://www.economywatch.com/foreign-direct-investment/countrywise-fdi-inflows.html>>

FDI for setting up R&D centres has seen significant growth in India. A recent survey of the United Nations Conference on Trade and Development (UNCTAD) notes that the global trend in FDI has shifted in recent years towards R&D in developing countries, with China and India first and second on the list. Of the 885 R&D-oriented FDI projects announced in the Asian regions in 2002 to 2004, 75 percent (723) were concentrated in these two large economies. More than 100 MNCs have established R&D facilities in India. Microsoft, for example, launched its sixth global research centre in Bangalore in early 2005 after opening one in Beijing in 1998. According to a study lower cost is not the chief factor driving companies to locate their R&D in countries like India. The quality of R&D personnel available and opportunities for university collaboration are considered as important factors (See Website G).

Table 10: Sector-wise FDI Inflows from August 1991 to December 2005 (US\$ million)

<i>Ranking</i>	<i>Sector</i>	<i>Amount of FDI Inflows</i>	<i>% of Total FDI Inflows</i>
1	Electrical Equipments(Including computer software & electronics)	4,885.88	16.5
2	Transportation Industry	3,143.09	10.34
3	Services Sector	2,971.66	9.64
4	Telecommunications	2,890.12	9.58
5	Fuel (Power & Oil Refinery)	2,521.49	8.41
6	Chemicals (Other than Fertilizers)	1,889.51	5.86
7	Food Processing Industries	1,173.18	3.67
8	Drugs and Pharmaceuticals	948.54	3.18
9	Cement and Gypsum Products	746.79	2.54
10	Metallurgical Industries	627.32	2.12
11	Consultancy Services	444.48	1.59
12	Miscellaneous Mechanical & Engineering	491.45	1.51
13	Textiles (Include Dyed, Printed)	430.07	1.32
14	Trading	374.23	1.16
15	Paper and Pulp including paper product	363.46	1.1
16	Hotel Goods	308.51	1.04
17	Glass	255.59	0.81
18	Rubber Goods	233.3	0.77
19	Commercial, Office & Household Equipment	231.67	0.66
20	Industrial Machinery	204.84	0.65
21	Machine Tools	155.43	0.52
22	Agricultural Machinery	135.5	0.43
23	Timber Products	107.12	0.37
24	Medical and Surgical Appliances	101.68	0.35
25	Soap, Cosmetics and Toilet Preparations	88.74	0.31
26	Ceramics	89.7	0.27
27	Earth-moving Machinery	73.91	0.26
28	Fertilizers	78.22	0.26
29	Fermentation Industries	76.52	0.25
30	Leather, Leather Goods and Pickers	51.84	0.15
31	Glue and Gelatin	36.04	0.12
32	Vegetable Oils and Vanaspati	35.14	0.11
33	Prime movers other than Electrical	30.61	0.08
34	Industrial Instruments	21.7	0.06
35	Sugar	17.27	0.06
36	Scientific Instruments	14.85	0.05
37	Photographic Raw Film and Paper	15.25	0.05
38	Dye-stuffs	16.01	0.05
39	Boilers and Steam Generating Plants	5.01	0.01
40	Mathematical, Surveying and Drawing	0	0
41	Miscellaneous Industries	4,166.86	13.79
Total		30,452.58	100

Source: See <<http://www.economywatch.com/foreign-direct-investment/sectorwise-fdi-inflows.html>>

Another factor is that more and more companies such as IT and Telecoms are investing in R&D in India, not just routine tasks like call centre services which initially sparked the whole outsourcing boom in the country. It was also noted that more and more high-tech firms, especially makers of microprocessors, are investing in R&D in India. US chipmaker AMD recently announced it will invest at least \$5 million in setting up a design facility in Bangalore that will

employ Indian engineers. It cited outstanding engineering talent and lower operating cost as reasons for selecting Bangalore, the very same reasons cited by chipmakers Intel and Texas Instruments which also set up design centres in Bangalore. Frost and Sullivan (2004) estimated that the R&D outsourcing market in India will grow from \$1.3 billion to about \$9 billion by year 2010 (Website H).

Motorola's two R&D facilities in India helped produce a sub-\$40 cellular phone for emerging markets. Microsoft launched its third international research centre in India. Intel has 800 India-based engineers working on software and hardware designs for its communication and semiconductor product lines. Other US companies are also involved in designing from auto parts to consumer electronics in India through outsourcing or setting up their own facilities. These are considered just the beginning of advanced R&D in India and it is argued that this is likely to lead to basic research and product innovation in India. However, it is also argued that much of the R&D in India is generally geared towards smaller projects that complement other innovation centres in Silicon Valley and elsewhere (Website I).

The pharmaceutical sector in India also has witnessed increasing numbers of foreign companies conducting R&D. Attracted by a largely untapped, skilled and English-speaking workforce more and more pharmaceutical companies are conducting clinical trials and setting up R&D facilities in India. A study conducted by clinical research consultancy Oxygen Healthcare estimated that 1% of global clinical trials are currently conducted in India. This figure, it suggested, could increase to 10% in the next five years and India (Website J).

Table 11: Number of Cumulative Foreign Technology Collaborations (FTC) Approvals

Period	Number of FTC Approvals
August 1991 to September 2005	7 723
April 2004 to March 2005	90
April 2005 to September 2005	41

Source: See <http://dipp.nic.in/fdi_statistics/india_fdi_index.htm>

Tables 11 to 13 show the foreign technology transfer collaboration approvals in India between 1991 and 2005 amounted to 7 723. Although this is very significant figure, it is not clear whether all these approvals have materialised actually.

