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Flow of Foreign Direct Investment to Hitherto Neglected Developing Countries

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January 2003

Abstract

The last decade or so has witnessed rather dramatic increases in the flow of foreign direct investment (FDI) to the developing countries of the world. However, the balance of evidence seems to point in one direction, the inflow has been uneven. Middle-income developing countries have benefited from this upsurge at the expense of the lower-income countries. In an attempt to explore the two complimentary issues involved in FDI flows, we adopted the two-part econometric approach in which a Probit model was first estimated in order to examine the binary issue of whether or not to locate FDI in hitherto neglected developing countries. In the second step, a panel regression model was employed to examine the factors that may explain the volume of FDI to further allocate to existing FDI-receiving countries. Our findings reveal that a combination of high per capita income, outward-orientation to international trade, a high level of infrastructure development and a high rate of return on investment are the significant decision parameters in the two-part aggregate investors' behaviour analyses.

Keywords: neglected developing countries, foreign direct investment, two-part econometric modelling, panel data analysis

JEL classification: F21, F23

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1 Introduction

The developing countries of the world have in general been recipients of both official and private financial flows over the last four decades. Understandably so, since in most of these countries, the level of domestic savings is generally very low, the financial sector is widely underdeveloped and in most cases repressed, and therefore the capacity to harness domestic financial resources for the development of key sectors of the economy is quite limited. A wide body of literature has investigated the role that this flow of external financing could play in the development of recipient countries. The convergence of opinion seems to be that on the balance, there is a net positive relationship between external financial assistance and economic performance of countries, particularly if and when such assistance is accompanied by conducive policy environment (Burnside and Dollar 2000).

In the last decade or so, whereas the flow of official development assistance seems to have declined in relative importance, the flow of private resources and, in particular, foreign direct investment (FDI) to developing countries has been on the increase. A number of reasons have been alluded to in terms of this development. One of such is the end of the cold war and the relative increase in net official flows to the countries in transition in Eastern Europe and former Soviet republics. Other reasons include the growing importance of private flows, particularly in the developing countries themselves, reflecting the new wave of liberalization and globalization and therefore the flow of foreign investment to the telecommunications, financial services and other sectors in many of the countries.

What seems to have characterized this increased flow of private resources, moreover, is that it has not only been quite volatile, but has also been directed at just a few countries or regions. Many low-income countries of Africa and the Pacific region have been left out in terms of the benefit derivable from these increased flows since they continue to be neglected by international investors. The question then remains as to how a significant inflow of FDI could be attracted to these hitherto neglected developing countries and how the volatility of inflow to existing receiving ones could be redressed. This study, therefore, constitutes a major step towards proffering some answers to this all-important development policy question.

What distinguish our present effort from earlier studies on this subject are two folds. In the first instance, we have tried to recapitulate the subject matter into two interdependent parts. The first part relates to issues as to why foreign investors may choose to or not to allocate FDI to previously neglected developing countries, that is, whether or not to overcome the inertia by venturing into these countries. The second part then relates to issues of the volume of FDI to allocate to existing FDI-receiving countries and why the volatility in flows to these countries as witnessed over the years. Most recent studies on the subject (Collier and Pattillo 2000; Obwona 2001; Sin and Leung 2001; Shi 2001; Chemingui 2000; Noorbakhsh and Paloni 2001; Asiedu 2002; Addison and Heshmati 2002) have addressed only a limited area of the problem and particularly the second part. They have sought only to explain why foreign investors might decide to increase or decrease the volume of FDI to countries that are already enjoying FDI inflows.

Second, with the use of pooled multi-country data, this study has tried to explain the domestic and external, or 'pull and push', factors affecting aggregate investors in the

two-part decision scenario as highlighted. This is with a view to shed more light on why many low-income developing countries may have failed to attract FDI inflows. In this regard, this study utilizes the two-part econometric modelling approach. This methodology, which follows from the one that has often been used in explaining the allocation of foreign aid by bilateral donors among developing countries (Dudley and Montmarquette 1976; McGillivray and Oczkowski 1991; McGillivray and Oczkowski 1992; Tarp *et al.* 1998) is yet to be explored in the FDI literature.

The remainder of the paper is organized as follows. In section 2 we examine the recent trend in FDI inflow to developing countries, highlighting the fact that the flow has been unevenly distributed. Section 3 contains a brief review of existing FDI literature, and the conceptual framework adopted is discussed in section 4. Empirical analyses and results are presented in section 5 and in section 6 we examine what lies ahead for low-income developing countries in terms of attracting foreign financial resources. Summary and conclusions are given in section 7.

