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Abstract
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JEL Codes: O10, O31, O55, P49

Keywords: foreign direct investment, national system of innovation, technology spillovers, China, India, South Africa, Ghana, Ethiopia, Tanzania, Zambia.

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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. It is believed to contribute to the 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. 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.

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

Friedrich List (1856) and his concept 'national production system' may be seen as the historical origin of the national system of innovation (Freeman, 1995). Since then, the innovation system concept has evolved over the years (List 1856; Freeman 1982, 1987, 1995; Lundvall, 1988, 1992; Nelson, 1993; and Edquist, 1997). Some scholars have drawn affinities to it with the French Regulation School, and theories of evolutionary and institutional economics in the tradition of Schumpeter (1934) and Veblen (1919). According to Bengt-Åke Lundvall, the modern version of the concept appeared first in an unpublished contribution to OECD by Freeman (1982). Subsequently, Lundvall (1985) used the concept in formulating producer-user interaction and feedback for learning. Recently, there have been attempts to broaden the national innovation system to include directly problems and challenges of development and underdevelopment. For example, Muchie and others (2003) attempt to apply the concept for economies in the developing world in general including Africa in particular. This new approach has been stimulated by the Globelics network (see Website A) which links modes of innovation systems to the processes of economic development, and tries to bridge the gap that may exist between innovation system dynamics and economic development by focusing on the determinants of innovative, learning and competence building activities in the development processes. NSI provides the conceptual approach or framework for studying both developed and developing economies at various stages of development.

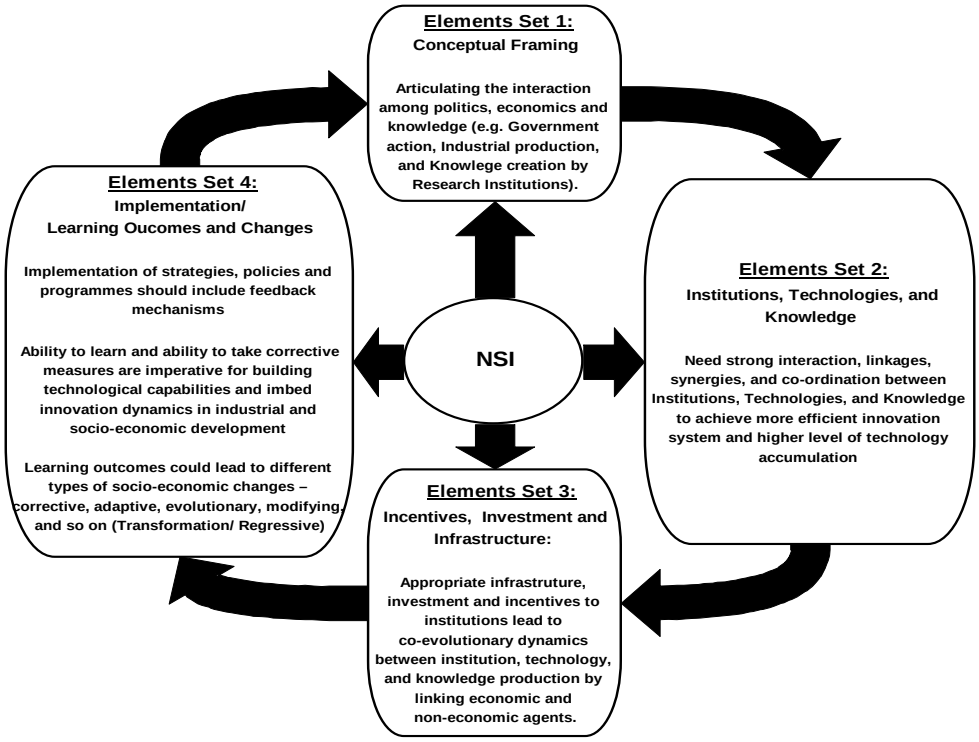
Our main objective is to undertake a double conceptualisation: how the existing innovation systems facilitate and influence the outcomes of FDI, and conversely how the FDI could stimulate and influence the development of innovation systems. However, in this paper our main focus is more on the first part, that is, how NSI influences the outcomes of FDI. This is examined through selected case studies.

NSI involves a system of interaction of public and/ or private firms which are either large or small or medium size with universities, research and development organisations, and government agencies -- all working together towards attaining the production and diffusion of knowledge and science, technology, and innovation within the boundaries of legally recognised states. The form of the interaction can take both technical and non-technical dimensions. It could be organisational, institutional, commercial, physical, human, mental, legal, social, and financial interactions. The ultimate goal of such interactions is the socio-economic development, regulation, and support for new science, technology, innovation within the country by dealing with and responding to both internal and external challenges.

It has four key elements. The first set involves the ideas and policies that frame the overall scope or possible set of interactions of politics, economics and knowledge (e.g. government action, industrial production and knowledge creation by research institutions), given the internal and external social and economic constraints facing a particular NSI.

The second set involves the choice or the selection and actual construction or implementation of the set of interactions that bring to bear the conceptual framing and policies selected above (the first set) with the institutions and elements that interact to build the NSI.

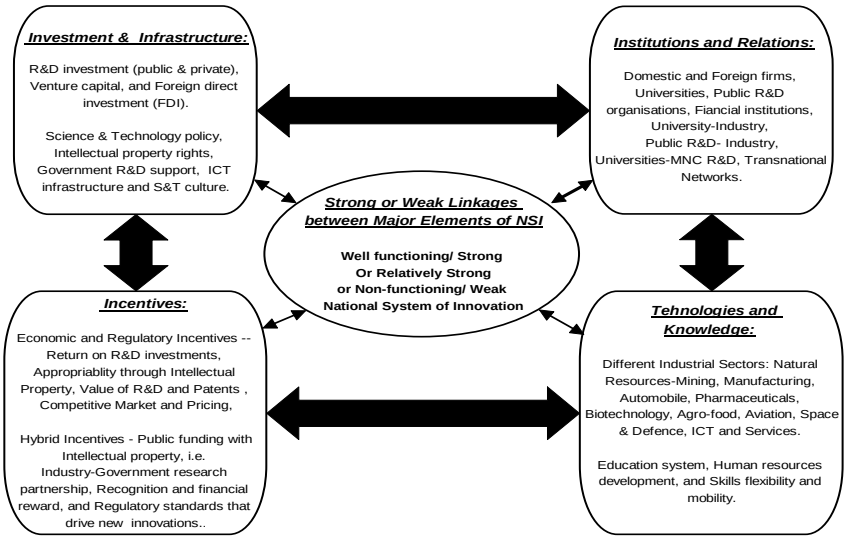
Figure 1: Four Major Sets of Elements of National System of Innovation System (NSI)



The third set involves the means provided to the institutions (second set) for realising the goals set (first set), that is, various incentives such as financial and social rewards. This is vital to foster appropriate incentive system which is consistent with the goals and objectives set and is seen as fair and legitimate and command wider acceptance by various components forming the NSI. If the incentive system is inappropriate or fails to command wider acceptance, the opportunity to organise robust NI system and achieve measureable results will be put in jeopardy.