Table 12 clearly shows that US, Germany, UK, Japan and Italy have been the major sources of technology transfers to India between 1991 and 2005. These countries provided two third of the technology transfers to India. Table 13 provides data on sector-wise technology transfer approvals during this period. It clear that Electrical Equipments (Including computer software & electronics),

Chemicals (other than fertilizer), Industrial Machinery, Transportation Industry, and Engineering Industry have been the sectors that witnessed highest technology transfers.

Table 12: Country-Wise Technology Transfer Approvals (1991-2005)

Rank	Country	Number of Technical Collaborations
1	USA	1 680
2	Germany	1 095
3	UK	848
4	Japan	837
5	Italy	477
6	Other countries	2 786
Total	All Countries	7 723

Source: See <http://dipp.nic.in/fdi_statistics/india_fdi_index.htm>

Table 13: Sector-Wise Technology Transfer Approvals (1991-2005)

Rank	Sector	Number of Technical Collaborations
1	Electrical Equipments (Including computer software & electronics)	1 247
2	Chemicals (other than fertilizer)	869
3	Industrial Machinery	863
4	Transportation Industry	707
5	Misc. Mach. Engineering Industry	437
6	Other sectors	3 600
Total	All Countries	7 723

Source: See <http://dipp.nic.in/fdi_statistics/india_fdi_index.htm>

Impact of FDI on Indian Economy:

One of the main objectives of economic liberalisation and opening up the economy to FDI in India is to increase its export performance. Therefore it is important to analyse first the impact of FDI on exports. Export performance in India has been growing faster than GDP and several factors appear to have contributed to this phenomenon including FDI. Overall, FDI appears to have made relatively less significant impact on export performance (Sharma, 2000). However, in the IT sector the exports by MNE affiliates are found to be greater when they have larger foreign equity stakes that brings more tacit knowledge transfers and complementary FDI advantages (Siddharthan and Nollen, 2004). In 2000-01, according to Reserve Bank of India's Bulletin, exports as a proportion of sales among a sample of over 400 FDI-controlled firms in India was just 11.6 per cent. Of the funds utilized by these FDI companies, 40 per cent went into acquisition of gross fixed assets such as plant and machinery. On the other hand, a similar RBI survey of nearly 2,000 public limited Indian

companies for the same period showed that exports as a proportion of sales was higher at 12.6 per cent and a much larger proportion of funds, 48.9 per cent, was used for the acquisition of gross fixed assets. That is, Indian companies are showing a greater export focus than foreign firms and they are also investing more in plant and machinery (Reddy: see Website K).

The most visible impact of FDI in the manufacturing sector has been in expanding the range of products available to the consumers such as cars, two-wheelers, consumer durables, food products and apparel. In services sector, FDI inflow has resulted in the entry of more banks, new insurance companies, and it appears that global management consultancies and accountancy firms have established a leading position in the Indian market (Reddy: Website K).

To recapitulate, although India's FDI policy does not have a strong strategic focus as in China, the empirical data clearly show that India have seen significant achievement in increasing export (selective sectors), attracting R&D investments, and technology transfers. Indirectly, the FDI flow also appears to have made many domestic companies to enhance their technological competitiveness.

5. FDI in South Africa

South Africa has been making strong effort to move away from its dependency on its natural resources to fuel economic growth by developing an economy based on strong manufacturing and service industry. Despite the relative economic successes since the dawn of full democracy, South Africa has been slow to attract FDI. South Africa permits foreign investment in most sectors, requires no government approval, and generally does not restrict the form or extent of foreign investment. Only few sectors have restrictions on FDI. For example, foreign ownership of media is limited to 20 percent, and foreign ownership of banks must be approved at two equity levels. The Black Economic Empowerment (BEE) strategy became law in January 2004 by establishing a scorecard with targets for equity ownership, management, procurement, and equality in employment for 'historically disadvantaged individuals' (HDI). Despite relative openness of the South African economy to foreign investment, according to the Economist Intelligence Unit, "FDI will continue to be adversely affected by high start-up and input costs, stringent labor regulations, skills shortages, infrastructural limitations and the government's failure to create a single-window, direct investment facility to encourage overseas interest and reduce red tape" (Website L).

Table 14: Comparison of FDI in South Africa to Global FDI

Year	Global FDI (US\$ millions)	FDI in South Africa (US\$ millions)	FDI in South Africa (% of Global FDI)
1994	260 775	380	0.15
1995	335 734	1 241	0.37
1996	388 532	818	0.21
1997	488 327	3 817	0.78
1998	690 905	561	0.08
1999	1 086 750	1 502	0.14
2000	1 387 953	888	0.06
2001	817 574	6 789	0.83
2002	678 751	757	0.11
2003	559 576	762	0.14

Source: UNCTAD, *World Investment Report*, 2004.

**Table 15: Comparison of FDI Inflows in South Africa to Selected Economies
(Net Inflows as Percentage of GDP)**

Country	1999	2000	2001	2002	2003
South Africa	1.2	0.8	6.4	0.7	0.5
Middle-Income Economies	3.6	3.0	3.1	2.8	2.4
Brazil	5.4	5.5	4.4	3.6	2.1
Chile	12.0	6.4	6.3	2.8	4.1
Mexico	2.7	2.9	4.3	2.3	1.7
China	3.9	3.6	3.8	3.9	3.8
India	0.5	0.6	0.8	0.7	0.7
Malaysia	4.9	4.2	0.6	3.4	2.4
Thailand	5.0	2.7	3.4	0.8	1.4

Source: World Bank, *World Development Indicators Database*, April 2005.