2 Recent trend in FDI inflow to developing countries

In recent times and in response to the need to provide investor-friendly environment so as not to be left behind in the new wave of global integration, the attitude of many developing countries has changed significantly. They have become more willing to offer numerous financial and non-financial incentives to multinational corporations in order to encourage them to increase direct investment flows (UNCTAD 1998). Given the open door policies, and some external factors in the developed world such as low interest rates and the cycle of economic growth, the flow of FDI to developing countries has witnessed a rising trend in the last decade. As shown in Table 1, FDI flows to developing countries increased from US\$59.6 billion on average between 1989 and 1994 to US\$241 billion in 2000. In the same light, the stock of FDI in developing countries (Table 2) increased from US\$257 billion in 1990 to US\$2,032 billion in 2000. Similarly, in terms of the distribution of aggregate net resource flows, Table 3 shows that net flow of the FDI component to developing countries, which was only US\$1.9 billion in 1970, and US\$24.3 billion in 1990 increased to about US\$178 billion in 2000. This represents 60 per cent of total long-term resource flows or about 78 per cent of the flow of private (non-debt) long-term resources to all developing countries in 2000.

In spite of the dramatic increases in the stock and inflow of foreign direct investment to developing countries in the last decade as revealed by Tables 1 to 3, the geography of the flows has been lopsided, or at best very uneven. Table 1 shows that between 1989 and 2000, two regions, Asia, Latin America and the Caribbean attracted 92.5 per cent (Latin America and the Caribbean 29.4 and Asia 63.1) of the total on average for the period 1989 to 1994. In 2000 these two regions together continued to dominate the other developing regions by attracting 95.2 per cent of the total FDI flows. This implies therefore, that Africa—including the least developed countries and the Pacific region— attracted quite an insignificant proportion of between 7.5 and 4.8 per cent of FDI inflows to developing countries in the period 1989-94 and 2000.

Furthermore, a cursory look at Table 3 reveals quite distinctly that the middle-income developing countries have over the years attracted a large proportion of aggregate net resource flows going to developing countries. Table 3 shows that while the FDI

component of net long-term resource flow to middle-income developing countries amounted to US\$175.6 billion in 1999, the flow to low-income developing countries was only US\$9.8 billion.

Table 4 further shows the top 10 recipients of FDI inflow amongst the developing countries. These are China, Brazil, Mexico, Argentina, Poland, Chile, Malaysia, Venezuela, Russian Federation and Thailand, all middle-income countries. They received close to 70 per cent of total FDI inflows between 1992 and 1998. World Bank (1999) classified these top 10 recipients as those that possess important advantages, which might have made them very attractive to foreign investors. These advantages

Table 1
Foreign direct investment flows by host region, 1989-2000

	1989-94 (ann. avg)	1995	1996	1997	1998	1999	2000
Billions of US dollars							
World	200.14	331.10	385.00	478.00	692.54	1,075.05	1,270.76
Developed countries	137.06	202.22	218.87	267.56	482.60	828.31	1,004.30
Developing countries	59.64	114.58	153.31	191.17	188.93	223.51	241.04
Africa	4.01	5.93	6.44	10.97	8.27	10.47	9.07
of which least developed countries	0.89	1.66	1.65	2.17	3.21	4.77	3.89
Latin America and the Caribbean	17.51	32.31	51.28	71.15	83.20	110.28	86.17
Developing Europe	0.23	0.47	1.08	1.70	1.61	2.72	2.03
Asia	37.66	75.30	94.35	107.21	95.60	99.73	143.48
The Pacific	0.23	0.56	0.15	0.14	0.25	0.30	0.28
Central and Eastern Europe	3.44	14.27	12.73	19.19	21.01	23.22	25.42
Share of global inflows of FDI (%)							
Developed countries	68.5	61.1	56.9	56.0	69.7	77.0	79.0
Developing countries	29.8	34.6	39.8	40.0	27.3	20.8	19.0
Africa	2.0	1.8	1.7	2.3	1.2	1.0	0.7
of which least developed countries	0.4	0.5	0.4	0.5	0.5	0.4	0.3
Latin America and the Caribbean	8.7	9.8	13.3	14.9	12.0	10.3	6.8
Developing Europe	0.1	0.1	0.3	0.4	0.2	0.3	0.2
Asia	18.8	22.7	24.5	22.4	13.8	9.3	11.3
The Pacific	0.1	0.2	0.0	0.0	0.0	0.0	0.0
Central and Eastern Europe	1.7	4.3	3.3	4.0	3.0	2.2	2.0
Share of FDI inflows to developing countries (%)							
Africa	6.7	5.2	4.2	5.7	4.4	4.7	3.8
of which least developed countries	1.5	1.4	1.1	1.1	1.7	2.1	1.6
Latin America and the Caribbean	29.4	28.2	33.4	37.2	44.0	49.3	35.7
Developing Europe	0.4	0.4	0.7	0.9	0.9	1.2	0.8
Asia	63.1	65.7	61.5	56.1	50.6	44.6	59.5
The Pacific	0.4	0.5	0.1	0.1	0.1	0.1	0.1
Share of FDI inflows to Africa (%)							
Least developed countries	22.2	28.0	25.7	19.8	38.8	45.6	42.9