The fourth set highlights the overall efficiency of the environment for learning in terms of implementation, monitoring, review, and feedback involving the above three sets. The learning outcomes can be different such as transformative, adaptive, corrective, modifying, evolutionary, redesigning, and so on. This can also be negative. The relationship between these four sets of elements that constitute NSI are illustrated by Figure 1.

Figure 2:
Linkages Between Some Major Elements of NSI
(Elaboration of Elements Set 2- Institutions, Technologies, Knowledge and Elements Set 3- Incentives, Investment and Infrasturcture in Figure 1)



In Figure 2, we elaborate Set 2 (Institutions, Technologies and Knowledge), and Set 3 (Incentives, Investment and Infrastructure) from Figure 1. These are relevant to making linkages and relations between NSI and FDI. The strong presence and interaction and linkages between various institutions, technologies, knowledge, incentives, investment, and infrastructure determine the higher or relatively stronger or weaker level of functioning of a particular NSI. We attempt to categorise NSIs into broadly three groups: well functioning/ strong NSIs, relatively- well functioning/-strong NSIs, and non-functioning or weak NSIs. This is shown in Table 1. The impact of NSI on the FDI and vice-versa are determined by the level of functioning of a particular NSI.

For analysing these impacts, we identified 10 components of NSI as shown in Table 2 and Figure 3. These are part 4 sets of NSI elements as shown in Figures 1 and 2. We use them for our proposed conceptual framework linking NSI and FDI. These are derived from the FDI literature, particularly the *Word Investment Reports* published by the UNCTAD (e.g. Dunning, 1973; Agarwal, 1980; Root and Ahmed, 1979; Levis, 1979; Balasubramanyam and Salisu, 1991; Balasubramanyam and Mahambare, 2003; UNCTAD, 2002, 2003, 2005).

If an NIS of particular country has more than 8 of these components, we describe it as belonging to a strong or well functioning category. In contrast, if a country's NIS has none of these or less than 4 of these components, it is categorized as non-functioning or weak. If a country's NIS has around 5 of these components, it can be categorized as relatively-well

functioning/-strong. Furthermore, according to the degree of complexity of these components and the level of interaction the NIS can be categorized strong, relatively strong and weak respectively. The strength and complexity of these components and also the degree of interaction between them could determine the level of functioning of particular NSI with respect to FDI, not just the mere presence or absence of number of these components. It is possible, a country may have all of these components and yet the efficiency measured in terms of performance and outcome of its NSI may be weak. Conversely, a country having less number of these components may be able to construct the interaction between these components more efficiently leading to relatively better performance outcomes. In other words, the emergence and construction of system synergy matter for realizing both strength and efficiency of NSI.

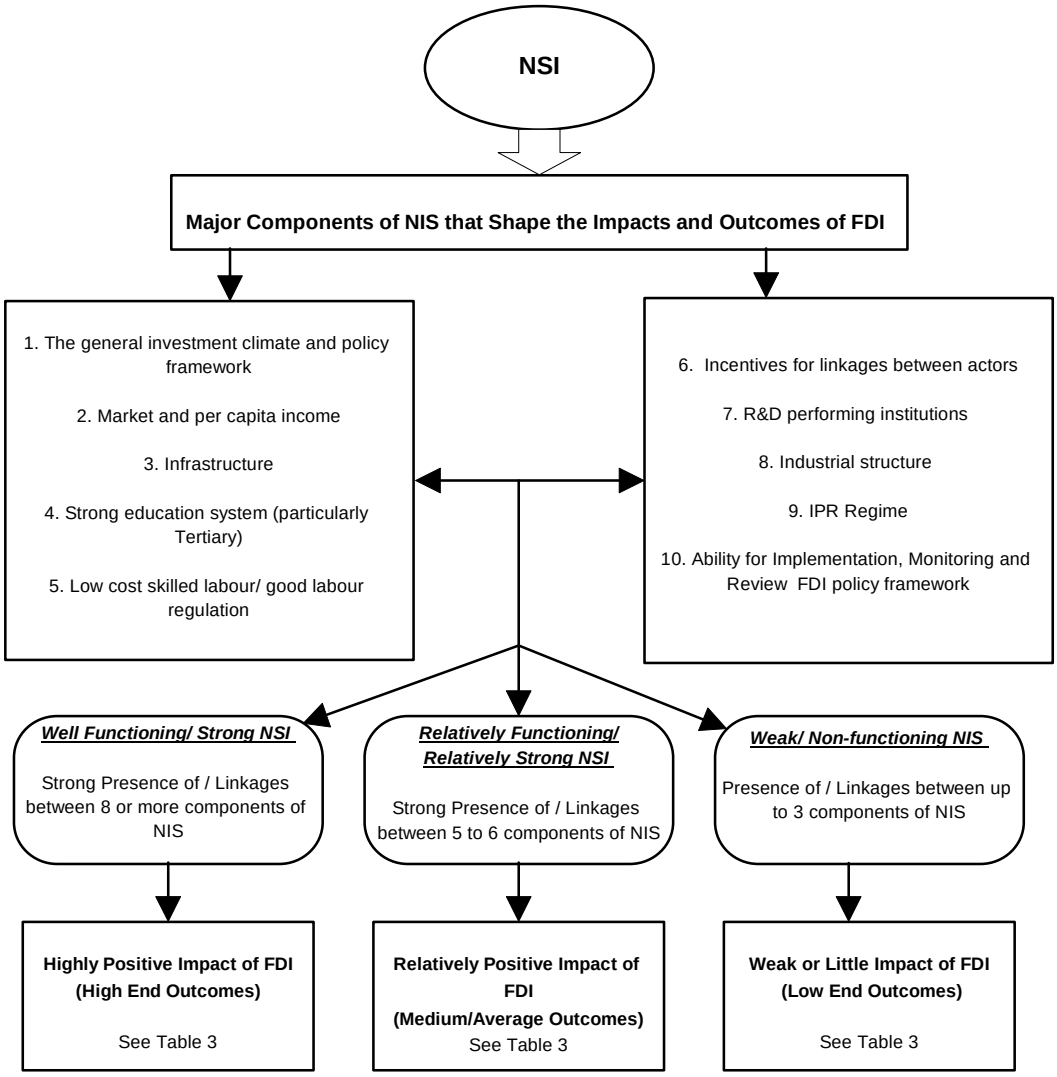
Table 1: Three Broad Categories of NSIs – Major Characteristics