In the period immediately after the transition to democracy, South Africa has attracted an increased share of global investment. But this trend changed in the late 1990s. As Tables 14 and 15 show, FDI flow to South Africa between 1999 and 2003 has been below the average for middle-income economies (except in 2001). In fact, except India, all other middle income countries have been outperforming South Africa. Also South Africa's share of global FDI has been moderate and less impressive, as annual net inflows of FDI averaged just 1 per cent of GDP between 1999 and 2003 (except 2001). The increase in FDI in 2001 (over 6 per cent of GDP) was mainly due to change in the cross-holding ownership between the UK-based Anglo American plc and De Beers (Thomas and Leape, 2005, p.3).

Table 16: Sources of FDI Inflows to South Africa (Net Inflow as % of Total)

Country	1994-96	1997-99	2000-02	2003-04 (Sept)
TOTAL VALUE (Current Rand in Millions)	20 203	55 569	64 589	49 208
Europe-EU	37.8	33.4	47.1	65.5
North America	32.2	32.5	12.5	9.1
South and East Asia	22.0	23.0	18.0	-2.8
Europe-Non-EU	6.4	7.3	4.4	18.9
Oceania	0.4	0.0	11.5	2.2
Middle East	0.1	1.8	4.9	4.6
International/ Multi-State	0.8	1.2	1.4	1.9
Africa	0.3	0.8	0.1	0.1
Latin America & Caribbean	0.0	0.0	0.0	0.5

Source: Thomas and Leape (2005), p.8. *Note:* Data in column 4 cover a period of 21 months only, compared to 36 months in previous columns.

Table 17: Investment by Different EU Countries in South Africa (by value % of total)

Country	1994-96	1997-99	2000-02	2003-04 (Sept)
TOTAL VALUE (Current Rand in Millions)	7 646	18 554	30 444	32 219
UK	45.5	30.2	60.5	78.3
Germany	30.5	10.3	19.5	7.3
Italy	1.0	12.6	5.1	1.8
France	6.6	11.6	1.3	0.9
Ireland	0.0	3.6	0.1	11.9
Sweden	10.9	1.2	0.8	0.7
Belgium	0.3	10.0	0.0	-0.2
Portugal	0.0	1.6	4.0	3.6
Greece	0.0	7.6	0.6	0.0
Denmark	0.0	7.6	0.5	0.0
Spain	0.0	0.0	6.6	0.0
Austria	3.0	0.0	0.4	0.0
Netherlands	2.0	3.7	0.2	-4.5
Finland	0.0	0.0	0.3	0.2
Multi-State (Within EU)	0.0	0.1	0.0	0.0
Luxembourg	0.0	0.0	0.0	0.0

Source: Thomas and Leape (2005), p.9. *Note:* Data in column 4 cover a period of 21 months only, compared to 36 months in previous columns.

Despite relatively sound macroeconomic policies and good infrastructure that is comparable to developed countries, South Africa appears to have experienced difficulties in attracting FDI. One of the reasons appears to be that already there was a strong presence of multinationals and foreign investments at the time of transfer of power to the African National Congress (ANC) in 1994. That may be the reason why there was no surge in FDI with the end of apartheid. Other reasons include its low rate of growth, the small size of its domestic market, the

transportation cost to world markets, the import parity pricing practiced by many raw material manufacturers, and the high cost of ICT services and the government's hesitant or cautious approach to privatization.

Tables 16 and 17 clearly show that EU firms are the main sources of FDI in South Africa. Their role has increased since late 1990s. An important factor contributing to this is the investment by for South African multinationals now operating from the UK. For example, the country's largest company Anglo American, now London-listed, is a foreign investor under the accounting definition. In 2004, it invested \$1.7 billion to expand its platinum operations and this was reflected in the foreign investment figures, although prior to its London listing in 1998 this would not have been the case. UK has been the leading foreign investor in South Africa, followed by Germany. The US, Japan and Malaysia also have been major investors, although inconsistent. Tables 16 and 17 also suggest that there has been some broadening of FDI sources since 2000.

Since 1994, the average annual growth rate has been 2.7 per cent that is up on the previous decade, but well short of the 6 per cent required to absorb new labor market entrants. Also per capita income growth has been low – from 1995 to 2002 it was only 0.7 per cent. Other factors that may have affected the FDI inflow include high violent crime rate, the HIV/AIDS epidemic, labor laws, and currency volatility. It is argued that with more rigid labor laws and relatively low skills base, South Africa cannot compete with other emerging economies such as China. For example, Taiwanese investors in the clothing industry chose to invest in Lesotho, because its wages are lower and labor rules are more flexible. However, the counter argument is that in practice, labor market legislation (such as black economic empowerment requirements) is not a paramount concern to investors, mainly because firms can retrench, become more capital intensive, and outsource.

There have been some big foreign investment deals since 1994 in the area of M&As, rather than in any new mega industrial projects. For example, Dow Chemical bought Sentrachem for \$504 million, Malaysian state owned oil company, Petronas, bought Engen for \$666 million, Malaysia Telekom and SBC Communications from the US took a 30% stake in the state controlled telephone monopoly, Telkom, for \$772 million. Canadian miner Placer-Dome took a 50% stake in Western Areas, and Russian miner Norilsk has bought the Anglo American stake in Goldfields for \$1.2 billion. Saudi conglomerate Saudi Oger invested nearly \$390 million to acquire the third cellular license and establish Cell C.