Source: Anupam and Srinivasan (2002).

Table 2
Foreign direct investment inward stock by host region, 1980-2000

	1980	1985	1990	1995	1999	2000
Billions of US dollars						
World	615.81	893.66	1,888.67	2,937.54	5,196.04	6,314.27
Developed countries	358.45	537.26	1,388.76	2,036.72	3,301.92	4,157.64
Developing countries	257.36	356.26	496.92	864.40	1,792.15	2,031.92
Africa	32.74	33.85	48.65	75.91	140.55	148.03
Latin America and the Caribbean	49.96	79.67	116.68	201.62	520.30	606.91
Developing Europe	0.16	0.28	1.13	3.26	9.45	11.46
Asia	173.35	241.27	328.23	580.70	1,118.42	1,261.77
The Pacific	1.18	1.20	2.23	2.90	3.45	3.74
Central and Eastern Europe	0	0	2.99	36.42	101.97	124.72
Share of global stock FDI (%)						
Developed countries	58.2	60.1	73.5	69.3	63.5	65.8
Developing countries ^(a)	41.8	39.9	26.3	29.4	34.5	32.2
Africa	5.3	3.8	2.6	2.6	2.7	2.3
Latin America and the Caribbean	8.1	8.9	6.2	6.9	10.0	9.6
Developing Europe	0.0	0.0	0.1	0.1	0.2	0.2
Asia	28.1	27.0	17.4	19.8	21.5	20.0
The Pacific	0.2	0.1	0.1	0.1	0.1	0.1
Central and Eastern Europe	0.0	0.0	0.2	1.2	2.0	2.0

Note: ^(a) includes South Africa.

Source: Anupam and Srinivasan (2002).

Table 3
Distribution of net resource flows, 1970-99

	Bank loans	FDI (net flows)	Portfolio equity flows	Grants	Total net resource flows	FDI as:	
						Share of total flows	Proportion of private (non-debt) resource flows
Developing countries							
1970	7.0	1.9	0.0	2.0	10.8	0.18	1.00
1980	57.0	4.4	0.0	13.1	74.5	0.06	1.00
1990	43.1	24.3	3.7	28.2	99.3	0.24	0.86
1998	82.9	155.0	14.1	23.0	275.0	0.56	0.91
1999	16.2	185.4	34.5	28.8	264.9	0.70	0.84
Low-income countries							
1970	2.4	0.3	0.0	1.0	3.7	0.08	1.00
1980	13.6	0.2	0.0	7.1	21.0	0.01	1.00
1990	16.0	2.2	0.4	15.3	33.9	0.06	0.85
1998	10.9	13.4	0.6	14.5	39.4	0.34	0.96
1999	-1.2	9.8	2.6	14.7	26.0	0.37	0.79
Middle-income countries							
1970	4.6	1.6	0.0	0.9	7.2	0.22	1.00
1980	43.4	4.2	0.0	6.0	53.6	0.08	1.00
1990	27.2	22.1	2.3	13.2	64.8	0.34	0.91
1998	103.6	163.4	14.9	12.8	294.7	0.55	0.91
1999	17.3	175.6	31.8	14.2	238.9	0.73	0.85

Source: World Bank (2001).

included the market size and increased openness in the case of China, and improved policy and strong economic fundamentals in the case of such countries as Malaysia, Thailand and Chile. Table 4, therefore, reveals that about 93 per cent of total FDI flows to all developing countries went to the middle-income developing countries, while their low-income counterpart attracted just about 7 per cent of inflow between 1992 and 1998. The table also demonstrates the increasing importance of the transition economies of Eastern Europe and the former Soviet republics as alternative destinations of foreign direct investment flows.