Well Functioning/ Strong NSI	*Relatively Well Functioning/ Relatively Strong NSI*	*Non-Functioning/ Weak NSI*
1. Policy setting is responsive and capable for absorbing technology and knowledge and diffusing, importing, and modifying technology (i.e. ability to change FDI and objectives/ policies continuously). 2. Institutions that are well functioning in both well established norms and organization for absorbing technology and knowledge; 3. Appropriate and well functioning incentive and infrastructure systems including human capital are in place (both quality and quantity) 4. Strong Institutional linkages / Learning (Finance, R&D, technology, ability to learn and take corrective measures)	1. Policy setting is less responsive and less capable for absorbing technology and knowledge and diffusing, importing, and modifying technology (i.e. less ability to change FDI and objectives/ policies continuously). 2. Presence of institutions for absorbing technology and knowledge, but that are not well functioning. 3. Relatively well functioning incentive and infrastructure systems including human capital (both quality and quantity) 4. Relatively strong institutional linkages / learning (finance, R&D, technology, ability to learn and take corrective measures)	1. Policy setting is not capable for absorbing technology and knowledge and diffusing, importing, and modifying technology (i.e. inability to change FDI and objectives/ policies continuously). 2. Weak institutions that are not capable of absorbing technology and knowledge; 3. Absence of appropriate or weak incentive and infrastructure systems including human capital (both quality and quantity) 4. Weak or no institutional linkages / learning (finance, R&D, technology, ability to learn and take corrective measures)

Table 2: TEN Major Components of NSI that Influence the Nature and Shape of FDI	
TEN Major Components Influencing	*Related to the Elements of NSI (As shown in Figures 1 and 2)*
1. The general investment climate and policy framework: Macroeconomic and social stability, security, and regulatory regime such as trade and tax policies. The ability to set and change policy agenda to minimize negative impact of FDI.	NSI Elements Set 1 and Set 3 (Figure 1) Investment & Infrastructure, and Incentives (Figure 2)
2. Market and per capita income: Market size, growth, structure, proximity to regional and global markets	NSI Elements Sets 2(Figure 1) Institutions and Relations (Figure 2)
3. Infrastructure: Physical and technical infrastructure such as roads, ports, power, information and communications technology network (ICT)	NSI Elements Sets 3 (Figure 1) Investment & Infrastructure (Figure 2)
4. Strong educational system: Particularly technical tertiary education system producing skilled and quality technical people and researchers	NSI Elements Set 2 (Figure 1) Technologies and Knowledge (Figure 2)
5. Low cost skilled labour/ good labour regulation: Availability of skills including scientific and engineering skills for competitive wage rates and flexible labour regulation	NSI Elements Set 2 (Figure 1) Technologies and Knowledge (Figure 2)
6. Incentives for linkages between actors: Active policy on fostering positive linkages between foreign affiliates, domestic firms, and R&D performing institutions including universities in developing local capabilities.	NSI Elements Set 2 and Set 3 (Figure 1) Institutions and Relations, and Incentives (Figure 2)
7. R&D performing institutions Private and public firms and laboratories, universities and standards and quality setting institutions.	NSI Elements Set 2 (Figure 1) Institutions and Relations (Figure 2)
8. Industrial structure Presence of diverse industrial structure with high class clusters of technological and industrial activity	NSI Elements Set 2 and Set 3 (Figure 1) Institutions and Relations, Technologies and Knowledge, and Investment & Infrastructure and Incentives (Figure 2)
9. IPR Regime Strong IPR regime, particularly to protect industries where technologies are easy to imitate	NSI Elements Set 1 and Set 3 (Figure 1) Investment & Infrastructure, and Incentives (Figure 2)
10. Implementation, Monitoring and Review Ability to implement, monitor, review, and change policy framework for FDI	NSI Elements Set 4 (Figure 1)

Table 3: Types of NSI and FDI Outcomes/ Impact		
Well Functioning/ Strong NSI Resulting in High End FDI Outcomes	*Relatively Well Functioning/ Relatively Strong NSI Resulting in Medium/ Average FDI Outcomes*	*Non-Functioning/ Weak NSI Resulting in Low End FDI Outcomes*
1. Significant and sustained income growth. 2. High level of technology acquisition/ transfer, technological capacity-building, and technological learning in diverse sectors and complexity. 3. Significant improvement in skills and new organizational practices and management techniques. 4. High/ significant growth in exports. 5. Growth in employment. 6. Significant increase in new and higher value-added activities to produce goods and services; 7. Significant increase in technical efficiency and competitiveness of local firms, suppliers, and clients in diverse sectors. 8. Raising the local R&D effort to increase efficiency by domestic firms. 9. Establishment of R&D and design facilities by foreign firms in different sectors. 10. Significant development of marketing networks and market intelligence.	1. Moderate income growth. 2. Low or limited level of technology acquisition/ transfer, technological capacity-building, and technological learning in selected sectors and some high tech transfers. 3. Some improvement in skills and new organizational practices and management techniques. 4. Significant growth in exports. 5. Growth in employment. 6. Some increase in new and higher value-added activities to produce goods and services. 7. Some increase in technical efficiency and competitiveness of local firms, suppliers, and clients in selected sectors. 8. Little or no increase in the local R&D effort to raise efficiency by domestic firms. 9. Establishment of few R&D facilities by foreign firms in few sectors or in less complex technological areas. 10. Some development of marketing networks and market intelligence.	1. Moderate or no income growth. 2. No or Low level technology acquisition/ transfer, technological capacity-building, and technological learning in few sectors. 3. Some or little improvement in skills and new organizational practices and management techniques. 4. Some growth in exports. 5. Growth in employment. 6. No or few increase in new and higher value-added activities to produce goods and services. 7. Little or no increase in technical efficiency and competitiveness of local firms, suppliers, and clients in selected sectors. 8. Insignificant or no local R&D effort to raise efficiency by domestic firms. 9. Insignificant or no R&D facilities by foreign firms. 10. Some development of marketing networks and market intelligence.