Table 18: Sector-wise FDI in South Africa (as % of GDP)

Sectors	1994-96	1997-99	2000-02	2003-04 (Sept)
<i>Resources</i>	0.30	0.43	0.52	0.47
Mining	0.02	0.17	0.49	0.37
Oil and Gas	0.28	0.26	0.03	0.10
<i>Financial</i>	0.07	0.20	0.07	1.09
Banks	0.01	0.03	0.00	0.99
Real Estates	0.02	0.12	0.06	0.07
<i>Cyclical Consumer Goods</i>	0.23	0.29	0.49	0.29
Automobiles and Parts	0.21	0.26	0.47	0.40
Basic Industries	0.12	0.33	0.37	0.31
Steel and Other Metals	0.02	0.08	0.32	0.12
Chemicals	0.09	0.15	0.00	0.03
Forestry and Paper	0.00	0.01	0.00	0.13
<i>Cyclical Services</i>	0.08	0.36	0.25	0.07
Transport	0.00	0.23	0.08	0.04
Leisure, Entertainment and Hotels	0.05	0.10	0.06	0.09
<i>Non Cyclical Consumer Goods</i>	0.24	0.28	0.15	0.05
Beverages	0.09	0.11	0.08	0.14
Food Products and Processors	0.14	0.11	0.06	0.03
<i>Information Technology</i>	0.06	0.24	0.05	0.04
Software and Computer Services	0.01	0.18	0.04	0.03
<i>Non Cyclical Services</i>	0.05	0.25	0.14	-0.17
Telecommunications	0.05	0.25	0.14	-0.17
<i>General Industrials</i>	0.06	0.11	0.03	0.02
<i>Utilities</i>	0.00	0.00	0.02	0.00

Source: Thomas and Leape (2005), p.13. *Note:* Data in column 4 cover a period of 21 months only, compared to 36 months in previous columns.

Table 18 illustrates the FDI inflow into different sectors of the South African economy. It is clear that large amounts involved in small number of big deals overshadow the steadier flows of FDI into different sectors. For example, investment into the vehicle assembly industry appears to have enjoyed a steady rise. EU manufacturers have been important investors in this sector. Also, investors from US and Japan have further contributed to the growth of the sector since 2000. It appears that due to the government's Motor Industry Development Plan (MIDP) which links assemblers' duty free imports to the amounts they export, South Africa's car exports have grown nine-fold since 1994 and is increasing.

Despite various incentives offered by the government, car production in South Africa has been experiencing cost pressures, as Aluminum and plastics are still sold to the industry on an import parity basis. Also, as there is an uncertainty about the long-term future of the industry, as the MIDP expires in 2012. In addition, South Africa's parts suppliers and assemblers have been facing increasing competition from China and India

Oil and gas sector has attracted large FDI between 1994 and 1999. The mining sector has been able to attract high FDI inflow since 2000, while steel and other metals and paper industries have also seen significant increase in FDI. Call centers has emerged as a potential area for rising offshore investment. For example, Lufthansa, Budget Insurance, Computer Science Corporation, and Dialogue Group have made investments in call centers. However, the expansion of FDI in this sector is affected by the cost of telephone calls. Calls centers pay a lower rate than normal business users, but it is still 10 times as expensive as India, because the lower cost voice over IP is not permitted in South Africa. It appears that South Africa has yet to attract FDI consistently as country like China (Website M). Also, it appears that many sectors have not been able to attract or increase the FDI flow.

Impact of FDI on South Africa's Economy:

One of the arguments for seeking FDI is that it would help GDP growth rate. While it may be true to some extent in the case of China, the experience of South Africa appears to reflect that of India, where it is argued that growth-led FDI is more likely than FDI-led growth (Athreya and Kapur, 2001). Evidence suggests that there has been "positive impact of current growth rates on the climate for foreign investment in South Africa" (Thomas and Leape, 2005, p.iii).

One of the main objectives behind attracting FDI inflow into South Africa has been to reduce its dependency on its natural resources sector by developing an economy based on strong manufacturing and service industry. Although there has been some FDI growth in the service sector (particularly in financial services) and in automobiles sector, it appears that South Africa did not achieve any major shift from reliance on the natural resources sector. For example, Oil and gas sector and the mining sector have been able to attract consistently a high FDI inflow over the years.

Another area of negative impact is the declining number of greenfield or joint venture investments. Similar to the recent trend in India, a survey of 162 foreign owned firms in South Africa (Gelb and Black, 2004) showed that over 45 per cent of them were involved in either full or partial acquisitions, rather than greenfield investments or joint ventures. This is found to be much higher than that of other countries (e.g. 17 per cent in Egypt; 13 per cent in Vietnam; and 10 per cent in India). Further, an analysis of 392 inward investments from the EU has revealed that 34 per cent of them could be categorized as mergers and acquisitions, 32 per cent as greenfield or joint venture investments and 25 per cent as expansion of existing foreign owned enterprises and the remaining 8 per cent as mixed category. When domestic firms become partners for foreign firms

and domestic institutional investors provide capital for acquisitions, the impact is reduced volume of foreign capital inflows (Thomas and Leape, 2005, p.5).

However, there have been positive gains for the South African economy from FDI flow such as skills development/ employment, creation of linkages in the domestic economy. A survey revealed that foreign companies mostly employ local workforce and use mainly local inputs and suppliers. They (except companies in the automobile and resource sectors) also showed a strong focus on the domestic market, reflecting market-seeking objectives of foreign investors (Ibid, p. iv). Although many foreign firms have been exporting their products and services to the rest of Africa, the percentage of products and services sold there was low. Similarly, fewer firms sold products to the EU and the rest of the world. However, if a company entered these markets the percentage of products sold was generally higher than into the rest of Africa (Website N).

To recapitulate, despite having almost a total open policy towards FDI, it appears that South Africa has achieved only a limited success in realizing its major objectives such as developing service and manufacturing sectors and moving away from over reliance on natural resources sector.

6. FDI in Small Developing Economies: Ghana, Ethiopia, Tanzania, and Zambia

In this section we discuss the FDI inflow to Ghana, Ethiopia, Tanzania and Zambia. We have selected these small developing economies to examine the similarities and differences in the nature of FDI inflow between them and the major emerging economies such as India, China and South Africa. These countries were selected as they were part of the top 20 countries for FDI inflows in Africa during 1997-2001.