To further reinforce this argument of uneven flows of FDI to developing countries, in Table 5, we show the ratio of FDI to GDP in the top 10 recipient countries and country groups. As revealed by the table, in the middle-income countries, FDI/GDP ratio increased from 0.6 per cent in the early 1990s to an average of 2.5 per cent in the late 1990s. On the other hand, the FDI/GDP ratio in low-income developing countries increased from only 0.5 per cent in the early 1990s to about 1 per cent since 1995. For the low-income countries that are neither oil nor mineral producing, the ratio of FDI to GDP remained at less than 1 per cent in the last one decade.

An important point that derives from the pattern of concentration of FDI flows among developing countries described above is the fact that the ten countries highlighted as the most important FDI destinations constitute only about 38 per cent of the total population of all developing countries and territories (UNCTAD 2001c). This may mean that the remaining 62 per cent of developing countries' population was in receipt of only 30 per cent of FDI inflows in 1998 (Table 4). In other words, about two-thirds of the developing world was still virtually written off the map as far as any assumed benefit from FDI inflow was concerned during the greater part of the 1990s.

Turning to the sectoral or industrial composition of FDI inflow to developing countries, Table 6 reveals that as a proportion of total world FDI inflows, developing countries received only about US\$26.7 billion or 22 per cent in 1988. This, however, increased appreciably to about US\$162 billion or 45 per cent of world total in 1997. In terms of the industrial composition of these flows, Table 6 shows the rapidly growing share of FDI flows to the services sector of developing countries. From only about US\$6.6 billion in 1988, FDI inflow to the services sector increased to US\$66.8 billion in 1997. This demonstrates the growing investment in the information, communications and technology (ICT) sectors in many developing countries in the last decade, and particularly in the economies of the highlighted top 10 FDI recipients. Similarly, when compared with the rest of the world, the share of inflow to the agriculture subsector in developing countries remained consistently very high. This again is an indication of the continuing concentration of activities in the primary producing subsectors in many developing countries of Africa and the Pacific regions.

What seems to have emerged from this uneven and lopsided distribution of FDI inflow is the fact that it reflects, to a large extent, the concentration of economic activities in the world. Export performance and therefore the extent of openness to international trade, domestic investment levels and productive activities as well as technology and payments come to play in terms of the capacity of regions and countries to attract FDI inflows (UNCTAD 2001b). The richer and more competitive economies of the world tend to possess these capacities and are therefore able to receive more international direct investment than the poorer and underdeveloped nations.

Table 4
Net FDI inflow to developing countries: Top ten recipients and regions, 1992-98

Country/country group	1992	1993	1994	1995	1996	1997	1998
Top 10 recipients							
China	11.2	27.5	33.8	35.8	40.2	44.2	42.0
Brazil	2.1	1.3	3.1	4.9	11.2	19.7	24.0
Mexico	4.4	4.4	11.0	9.5	9.2	12.5	10.0
Argentina	4.0	3.3	3.1	4.8	5.1	6.6	5.6
Poland	0.7	1.7	1.9	3.7	4.5	4.9	5.5
Chile	0.9	1.0	2.6	3.0	4.7	5.4	5.0
Malaysia	5.2	5.0	4.3	4.1	5.1	5.1	5.0
Venezuela	0.6	0.4	0.8	1.0	2.2	5.1	3.7
Russian Federation	0.0	0.0	0.6	2.0	2.5	6.2	3.0
Thailand	2.1	1.8	1.4	2.1	2.3	3.7	4.8
Share of total (%)							
Low-income countries	6.9	7.2	6.2	6.9	7.4	6.5	6.8
Middle-income countries	93.1	92.8	93.8	93.1	92.6	93.5	93.2
Top 10 countries	67.6	69.2	70.7	67.2	68.8	69.5	70.1
Transition economies	9.0	9.4	8.2	16.6	13.3	14.3	13.5

Source: World Bank (1999).