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



A country that has a well established system of innovation is likely to use FDI more effectively than a country that has no well established or weak system of innovation. That is, (i) the existence of functioning NSI means a country's policy setting is responsive and capable for absorbing technology and knowledge, importing, modifying, and diffusing technology; (ii) it has institutions that are well functioning in both well established norms and organization for absorbing technology and knowledge; (iii) appropriate and well functioning incentive systems are in place; and (iv) the interactions between the above three both at the level of agents and structures, and shared concepts with legitimate support either from top-down or bottom-up.

The flow of FDI into a particular NSI is likely to have either a strengthening or weakening impact. This is largely dependent on how well functioning a given NSI has been in the first place. If it has been functioning with some systemic dissonance it is very likely that the FDI will exasperate rather than alleviate the way the NSI functions. Conversely if it has been functioning more coherently the likelihood is that FDI could enhance positively the way the NSI functions. At the theoretical level we suggest that there is a relationship between a functioning FDI or disfunctioning FDI with functioning or disfunctioning NSI.

Apart from bringing in financial resources, capital goods and equipment, and intermediate inputs which are accessible from market, a number of positive benefits or outcomes from FDI are identified in the literature. For example, UNCTAD (1999) has identified 10 major positive outcomes from FDI inflow. These are: (i) Increasing income growth by raising investment rates; (ii) Technology acquisition/ transfer, technological capacity-building, and technological learning; (iii) Improved and adaptable skills, and new organizational practices and management techniques; (iv) Improving exports in world markets; (v) Creating more and better employment opportunities; (vi) Foster new and higher value-added activities to produce goods and services; (vii) Raising technical efficiency and competitiveness of local firms, suppliers, and clients through linkages and by intensifying competition; (viii) Raising the local R&D effort to increase efficiency by domestic firms (i.e. to upgrade and improve existing technologies); (ix) Establishment of R&D and design facilities by foreign firms; (x) Development of marketing networks and market intelligence.

We have drawn from the FDI outcomes identified by UNCTAD to construct our conceptual framework (see Figure 3). We have developed three sets of outcomes --high end, medium or average, and low end, which correspond to three types NSI respectively – well functioning/ strong, relatively-well functioning/-strong, and non-functioning/weak NSI. That is, if a country has a well functioning NSI, it is likely to witness high end FDI outcomes or positive benefits. On the other hand, if a country has a non-functioning or weak NSI, it is likely to witness low end FDI outcomes. If a country has a relatively well functioning NSI, the FDI outcomes are likely to be average or medium. These three types of FDI outcomes are listed in Table 3.

In the development literature most of the studies focus on the particular types of FDI and the incentives and other attractive measures the countries set out to draw FDI. As a consequence, there have been more ideological judgments on the role of FDI in development. What we are looking for now is what is working and what is not working in the relationship between FDI and economic development. We think that much clarity might come by linking how well NSI functions in relations to the flows and absorption of FDI into particular developing and transitional economies.

We suspended normative judgment on whether FDI is useful for development or not. In the current globalizing economy, it is not helpful to work with normative approach to this issue. We take it for granted FDI is proactively sought by all kinds of countries both in developed and developing world. Both the transnational corporations (TNCs) and multilateral financial institutions encourage the flow of investment of FDI. It has also been common knowledge that some countries such as Japan relied more on absorbing knowledge and technology, and learning through other means than FDI. Although they did not exclude the FDI route, both the scale and policy desire for FDI were not big.

We recognize that there is well established literature such as the investment development path (IDP) theory which takes a developmental perspective on the relationship between the quantity and type of FDI and country characteristics over time. IDP framework has been employed to examine the relationship between a country's stage of economic development and the extent of inward and outward FDI activity, where government policy acts as a catalyst to change (see Dunning, 1981, 1986; Dunning and Narula, 1996). We also recognize that some of the NSI elements such as human capital and infrastructure endowment have been tested in the literature on FDI spillovers (e.g., Dunning and Narula, 1995; Cantwell and Janne, 1999; Patel and Vega, 1999; Kuemmerle, 1996; Günther et al., 2008).

What we are contributing is two fold. First, we are making a direct link between NSI and economic development. That is, establishing NSI stimulates economic development and development theory will benefit more by reconceptualising the development dilemma with NSI perspective. Second, we are adding to the existing body of FDI literature by going

beyond some key elements of NSI such as human capital and infrastructure to recognition of the whole of NSI consisting of four sets of elements, their interactions, and the system dynamics they create together and their impact on FDI. These provide the context to influence whether FDI will have potential positive or negative impact; and also to identify how FDI may be used to maximize any potential advantage it has for economic development. The FDI's positive or negative outcome may be related in relation to gains in performances with efficiencies, productivities, learning, and promoting endogenous innovations. The way we did this theoretically is to identify the four sets of elements that constitutes the NIS and take two of these sets which have not been fully explored in the literature (Set 2 and Set 3 in Figure 1) and identify 10 sub-elements (we call them as components of NIS) and try to conceptualize whether and how weak or strong is the impact of NSI on the FDI. In actual fact we are looking for making a paradigm change of the way economic development and FDI can be appreciated with NSI.

To illustrate this further we take two approaches: one is presenting a time series historic descriptive data, and the second is some examples that illustrate the link between NSI and FDI. This is more to demonstrate and define a heuristic domain to do more in depth original research connecting NSI with FDI beyond those approaches that take into account only specific elements of NSI such as human capital and infrastructure (e.g. investment path dependent theory). The descriptive historic data is in itself useful because it brings together such FDI data in relation to the specific NSI in mind with a view to articulate an research agenda to stimulate and undertake further studies linking NSI to FDI systematically.

Figure 3 presents a conceptual framework to understand the influence of NSI on the impact of FDI in a national economy. It suggests that when a country's NSI 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 NSI is weak and inefficient, it is characterised 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 shape of FDI flow and the nature and influence of NSIs on the FDI outcomes in the selected economies will be analysed 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 and it has grown significantly especially since the 1990s. 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 wave of FDI, 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 and it witnessed a further increase by the time China joined the World Trade Organisation (WTO) in December 2001. By 2003 China became the top FDI destination.

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). The 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 centres 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 the actually used FDI by a large margin. By 2003 contracted FDI was more than double of utilised FDI. Actually used FDI amounted to US$60.6 billion in 2004, an increase of nearly 13 per cent. Total contracted FDI reached US$153.5 billion in 2004, up 33.4 per cent on the previous year (Website B).