Table 19: Ghana, Ethiopia, Tanzania, and Zambia: FDI Inflows – Compared to Major Emerging Economies and Other Indicators (US\$ Millions)

Country/ Entity	1985-1995 (Annual Average)	2001	2002	2003	2004
<i>World</i>	182 438	825 925	716 128	632 599 6	648 146
<i>Developing Economies</i>	49 868	217 845	155 528	166 337	233 227
<i>Asia and Oceania</i>	31 609	108 688	92 042	101 424	147 611
<i>Africa</i>	3 584	20 027	12 994	18 005	18 090
China	11 715	46 878	52 743	53 505	60 630
India	452	3 403	3 449	4 269	5 335
South Africa	137	6 789	757	720	585
Ghana	51	89	59	137	139
Ethiopia	5	349	255	465	545
Tanzania	30	467	430	527	470
Zambia	105	72	82	172	334

Source: UNCTAD, *World Investment Report 2005* (see <www.unctad.org/wir>)

Table 20: Ghana, Ethiopia, Tanzania, and Zambia: FDI Inflows – Compared to Major Emerging Economies and Other Indicators (as % of GDP)

Country/ Entity	1980	1990	2000	2003	2004
<i>World</i>	5.0	8.4	18.3	22.0	21.7
<i>Developing Economies</i>	5.4	9.8	26.2	27.8	26.4
<i>Asia and Oceania</i>	4.0	8.7	26.9	24.0	23.2
<i>Africa</i>	10.2	12.7	26.5	31.6	27.8
China	0.5	5.8	17.9	16.2	14.9
India	--	0.5	3.7	5.2	5.9
South Africa	20.4	8.2	33.9	28.6	21.7
Ghana	5.2	5.4	30.0	24.0	21.7
Ethiopia	2.7	1.8	15.5	31.1	31.0
Tanzania	6.5	9.1	33.4	47.2	48.0
Zambia	9.4	31.1	72.9	62.4	55.8

Source: UNCTAD, *World Investment Report 2005* (see <www.unctad.org/wir>)

Table 19 shows that in general the FDI inflow has been increasing in all countries selected since 2001. Share of FDI inflow to China is either one third or nearly half of total FDI inflow to Asia and Oceania region. The abnormal jump in 2001 in the FDI flow to South Africa was caused by some mega deals that we discussed earlier. Ghana has seen decreased FDI flow in 2002, but that again increased the next year. Table 20 shows the FDI inflow as percentage of GDP. It is clear from Table 20 that the small economies, except Ethiopia which has been affected by internal conflict, have been doing well compared to world and developing economies average, but less so when compared to Africa average until 1990. But this changed since 2000. Among the major emerging economies, the share of FDI flow as percentage of GDP in South Africa has been much higher than China and India. It amounted to over 33 per cent in 2000

and gradually decreasing since then. The share of FDI flow as percentage of GDP in China peaked at 17.9 in 2000 and has been gradually declining, while it is gradually increasing in India, that is, from 3.7 in 2000 to 5.2 per cent in 2003, and to 5.9 per cent in 2004.

Table 21: Ghana, Ethiopia, Tanzania, and Zambia: FDI Inflows – Compared to Major Emerging Economies and Other Indicators (as % of Gross Fixed Capital Formation -GFCF)

Country/ Entity	1980	1990	2000	2003	2004
<i>World</i>	3.8	12.0	10.6	8.3	7.5
<i>Developing Economies</i>	4.6	12.9	9.5	8.8	10.5
<i>Asia and Oceania</i>	4.4	9.9	7.7	7.3	9.1
<i>Africa</i>	4.0	20.7	13.0	15.0	12.5
China	6.0	10.5	10.4	8.6	8.2
India	1.9	3.2	3.0	3.2	3.4
South Africa	--	38.1	4.5	2.7	1.7
Ghana	3.9	6.2	5.1	8.2	7.0
Ethiopia	1.4	33.8	20.5	34.2	32.7
Tanzania	3.6	29.4	23.2	27.7	21.9
Zambia	24.7	10.5	10.3	16.0	27.7

Source: UNCTAD, *World Investment Report 2005* (see <www.unctad.org/wir>)

Table 21 shows that the FDI flows as percentage of GFCF in the four small economies, except Ghana, has been comparable to the world and developing countries averages during the period 1980 to 2004. But when compared to Africa average, Ethiopia and Tanzania have been doing well since 1990 and Zambia has been doing well only after 2000, although it outperformed Africa significantly in 1980. In China the FDI flow as percentage of GFCF has peaked in 1990 and has been declining steadily. In India it continues to stay around 3 per cent. South Africa witnessed a dramatic change from the peak of 38.1 in 1990 to 1.7 per cent in 2004.

6.1. FDI in Ghana, Ethiopia, Tanzania, and Zambia

FDI inflow to Ghana has been taking place since the 1970s. Initially FDI flow was mainly in import substitution manufacturing. In 1983 the Economic Reform Programme (ERP) introduced market economy. In the immediate post-ERP year the FDI amounted to less than 1 per cent of GDP. It has been uneven over the years. Between 1991 and 1995 it picked up and reached a peak of \$233 million (1994). Then, it sharply declined in 1998 due to economic crisis. However, it has shown recovery since 2000. In the mid 1990s Ghana was considered as one of the ten top destinations for FDI in Africa. The sharp increase in FDI flow during this period was mainly due to implementation of policies adopted in 1986 to attract foreign investment in natural resources. In 1994, Ghana allowed the sale of part of the Ashanti Goldfields Corporation (AGC) to South African mining company, Lonmin. FDI also flowed into other

sectors due to divestitures such as Accra Breweries, Standard Chartered Bank, and Ghana Telecom. Ghana has not experienced a stable FDI inflow in spite of having relatively an open economy since independence. It has formulated the Investment code in 1994 that provided the investment framework for FDI. It was considered one of the best of its kind in Africa.