Table 5
FDI flows to developing countries, % of GDP, 1990-98

Country group	1990	1991	1992	1993	1994	1995	1996	1997	1998
Middle-income	0.6	0.8	1.1	1.5	1.9	2.0	2.2	2.7	2.6
Excluding China	0.6	0.8	0.9	1.0	1.3	1.5	1.7	2.3	2.2
Top 10 countries	0.7	1.0	1.4	2.0	2.5	2.5	2.7	3.3	3.1
Excluding China	0.7	1.0	1.1	1.0	1.4	1.6	2.0	2.7	2.7
China	1.0	1.2	2.7	6.4	6.2	5.1	4.9	4.9	4.2
Low-income (Non-oil exporters)									
Mineral producers	0.5	1.1	1.1	1.7	1.5	2.0	2.4	2.6	2.4
Others	0.0	0.2	0.2	0.3	0.4	0.6	0.7	0.9	0.9
Low- and middle-income oil exporters	0.6	0.9	0.5	1.1	1.0	0.2	0.8	2.1	1.8

Source: World Bank (1999).

Table 6
FDI inflows to developing countries by industry, 1988 and 1997 (US\$ billions)

	1988			1997		
	Total	% share	% of world total	Total	% share	% of world total
Primary	1.78	6.7	17.2	7.47	4.6	46.5
Agriculture	0.57	2.1	99.8	1.80	1.1	82.8
Mining, quarry and petroleum	1.22	4.6	12.4	5.67	3.5	40.8
Manufacturing	17.80	66.8	33.7	81.20	50.1	53.6
Chemicals	3.37	12.7		14.40	8.9	
Machinery	1.02	3.8		4.51	2.8	
Electronics	2.07	7.7		5.40	6.6	
Transport and equipment	0.24	0.9		0.78	0.5	
Services	6.65	25.0	14.3	66.79	41.3	38.8
Trade	0.84	3.2		5.56	3.4	
Finance	0.86	3.2		7.26	4.5	
Real estate	0.68	2.5		7.43	4.6	
Communications	0.55	2.1		12.10	7.5	
Unspecified	0.42	1.6		6.45	4.0	
All industries	26.67	100.0	22.3	161.90	100.0	44.9

Source: UNCTAD (1999).

Table 7
The inward FDI index, by regions, 1988-90 and 1998-2000

	1988-90				1998-2000			
	FDI share to:			FDI inward index	FDI share to:			FDI inward index
	GDP share (a)	Employment share (b)	Export share (c)		GDP share (a)	Employment share (b)	Export share (c)	
World	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Developed economies	1.0	4.0	1.1	2.0	1.0	4.4	1.1	2.2
Western Europe	1.3	4.9	0.9	2.4	1.6	6.3	1.1	3.0
European Union	1.3	4.8	1.0	2.4	1.6	6.4	1.1	3.0
Other Western Europe	1.1	5.7	0.6	2.5	1.1	5.5	0.6	2.4
North America	1.1	4.7	2.0	2.6	0.9	4.4	1.6	2.3
Other developed economies	0.3	1.1	0.5	0.6	0.1	0.5	0.2	0.3
Developing economies	1.0	0.2	0.7	0.6	0.1	0.3	0.7	0.7
Africa	1.0	0.2	0.7	0.6	0.7	0.1	0.6	0.4
North Africa	0.8	0.4	0.7	0.6	0.4	0.2	0.4	0.3
Other Africa	1.2	0.2	0.8	0.7	1.0	0.1	0.7	0.6
Latin America and the Caribbean	0.8	0.6	1.0	0.8	1.1	1.0	1.6	1.2
South America	0.7	0.5	1.0	0.7	1.2	1.1	2.6	1.6
Other Latin America and the Caribbean	1.2	0.8	1.1	1.0	0.9	0.7	0.6	0.7
Asia and the Pacific	1.1	0.2	0.6	0.6	0.9	0.2	0.6	0.6
Asia	1.1	0.2	0.6	0.6	0.9	0.2	0.6	0.6
Western Asia	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2
Central Asia	–	–	–	–	1.7	0.3	1.3	1.1
South, East and South-east Asia	1.3	0.2	0.7	0.7	1.1	0.2	0.6	0.6
South Asia	0.1	–	0.3	0.1	0.2	–	0.3	0.2
Pacific	4.5	1.6	1.9	2.7	1.2	0.3	0.5	0.7
Developing Europe	2.2	3.4	0.5	2.1	1.2	1.5	0.6	1.1
Central and Eastern Europe	0.2	0.1	0.2	0.1	0.9	0.4	0.6	0.6
Least developed countries (LDCs)								
LDCs, total	0.3	–	0.6	0.3	0.6	0.1	1.0	0.6
LDCs in: Africa	0.5	0.1	0.6	0.4	1.6	0.1	1.7	1.1
Latin America & the Caribbean	0.3	–	0.4	0.3	0.1	–	0.2	0.1
Asia and Pacific	0.1	–	0.5	0.2	0.1	–	0.2	0.1
Asia	0.1	–	0.5	0.2	0.1	–	0.2	0.1
West Asian	–	–	–	–	-1.3	-0.2	-0.9	-0.8
South and South-east Asian	0.1	–	0.5	0.2	0.2	–	0.5	0.2
Pacific	–	–	–	–	–	–	–	–