Table 4: FDI in China (Total and US) 1995-2005

	1995	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
I. Total 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 ($	37.52	41.73	45.26	45.46	40.32	40.72	46.85	52.74	53.51	60.63	60.33

Table 4: FDI in China (Total and US) 1995-2005											
	1995	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
billion)											
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 5: 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

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

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

Table 4 shows the growth of FDI in China between 1995 and 2005. Table 5 illustrates various types of FDI during 2004 -2005. Industries such as equipment manufacturing and electronic machinery attracted most of the FDI. By 2004, over 700 R&D centers had been set up in the mainland China by foreign companies and 30 TNCs 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. As a result, the actual and contracted FDI increased by 78 and 40 per cent respectively in the region.

Table 6: 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
11987	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: Long, G. 'China's Policies on FDI: Review and Evaluation').			

Table 7: 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: Long, G. 'China's Policies on FDI: Review and Evaluation').						

Tables 6 and 7 show the rapid increase in foreign trade (from US$ 38 billion in 1980 to over US$ 474 billion in 2000) and FIEs played an important role in this growth, especially since the 1990s. They also contributed to increasing industrial output and industrial value-added (see Table 8), and increased their role in high technology sectors such as electric equipment and machinery and electronic and telecommunication equipment (Table 9).

Table 8: 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)

Table 9: 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: Long, G. 'China's Policies on FDI: Review and Evaluation', p.330.

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.

4. FDI in India

India allows 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 which is treated as FDI. 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. FDIs in India are approved through two routes: 1. Automatic approval given by the Reserve Bank of India (RBI) to all proposals involving specific areas/ industries identified and trading companies primarily engaged in exports; and 2. The Foreign Investment Promotion Board (FIPB) Route: approval to 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 favourably 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 (see Website D). FDI limits for some major sectors are given in Table 10.

According to purchasing power parity, India is the fifth largest economy in the world (ranking above France, Italy, the UK, and Russia) and has the third largest GDP in Asia. It 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 11 shows the FDI inflow under various categories to India between 1991 and 2005 amounted to over US$ 43 billion. This is very low compared to FDI inflow to China. Wenhui Wei (2005) found that 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 12 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, availability of natural resources for manufacturing, cost attractiveness, reliable business community, high levels of intellectual manpower, engineering expertise and the a economic liberalization appear to have made India an attractive destination for FDI.

Table 13 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.

Table 10: 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).	

(a) Automotive sector:

Ford India, a joint venture between Ford and Mahindra & Mahindra (M&M) was set up in 1995, which became *Ford India Limited* in February 1999 with Ford holding the majority stake. The company invested over US$ 350m and has the capacity to manufacture over 50,000 vehicles per annum. Ford India has exported over 28,000 completely knocked down kits to South Africa and Mexico in 2001 (66 per cent of total car exports from India). It liked up with Hindustan Motors to manufacture engines and transmission units for its cars.

Hyundai Motors India, a wholly owned subsidiary was set up in India in 1996. *Honda Motorcycles & Scooter India'* was incorporated in 1999. It brought in high quality production standards, testing capabilities and technology innovation through its state-of-the-art manufacturing plant near Chennai. The company manufactured 40,000 units in 2001-2002. Since then, it has increasing its production levels.
Yamaha Motor India started its operations in India in 2001. The company is the only 100 per cent Yamaha Company in Asia, outside Japan. Also, Mercedes has been manufacturing auto components in India and exported them leveraging the cost advantages.

Table 11: FDI Inflows to India (Equity + Additional Components of FDI) – As per revised definitions (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.

(b) Consumer Electronics sector:

Samsung India entered India in 1995 and established itself as a leader in the high-tech consumer electronics and home appliances. It has set up an R&D Centre which serves as the regional R&D hub for India, Middle East and South East Asia. Samsung Electronics India Information and Telecommunications limited was formed in 2000. It produces PC monitors, hard disk drivers, laser printers, multifunctional products and mobile phones. Samsung has also set up software operations in Bangalore. *Oracle India* started its 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 and subsequently it became 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 are 100 per cent export units. India is now well-established as a source of software and chip design, which is 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 Ericsson, and Nokia have also entered 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.

Table 12: 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 (All countries)		**30,452.54**	**100**
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).			

Table 13: Sector-wise FDI Inflows from August 1991 to December 2005 (US$ million)

Ranking	*Sector*	*Amount of FDI Inflows*	*% of Total FDI Inflows*
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).			

(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).

FDI for setting up R&D centres has seen significant growth in India. According to a survey by the United Nations Conference on Trade and Development (UNCTAD) 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 from 2002 to 2004, 75 per cent (723) were concentrated in India and China. 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 the driving factors (see: Website G).

More and more high-tech firms (e.g. IT, makers of microprocessors and Telecoms) are investing in R&D in India, not just in routine tasks like call centre services which initially led to the outsourcing boom. US chipmaker AMD announced that it will invest at least $5 million in setting up a design facility in Bangalore that will employ local 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 activities in India (from auto parts to consumer electronics) 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 FDI in 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 14: 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)	

Table 15: 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)		

Tables 14 to 16 show that 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 15 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 16 provides data on sector-wise technology transfer approvals during this period. It is 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 16: 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).		

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 strong manufacturing and service sectors. Despite the relative economic successes since the dawn of full democracy, South

Africa has been slow to attract FDI. South Africa permits FDI in most sectors without requiring approvals. Only few sectors have restrictions on FDI. For example, foreign ownership of media is limited to 20 per cent, and foreign ownership of banks must be approved. Despite high to FDI in South Africa, according to the Economist Intelligence Unit, "FDI will continue to be adversely affected by high start-up and input costs, stringent labour regulations, skills shortages, infrastructural limitations and … red tape" (Website K).

Table 17: 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.

With the birth of universal democracy, South Africa started attracting an increased share of global investment. But this changed in the late 1990s. FDI flow to South Africa between 1999 and 2003 has been below the average for middle-income economies, except in 2001(see Tables 17 and 18). In fact, except India, all other middle income countries have outperformed South Africa. Also South Africa's share of global FDI has been moderate, as annual net inflows of FDI averaged just 1 per cent of GDP between 1999 and 2003 (except in 2001). The increase 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 18: 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.

Despite relatively sound macroeconomic policies and good infrastructure, South Africa has experienced difficulties in attracting FDI. One of the reasons was that

multinationals and foreign investments were already established strongly at the time the African National Congress (ANC) came to power in 1994. Other reasons included its relatively low rate of growth (since 1994 the average annual growth rate has been 2.7 per cent), small size of domestic market, rigid labour laws and relatively low skills base, 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 cautious approach to privatisation.