Table 22: Ghana -- Sectoral Distribution of FDI Inflow (1994-2002)

Sector	FDI Inflow (US\$ Million)					Percent of Total FDI				
	1995	1996	1997	1998	1994-2002	1995	1996	1997	1998	1994-2002
Agriculture	1.41	0.33	0.69	1.23	203.96	8.26	2.97	61.02	6.04	11.52
Building and Construction	0.25	1.87	0.86	2.24	125.90	1.47	16.85	1.27	10.99	7.11
Export Trade	0.38	0.10	0.12	0.13	15.63	2.23	0.90	0.18	0.64	0.88
General Trade	0.80	2.77	17.54	6.78	101.25	4.69	24.95	25.85	33.27	5.72
Liaison Office	0.04	0.05	0.00	0.01	0.10	0.23	0.45	0.00	0.05	0.01
Manufacturing	6.86	3.29	5.71	4.92	345.64	40.21	29.64	8.41	24.14	19.52
Service	6.93	2.13	42.34	4.50	944.37	40.62	19.19	62.39	22.08	53.32
Tourism	0.39	0.56	0.60	0.57	34.21	2.29	5.05	0.88	2.80	1.93
TOTAL	17.06	11.10	67.86	20.38	1771.06	100.00	100.00	100.00	100.00	100.00

Source: From Ghana Investment Promotion Centre Database. See UNCTAD, *Investment Policy Review: Ghana*, 2003.

Note: Investment in Oil and Mining are excluded

Europe and the UK were the main sources of FDI flows, mainly into mining and other resource-based activities. South Africa also played a major role in the mining industry. Asian countries such as China, India, and Malaysia have invested in telecom, TV, infrastructure and services for free trade zones. Table 22 illustrates the sectoral distribution of FDI flow in Ghana between 1994 and 2002 (it excludes investments in oil and mining sectors). In the manufacturing sector, FDI is significant in food, aluminium, plastic products, and some non-traditional agribusiness (export industries). FDI flow into the service sector is smaller in volume compared to other sectors. These include areas such as construction and tourism, telecommunications, and banking.

To recapitulate, overall, the FDI flow to Ghana has been increasing over the years. Although it began by mainly attracting FDI in mining and natural resources based activities, it has been able to diversify the flow to services, manufacturing and construction sectors. However, it could not succeed in its attempt to develop a garment industry with FDI. It is interesting that while FDI flow from Western countries has targeted natural resources sector, the FDI flow from emerging economies in the developing world has been towards manufacturing and service sectors. Overall, it appears that FDI inflow has helped Ghana to achieve some limited successes in its effort towards employment and skills creation, technology transfer and exports.

Table 23: Ethiopia – Sectoral/ Industry-wide Distribution of FDI Inflow (1992-2000)
(US\$ Million)

<i>Sector/ Industry</i>	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total	0.2	3.5	17.2	14.1	21.9	288.5	260.7	70.0	134.6
Primary	--	--	0.1	0.1	0.9	173.6	1.7	4.1	40.5
Agriculture, hunting, forestry and fishing	--	--	0.1	0.1	0.1	--	0.00	4.1	14.5
Mining, Quarrying, Petroleum	--	--	--	--	0.9	173.6	1.7	--	26.0
Secondary	--	0.3	0.1	14.0	19.1	101.9	125.0	51.0	83.7
Food, Beverages and Tobacco	--	--	--	--	16.9	69.2	106.1	12.8	37.7
Textiles, Clothing and Leather	--	0.3	--	--	0.7	26.4	0.8	28.1	8.6
Wood and Wood Products	--	--	--	5.6	--	1.6	--	0.3	0.3
Paper and Paper Products	--	--	--	--	--	1.6	--	0.3	0.3
Chemicals and Chemical Products	--	--	--	4.5	--	0.6	0.2	1.8	18.4
Pharmaceuticals, Medicinal Chemicals and Botanical Products	--	--	--	--	--	0.1	0.2	1.7	14.6
Rubber and Plastic Products	--	--	--	--	--	0.2	0.3	4.8	1.8
Metal and Metal Products	--	--	--	--	--	0.1	10.7	0.1	0.1
Electrical and Electronic Equipment	--	--	0.1	2.8	0.1	3.9	5.6	0.9	4.3
Other Manufacturing	--	--	--	1.2	1.4	--	1.4	2.3	12.4
Tertiary	0.2	3.2	17.0	--	1.9	11.3	2.2	5.7	3.7
Construction	0.2	3.2	17.0	--	1.9	11.3	2.2	5.7	3.7
Hotels and Restaurants	--	--	--	--	--	1.3	131.5	8.3	6.4
Business Activities	--	--	--	--	--	0.3	0.1	0.6	0.3
Health and Social services	--	--	--	--	0.00	0.1	0.2	0.2	0.1

Source: From Ethiopian Investment Authority, In: UNCTAD, *WID Country Profile: Ethiopia*. See: <http://www.unctad.org/Templates/Page.asp?intItemID=3198&lang=1>

Ethiopia has been actively trying to attract FDI since liberalisation was initiated in 1992. This involved liberalisation of trade policy, privatisation of public sector enterprises, reforms in financial sector, and deregulation of prices and exchange rate controls. Since 1992, the Ethiopian Investment Authority (EIA) and the Ethiopian Privatisation Agency (APA) have been promoting FDI. However, the size of FDI flow to Ethiopia was very small when compared to other countries in the region. The cumulative FDI flow between 1994 and 1997 was about 0.2 per cent of the total inflow to sub-Saharan Africa. It was equivalent to only 5.3 per cent of FDI inflow to Uganda, and 5.4 per cent to Tanzania. However, the FDI flow has significantly increased since 2000, after the peace agreement between Ethiopia and Eritrea.

Both domestic and foreign investments have been unevenly distributed among various regions and they are mainly concentrated in three regions – Addis Ababa, Amhara, and Oromia. Particularly, FDI has been concentrated in Addis Ababa (54 per cent of total) and Amhara (43.5 per cent) regions, and only 2.5 per cent of total FDI went to other regions. However, the pattern of FDI across various sectors appears to be more balanced. Table 23 highlights the sectoral

distribution of FDI between 1992 and 2000. It shows that FDI projects have been concentrated in selective areas such as mining and quarrying, and agriculture in the primary sector; beverages and tobacco, and textile, clothing and leather, and chemicals and metal fabrication in the secondary sector. For example, the single largest FDI project was in the hotel sector (the Sheraton Hotel in Addis Ababa), that accounted for 37 per cent of the total post 1992-1993 value of investment in Ethiopia (UNCTAD, 2002).

UNCTAD identified five factors that need to be addressed at regional level for an effective performance of FDI in Ethiopia. These are: “(i) human capital (administrative and technical) in sufficient quality and quantity; (ii) adequate financial resources to develop institutional capacity; (iii) commensurate political and administrative powers sufficient to influence development programming; (iv) physical and technological infrastructure ; and (v) horizontal linkages between key institutions dealing with investment, technology and learning” (UNCTAD, 2002, p.11).

Table 24: Tanzania -- Sectoral/ Industry-wide Distribution of FDI Inflow (1999)
(Millions of Dollars)

Sector/ Industry	1999
Total	516.8
Primary	377.2
Agriculture, Hunting, Forestry and Fishing	31.9
Mining, Quarrying and Petroleum	345.3
Secondary	69.0
Tertiary	68.4
Construction	14.0
Trade (including Catering and Accommodation)	29.7
Transport, Storage and Communications	10.5
Business Activities (including Finance and Insurance)	13.8
Community, Social, and Personal Services	0.4
Unspecified	2.1

Source: Tanzanian Investment Report, December 2001. See: UNCTAD, *Investment Policy Review: The United Republic of Tanzania*, 2002.

FDI flow into Tanzania has been steadily growing since the mid-1990s as a result of major privatisation programme. It received over a US\$ 1 billion between 1995 and 2000, compared to only \$90 million during the preceding 6 years, and less than \$2 million between 1986 and 1991. The FDI flows have been largely in the form of greenfield investment and some cases of acquisitions of foreign affiliates by foreign investors. But the FDI flow is mainly concentrated in the mining sector (see Table 24) and the largest single industry is gold. The sectoral distribution of FDI are: 65 per cent in mining, 19 per cent in services (excluding foreign banks), and 16 per cent in manufacturing, and insignificant in agriculture.

Like other small cases, the FDI flow into Zambia appears to be mainly due to its natural resource sector, particularly copper mining industry. FDI inflow was not steady during the 1990s. It reached a peak of \$314 million in 1993, followed by a sharp fall in 1994. Then it grew again for three years, followed by four year decline. Then it increased in 2002 to \$197 million, mainly due to investments by mobile telephone operators. FDI inward stock increased from \$1 billion in 1990 to \$2.6 billion in 2002. FDI inflows as percentage of gross fixed capital formation (GFCH) doubled from 10 to 20 per cent in 2001 (UNCTAD, see Website A).

The sector-wise distribution of FDI flow to Zambia also more or less reflects the trend witnessed in Tanzania, Ethiopia and Ghana. For example, the industrial sectors that attracted FDI included paper and packaging, textiles, beverages, agriculture, mining and quarrying, non-metallic mineral products, chemicals, motor vehicles, electrical and electronic equipment, machinery and equipment, rubber and plastic products. Other sectors included trade, telecommunications, finance and insurance.

Impact of FDI on Ghana, Ethiopia, Tanzania, and Zambia

Although FDI inflow has been increasing, its impact on Ghana in terms of capital formation, employment generation, and transfer of technology and skills appears to be selective. For example, much of large movements of foreign portfolio investment in the Ghana stock exchange (GSE) have been driven by privatisation (i.e. 41 per cent of the stock market capitalization is made by Ashanti Goldfields Corporation). The impact of FDI on Ghana's exports is significant. Particularly, gold replaced cocoa as the largest export in 2000. FDI also contributed to non-traditional exports which amounted to \$626 million in 2000 (30 per cent of total exports). However, Ghana is still heavily dependent on the export of primary goods.

FDI has had some impact on the level of employment, its quality, and the skills of the labour force. In sector like mining it did not create many low-skilled jobs, but resulted in productivity improvements and skills upgrading. In other sectors, between 1994 and 2002, FDI created 72,384 jobs for Ghanaians and 4,652 jobs for non-Ghanaians. FDI also has contributed to new occupational skills such as information technology, producing and marketing organic food, and skills need to develop the garment industry. However, developing the garment industry does not appear to be successful. Local employment creation was mainly in manufacturing, but not particularly high. Also a survey by UNCTAD has shown the number of the small and medium firms employing 20 people or more has grown from one third to three quarter, due to linkages to foreign firms or export activity. FDI has enabled transfer of technology and

knowledge to new export-oriented industries such as agribusiness and downstream processing industries such as wood and fish processing (UNCTAD, 2003).

In the case of Ethiopia, although Ethiopia has liberalised its economy and established FDI policy regime, both the FDI flow and its impact on Ethiopian economy appear to have been inconsistent and insignificant. This is because of various factors such as lack of human capital, institutional capacity, infrastructure, and absence of or weak institutional linkages.