Table 19: 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 (Original):* Data in column 4 cover a period of 21 months only, compared to 36 months in previous columns.

Table 20: 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.

Tables 19 and 20 suggest that there has been some broadening of FDI sources since 2000. UK has been the leading foreign investor in South Africa, followed by Germany. The US, Japan and Malaysia also have been major investors. Tables 19 and 20 clearly show that EU firms are the main sources of FDI in South Africa. Their role has increased since late 1990s. An important factor is the investment by South African multinationals that are 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.

Since 1994 there have been some big foreign investment deals in the area of mergers and acquisitions, rather than in any new mega industrial projects. For example, Dow Chemical bought Sentrachem for $504 million, Malaysian oil company Petronas has bought Engen for $666 million, Malaysia Telekom and SBC Communications from the US took a 30 per cent stake in the state controlled Telkom, for $772 million. Canadian mining company Placer-Dome took a 50 per cent stake in Western Areas, and Norilsk from Russia has bought the Anglo American stake in Goldfields for $1.2 billion. Saudi Oger invested nearly $390 million to acquire the third cellular license.

Table 21: Sector-wise FDI in South Africa (as % of GDP)

Sectors	*1994-96*	*1997-99*	*2000-02*	*2003-04 (Sept)*
Resources	**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
Financial	**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
Cyclical Consumer Goods	**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
Cyclical Services	**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
Non Cyclical Consumer Goods	**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
Information Technology	**0.06**	**0.24**	**0.05**	**0.04**
Software and Computer Services	0.01	0.18	0.04	0.03
Non Cyclical Services	**0.05**	**0.25**	**0.14**	**-0.17**
Telecommunications	0.05	0.25	0.14	-0.17
General Industrials	**0.06**	**0.11**	**0.03**	**0.02**
Utilities	**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 21 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, car exports have grown nine-fold since 1994 and is increasing. However, 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 and 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, other metals, and paper industries have also seen significant increase in FDI. Call centres have 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 centres. However, the expansion of FDI in this sector is affected by the cost of telephone calls. Calls centres 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 L). Also, it appears that many sectors have not been able to attract or increase FDI.

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. First, we show the FDI flows to these small economies in comparison to the flows to major emerging economies. Then we discuss FDI flow to each small country.

Table 22: 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*
World	182 438	825 925	716 128	632 599 6	648 146
Developing Economies	49 868	217 845	155 528	166 337	233 227
Asia and Oceania	31 609	108 688	92 042	101 424	147 611
Africa	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*.					

Table 23: 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*
World	5.0	8.4	18.3	22.0	21.7
Developing Economies	5.4	9.8	26.2	27.8	26.4
Asia and Oceania	4.0	8.7	26.9	24.0	23.2
Africa	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*.					

Table 22 shows that in general the FDI inflow has been increasing in all case countries 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 23 shows the FDI inflow as percentage of GDP. It is clear from Table 23 that the small economies, except Ethiopia which has been affected by internal conflict, have been doing well compared to the 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 24: 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*
World	3.8	12.0	10.6	8.3	7.5
Developing Economies	4.6	12.9	9.5	8.8	10.5
Asia and Oceania	4.4	9.9	7.7	7.3	9.1
Africa	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*					

Table 24 shows that the FDI flows as percentage of GFCF in the small economies, except Ghana, have 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 (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.

Ghana has been receiving FDI 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. 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. Between 1991 and 1995 FDI flow 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 Charted Bank, and Ghana Telecom.

Table 25: 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*, 2003a; *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 25 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.

Table 26: Ethiopia – Sectoral/ Industry-wide Distribution of FDI Inflow (1992-2000) (US$ million)

Sector/ Industry	*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).

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. What is interesting that while FDI flow from Western countries has targeted natural resources sector, the FDI flows from emerging economies have been towards manufacturing and service sectors.

Since 1992 Ethiopia has been actively trying to attract FDI after the liberalisation of trade policy, privatisation of public enterprises, reforms in financial sector, and deregulation of prices and exchange rate controls. FDI is promoted by both the Ethiopian Investment

Authority (EIA) and the Ethiopian Privatisation Agency (APA). 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. However, it increased since 2000, after the peace agreement between Ethiopia and Eritrea.

Both domestic and foreign investments are mainly concentrated in Addis Ababa (54 % of total) and Amhara (43.5%) regions, and only 2.5 per cent of total FDI went to other regions. But the pattern of FDI across various sectors appears to be more balanced. Table 26 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. 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, 2002a).

Table 27: Tanzania -- Sector/ Industry-wide Distribution of FDI Inflow (US$ million)

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*, 2002b.

FDI flow into Tanzania has been steadily growing since the mid-1990s as a result of privatisation. It reached over 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 flow was mainly concentrated in the mining sector (see Table 27) 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.

Like other small cases, the FDI flow to Zambia appears to be mainly due to its natural resource sector, particularly copper mining industry. FDI inflow 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, 2006).

The sector-wise distribution of FDI flow to Zambia largely 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.

7. Influence of NSI on FDI Outcomes/Impacts

Table 28: Influence of NSI on FDI Outcomes: Comparison of / Evidence from Case Studies

Level of NSI Components Identified	*FDI Outcomes/ Impact*
CHINA **(Well Functioning/ Strong NSI)**	
1. Opened different sectors and regions to FDI since liberalisation in late 1970s.Over 85% of TNC's rated China as the most attractive investment destination.	1. From 1978 to 2000, it contributed to growth of GDP (9 % average annual). GDP per capita also increased 8.3 % annually - from RMB 379 to RMB 7, 078.
2. Large domestic market and increasing per capita income.	2. High Growth in Southern and South Eastern Provinces where FDI flow was fostered
3. Strong infrastructure both physical and technological.	3. Significant contribution to capital accumulation.
4. Strong education system, particularly tertiary, rapid students expansion in sciences, engineering, and mathematics (600,000 engineers in China versus 60,000 in the United States), as well as overall growth in higher education. But lack of proper skills required for jobs further up the value chain.	4. Rapid increase in foreign trade (from US$ 38 billion in 1980 to over US$ 474 billion in 2000, see Tables 6 and 7). FDI and FIEs played an important role in this growth, especially since the 1990s.
5. Availability of low-cost skilled labour, but rigid labour regulations and mobility.	5. FIEs contributed to increasing industrial output and industrial value-added since mid 1990s and labour intensive and traditional industrial sectors such as textiles, garments, leather, and food production have also contributed to value-added (see Table 8).
6. Strong encouragement and incentives for linkages between actors – foreign and domestic firms, universities, and R&D institutions. But the results are mixed particularly in university-industry linkage.	6. In 1980s, limited technology transfers and investments were mostly located in the low technology end of the spectrum which mostly relates to assembly operations. But contributed significantly towards managerial, marketing skills.
7. Strong R&D by foreign and domestic firms, universities and network of public labs. Industrial enterprises account for about 60% of all total R&D spending. Strong entrepreneurship culture, but constraints in responding to change, initiative, profit orientation, creativity, innovation, and flexibility.	Since 1990s, increasing role in high technology sectors such as electric equipment and machinery and electronic and telecommunication equipment (Table 9).
8. Very diversified industrial sectors, but the venture capital industry is still developing and	7. FIEs increased competition in domestic

new-private firms find it difficult to access bank loans. 9. Weak IPR regime in the past, but strengthening IPR since becoming part of WTO. 10. Strong capability to set, monitor, review and change policy to suit developmental goals. A broad shift from technology policy to innovation strategy, representing a transition from a more top-down approach to development.	market forcing domestic enterprises to adopt to change and respond to market signals (Fung, et al, 2002, pp.11-15). 8. Increasingly attracting FDI in R&D, leading to international R&D centres and R&D activities.
INDIA **(Well Functioning/ Strong NSI)** 1. Since early 1990s, opened up different sectors for FDI. Over 60% of TNC's rated it as most attractive investment destination, caps on FDI in certain sectors. 2. Large domestic market and increasing size of middle classes. 3. Inadequate physical infrastructure, making heavy investment to improve. Strong ICT infrastructure. 4. Strong Education system, particularly tertiary. In 2004, more than 340,000 students were admitted to bachelor degree education in engineering. Annually produces about 120,000 chemists and chemical engineers. 5. Availability of low-cost labour – both skilled and semi-skilled, but stringent labour regulations limiting flexibility and mobility. 6. Strong incentives for linkages between actors – foreign and domestic firms, universities, and R&D institutions. But the results are mixed particularly in university-industry linkages. 7. Strong/ diverse R&D by foreign and domestic firms, universities public laboratories. Significant R&D investment (ranged between 0.8-0.9 per cent of GNP). Increasing private sector R&D (51% of industrial R&D and 70% of total R&D). 8. Very diversified industrial sectors and India was 39th competitive nation in the world (IMD World Competitiveness Yearbook 2005).	1. Significant impact on GDP growth. Provinces that invested heavily in infrastructure and education benefitted the most from FDI. 2. FDI inflow in diverse industrial sectors (mostly technology intensive sectors). 3. Relatively less significant impact on overall export performance (Sharma, 2000), but in selected sectors such as IT, it was much greater (Siddharthan and Nollen, 2004). In high-tech industries (manufacturing sectors) export performance of foreign firms was significantly higher (Aggarwal, 2000). Since 1991 foreign firms in chemicals, drugs and non-electrical machinery sectors increased their exports (Mahambare, 2001). 4. Significant impact on employment (service sector) and productive efficiency of industry. 5. Led to increased range of products such as cars, two-wheelers, consumer durables, and food products in manufacturing sector and entry of more banks, new insurance companies, global management consultancies and accountancy firms (Reddy, 2003). 6. Increased competitiveness of domestic firms particularly in 'scientific' sub-sector (Kathuria, 1998). 7. In 1980s foreign firms in chemicals and

9. Weak IPR regime in the past, but strengthening IPR to comply with international regulatory framework (WTO). 10. Strong capability to set, monitor, review and change periodically policy to suit developmental goals.	machinery industries increased their investments, imports of capital goods and technologies, in-house R &D, but no such growth in pharmaceuticals industry due to weak IRP system (Souche et al., 1998). During 1980-1994, technology spillovers in the pharmaceutical industry were only between MNCs with little impact on domestic firms, due to weak IPR (Feinberg and Majumdar, 2001). This is changing since IPR regime has been strengthened. 8. Increasing FDI in R&D and setting up of international R&D centres.
SOUTH AFRICA **(Relatively Well Functioning/ Relatively Strong NSI)** 1. Open to FDI and high investors' confidence. significant per capita GDP growth (1.5% to 3.9% from 2003 to 2007). 2. Sizeable domestic market, good access to regional market. Relatively strong physical infrastructure and ICT infrastructure, but there are limitations. 3. Relatively strong education system (from 2003 to 2007, higher education graduation increased from 96,000 to 120,000, percentage of Science, Engineering and Technology (SET) graduation increased from 26.2 to 27.2, PhD from 437 to 561, Matric passes from 277,000 to 347,000, but Higher grade Maths passes declined from 7 to 6.9 % of the total. 5. Problems in human resource development (skills in mathematics and science at primary and secondary levels). Stringent labour regulations. 6. More emphasis on knowledge production than on innovation. Weak links between industry and R&D institutions/ universities. Research in chemical engineering, biotech, entomology, geology/mining and engineering mathematics at world average. 7. Significant R&D by foreign and domestic	1. Although some FDI growth in the service sector (particularly in financial services) and in automobiles sector, failed to use FDI to shift reliance on natural resource sector to high tech sector. 2. High reliance on export of primary products and resource-based manufacturing, with relatively low levels of high-technology exports. 3. Positive gains in skills development/ employment, creation of linkages in the domestic economy (Thomas and Leape, 2005, p. iv). 4. Foreign companies mostly employed local workforce and used mainly local inputs and suppliers and showed (except companies in the automobile and resource sectors) a strong focus on the domestic market. 5. Increased flows of funding from foreign sources to local R&D. 6. Overseas companies and institutions hold patents for a high number of South African inventions (39 percent in Life Sciences between 1996 and 2002). 7. Percentage of products sold by foreign firms in the EU and the rest of the world was generally higher than that sold in the rest of Africa (Website M).