In the case of Tanzania, the role of FDI in Tanzanian economy has increased considerably and its impact has been significant in some sectors (mining and banking) in terms of employment, training and enhanced skills such as management and organisational expertise, marketing and quality control and contribution to local communities such as schools and hospitals. Although FDI has increased the stock of technology through technology embodied products such as machinery and equipment, technology diffusion from foreign affiliates in Tanzania to domestic enterprises has been limited (UNCTAD, 2002).

In the case of Zambia, there have been some positive impact from FDI on employment, transfer of skills, and enhancing non-traditional sectors, but not very impressive. Mainly, the FDI flow was in the mining sector and it appears to have played a minor role in the manufacturing and service sectors.

7. Conclusions

In this paper we set out to argue that the capacity or ability to absorb and benefit from FDI flow and how effectively countries could use FDI to enhance their national productive systems is directly related to the degree of functioning of an economy's national innovation system. To demonstrate this we analysed the nature of FDI flow in China, India, South Africa and few smaller economies – Ghana, Ethiopia, Tanzania, and Zambia and its impact on these economies. We identified core differences in the nature of FDI flow among these countries. It is evident that the characteristics of the NIS in these countries largely shaped the flow and the impact of FDI on these economies.

From the country studies discussed above we can see that there are very significant differences between their experiences with FDI. While some NIS have proved to be more successful in transforming FDI flows into national productive systems, the others appear to have been less successful, or have failed to make them productive, or the benefits of FDI flow to them is not clearly visible. For example, the FDI flow into China and India and their impact on their economies appear to differ in many aspects. FDI flow into China is

large and mainly native, that is, from overseas Chinese community and China has been more successful in transforming this flow into part of its domestic 'national' economy. On the other hand, the flow of FDI to India is relatively small, that is, mainly invested by foreign companies and their impact appears to be different from that on China. India is opening more to FDI including in recent times even in parts of the defence sector.

China has been able to continuously change its policy objectives towards FDI over the years in accordance with its domestic economic agenda. Starting in the late 1970s when its objective was to just attract FDI into low-technology based manufacturing sectors such as garments and textiles, it has reached a stage in 1990s when it could design policies and infrastructure to attract FDI into high-tech based sectors. Also, it has been trying to address the regional imbalances in FDI flow through appropriate policy measures. That is, changing the emphasis on Eastern and Southern regions to North and Western regions. Although how successful this shift is yet to be seen, the very fact China has been able to implement such policies indicate the strength of its NIS.

Although India started liberalising its economy only in the early 1990s and the quantity of FDI flow is small compared to that of China, the quality of FDI seems to be as good or some even better than that of China. The FDI flow into sectors such as electrical and engineering, chemicals, automobile, computer and software, and pharmaceuticals sectors have seen significant technology transfers. India also has been relatively successful in selectively regulating the flow of FDI to achieve its domestic economic agenda. The FDI flow into South Africa to some extent reflects the experience of India and China on one side and that of small African economies discussed on the other side. Furthermore, it also has some unique characteristics due to its apartheid past. That is, the multinationals and foreign investments were significantly present even before the transfer of power to African National Congress (ANC) in 1994 and the new government's ability to change their nature and relationship to the domestic economy has been constrained. Furthermore, due to the limitations of its NIS such as availability of skills and market conditions South African experience with FDI differs significantly from that of India and China. In the case of small economies – Ghana, Ethiopia, Tanzania and Zambia, it is clear that mostly the FDI is directed towards mineral or resources sectors and the flow of technology and skills has been rather limited or insignificant. In other words, the weak or limitations of NIS in these countries have influenced the nature of FDI flow, that is, they did not result in significant technological accumulation or building skills locally.

The most important development both in China and India appears to be the flow of FDI into setting up R&D and design centres. The data on FDI flows to the

large continental economies of China and India show that FDI is also earmarked for R & D. This development appears to be new. What this may mean is that FDI for R & D building shows that a country that has a relatively functioning NSI can attract FDI in a form that often MNC's were not willing to engage in the past. In most least developed countries (LDCs) the MNCs go to exploit mineral or resources in the primary commodity export sector, which is clearly evident from the FDI flow shown in Ghana, Ethiopia, Tanzania and Zambia. On the other hand, in India and China it looks they mainly wish to exploit skilled and engineering labour. It also means that India and China have comparative advantage in skilled labour force. There is a need to make a typology about type of FDI, the pull factors, the push factors, country of destination, what the country offers mainly and what it may mean in relation to understanding the linkage between a strengthened system of innovation and actual contribution of FDI.

It seems clear that FDI for R & D and knowledge transfer means that the relationship between the MNCs and the local subsidiaries is changing. This has implication for economic development. The change may not be because the MNCs have changed their main logic for moving across the world, it may be related to the new stature achieved by continental-sized economies such as India and China. In other words as the NISs in these countries are more stronger and becoming more mature, they are able to manage and absorb the FDI flow better for achieving their socio-economic development goals.

This development makes the issue of whether FDI can transfer technology or not in a new perspective. It seems that countries with a stronger NISs, that is, a functioning and strengthened innovation system are more likely to attract FDI potentially with such benefits. Those least developed and resource based economies are likely to attract FDI that may not be accompanied with R & D or technology transfer benefits.

It is evident from the country case studies that investment on its own will not lead to growth. Its effectiveness largely depends on factors such as the level of technological capabilities or progress made, skills development and accumulation, innovative capabilities. Effective linkages and interaction between these factors and the investment is likely to lead to stronger outcome. However, this linkage is not an automatic process. This has to be created by fostering appropriate institutions and policies. In other words, how effectively the FDI flows can be transformed into tangible economic benefits largely depends on the specific national innovation systems (NISs).

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