firms, universities and public labs. From 2003 to 2005, R&D expenditure increased from 0.73 to 0.92% of GDP. Increased investment in public and business R&D. 8. Diversified industrial sectors, ranked 37 in IMD World Competitiveness ranking in 2005 (declined to 53 in 2008). High-tech imports increased. Patents performance declined between 2003 and 2005 9. Advanced IPR laws and strong legal protection. 10. Significant capability to set, monitor, review and change policy.	
GHANA, ETHIOPIA, TANZANIA, ZAMBIA (Non Functioning/ Weak NSI) **Ghana:** 1. Well endowed with natural resources, and one of the more economically sound countries in all of Africa. Mainly depends on subsistence agriculture (50% of GDP and 85% of the work force). 2. Significant investment in education sector (18,530 primary schools, 8,850 junior secondary schools, 900 senior secondary schools, 28 training colleges, 20 technical institutions, 4 diploma-awarding institutions, 6 public universities and 10 private universities). Easy access to primary and secondary education. 3. Relative capability to set policy framework and opened number of industries for foreign investment.	**Ghana:** 1. Impact on exports is significant, non-traditional exports amounted to $626 million in 2000 (30% of total exports), but still heavily dependent on the export of primary goods. 2. Some impact on employment and its quality. In non-mining sectors, between 1994 and 2002, FDI created 72,384 jobs for Ghanaians and 4,652 jobs for non-Ghanaians. 3. Growth of small and medium firms, transfer of technology and knowledge to agribusiness, wood and fish processing (UNCTAD, 2003a). 4. Contributed to new occupational skills such as information technology, producing and marketing organic food, and garment industry (which was not successful).
Ethiopia: 1. Recorded high growth in recent years. Liberalised economy. 2. Weak education system, weak capacities at universities and R&D institutions and weak physical and technical infrastructure, insufficient human capital (administrative and technical) both quality and quantity, and inadequate institutional capacity (UNCTAD, 2002a, p.11).	**Ethiopia:** 1. Inconsistent FDI flow 2. Concentrated in primary sectors such as mining and quarrying, and agriculture, and in secondary sectors such as beverages and tobacco, and textile, clothing and leather, and chemicals and metal fabrication.

3. STI policy framework initiated only in 2006.	3. Limited/ insignificant overall impact (technology transfer and skills development)
Tanzania: 1. One of the poorest countries in the world, with many of its people living below the world poverty line 2. Launched its national innovation system (NIS) in 2008 with the help and coordination of the UNESCO. 3. Problems such as student enrolment in science (only 10%), movement of science graduates to social science at post graduate level and brain drain.	**Tanzania:** 1. Significant employment in some sectors (mining and banking) 2. Skills development – management and organizational expertise, and training. 3. Increased stock of technology through machinery and equipment, and limited technology diffusion to local enterprises (UNCTAD, 2002b).
Zambia: 1. High poverty levels. Millions live below the World Bank poverty threshold of $1 a day. 2. Educational opportunities beyond secondary school are limited. There are 2 universities and few technical training institutions. Almost all had dilapidated and limited infrastructure, lacked training materials, transport and inadequate staff levels.	**Zambia:** 1. Some positive impact on employment. 2. Some transfer of skills. 3. Major impact only in mining sector and very little impact on service and manufacturing sectors.
Sources on NISs: Gu and Lundvall, 2006; Cao, 2004; Farrell and Grant, 2005; Liu and Jiang, 2001; Guo, 2005; Newcomb, 2005; Kirby and Ying, 1995; Xin, 2001; Jefferson, 2003; Mertha, 2005; OECD, 2005; Li, 2005; Eisemon, 1984; Mashelkar, 2001; Prasad, 2001; World Bank, 2005; Mani, 2006; Basant, 2004; NACI, 2008; Ethiopian Science and Technology Agency, 2006; Chikoko, 2008; and Msolla, no date.	

Table 28 lists the levels or nature of major NSI components (identified in the conceptual framework) in each case country, which helps to categorise the NSIs of case countries as following: (i) China and India -- well functioning/strong; (ii) South Africa -- relatively well functioning/strong; and (iii) the group of small countries (Ghana, Ethiopia, Tanzania, and Zambia) -- non-functioning/weak. The outcomes or impacts of FDI listed for each country (as shown Table 28) provide broad indicators that show how successful or unsuccessful were NSIs of case countries in creating positive benefits from FDI. Although they are not based on quantitative measurements (due to the constraints imposed by the nature of data), they are still able to demonstrate clearly the link between the degree of functioning of an NSI and the level and nature of FDI outcomes or impacts.

From the country studies discussed above we can see that there are very significant differences between their experiences with FDI. While NSIs of India and China 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. However, the FDI flows into China and India and their impact on their economies appear to be different in many aspects because of the differences between their NSIs. The NSI in China has become stronger over the years and it

helped to switch the flow of FDI from low-technology sectors to high-tech based sectors. As a result, the FDI outcomes or impacts are significant in volume, complexity and diversity. Also, the strength of its NIS has enabled China to change its FDI policy to address the regional imbalances in FDI flow. In India's case again the strength of its NSI appears to have enabled it to attract FDI flow into diverse sectors such as electrical and engineering, chemicals, automobile, computer and software, and pharmaceuticals that have seen significant technology transfers and R&D investment.

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. Because of the limitations of its NSI such as availability of skills and market conditions South Africa's experience has been significantly different from that of India and China. Although there has been significant increase in FDI in R&D and impacts on high-tech sectors, the overall positive FDI outcomes in South Africa have been limited. In the case of small economies – Ghana, Ethiopia, Tanzania and Zambia, it is clear that due to their weak or non-functioning NSIs the FDI impacts or outcomes have been small or insignificant. This is particularly evident in the areas of technology transfers and diffusion, as mostly the FDI has been directed towards natural resources sector.

8. Conclusions

We analysed the nature of FDI flows in China, India, South Africa and a group of smaller economies – Ghana, Ethiopia, Tanzania, and Zambia and their impacts or outcomes. We identified core differences in the nature of NSIs and the FDI flow among these countries. The characteristics of the NSI in these countries largely shaped the flow and the impact of FDI on these economies. The FDI outcomes/impacts in China and India, which have well functioning/strong NSIs (although there are differences), have been at the high-end level which included FDI in R&D, technology transfers, export growth, domestic linkages, and skills development. The FDI outcomes/impacts in South Africa, which has a relatively well functioning/relatively strong NSI, have been mixed and at the medium or average level which included some FDI in R&D, some high-tech exports, significant domestic linkages and skills development. Ghana, Ethiopia, Tanzania, and Zambia, which have either non-functioning or weak NSIs, have experienced low-end FDI outcomes/ impacts in areas such as employment, skills development, capital formation, productivity improvement and few technology transfers.

It is evident from the country case studies that how effectively the FDI flows can be transformed into tangible economic benefits largely depends on the nature and characteristics of a specific NSI. The experience of China and India, which have been increasingly attracting FDI in high tech areas including FDI in R&D suggests that countries with stronger and well functioning NSIs are more likely to attract FDI potentially with high benefits. Those with least developed NSIs and resource based economies are likely to attract FDI that may not be accompanied with meaningful R&D or technology transfer benefits.

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