Notes: (a) The ratio of the region's share of world FDI inflows to the region's share of world GDP;
(b) The ratio of the region's share of world FDI inflows to the region's share or world employment;
(c) The ratio of the region's share of world FDI inflows to the region's share of world exports of foods and non-factor services.

Source: UNCTAD (2001b: 43).

To buttress the fact that these underlying factors are the major pull factors for FDI, UNCTAD computed the inward FDI index as depicted in Table 7. This index, according to UNCTAD (2001b), captures the ability of countries to attract FDI after taking into account their size and competitiveness within the international economic system. The index is an average of three ratios, showing each region's share in world FDI relative to

its share in GDP, employment and exports. An index value of ‘one’ indicates that a region’s share in world FDI inflow matches its economic position in terms of the three indicators. As Table 7 shows, while the index for the developing-country group is low compared to the developed world, within developing countries themselves, the inward FDI index value for South (Latin) America and central Asia exceed unity between 1998 and 2000. In the other regions of the developing world, and Africa in particular, the index value was far less than one. For the least developed countries, the inward FDI index values (Table 7) was below unity for the two periods 1988-90 and 1998-2000.

The inward FDI values shown in this table seem to suggest that low-income countries are once again caught up in a now too-familiar circuitous trap, and may likely remain perpetually unattractive to foreign investors in terms of playing host to significant and appreciable FDI inflow. This is because the countries represented in this group of developing economies continue to have high levels of unemployment, low levels of capital formation, domination of primary products in exports, low level of real per capita GDP and are grossly uncompetitive within the global trading and financial systems.

From the foregoing, the central question then remains as to what could be done to reverse the observed situation such that these hitherto neglected low-income developing countries and sectors could constitute investor-friendly destinations. This is what constitutes the primary objective of this paper.

3 Factors that determine FDI inflows: existing literature

Earlier theoretical and empirical studies on FDI have adopted either one or a combination of two approaches. The first or the ‘pull-factor’ approach examines the relationship between host-country specific conditions and the inflow of FDI. Under this approach FDI is either classified as (i) import-substituting; (ii) export-increasing or (iii) government-initiated (Moosa 2002). The second or the ‘push-factor’ approach leans towards examining the key factors that could influence or motivate multinational corporations (MNCs) to want to expand their operations overseas. Under this second approach, FDI is either classified as horizontal or market seeking, vertical or conglomerate (Caves 1971, 1974; Moosa 2002).

Turning to the first approach, Akhter (1993) posited that host-country specific conditions might encompass a number of socioeconomic and political factors within a country where FDI is made. These factors tend to determine available business opportunities and pending political threats within the host countries. Among others, the socioeconomic and political factors commonly cited in this strand of the FDI literature include infrastructure; market size, level of human capital development, distance from major markets, labour cost, openness of the economy to international trade, exchange rate, fiscal and other non-tax incentives, political stability, monetary policies and the extent of liberalization or otherwise of the financial sector. In addition to these socioeconomic and political variables are also the presence of natural resources such as mineral ores, petroleum and natural gas, coal, and other raw materials, the availability of which may also act as location specific advantage in attracting FDI to host countries. Recent studies along this line include those by Asiedu (2002); Elbadawi and Mwenga (1997); Noorbakhsh and Paloni (2001); Sadik and Bolbol (2001); Pigato (2000);

De Mello (1997); Singh and Jun (1995); Gastanaga *et al.* (1998); Collier and Pattillo (2000); Obwona (2001); Hausmann and Fernández-Arias (2000); Sin and Leung (2001); Shi (2001) and Chemingui (2000).¹ Addison and Heshmati (2002) recently added a new dimension and therefore new determinants to this strand of the FDI literature. They examined recent changes in the global economy, termed the ‘third wave of democratization’ and the current spread of new economy in terms of new information and communication technology as likely determinants of a developing country’s ability to attract FDI. The two variables capturing these developments were found to have positive effects on the inflow of FDI even though information, communication and technology was observed to be country specific in its effect on FDI inflows.

With regards to the exposition on factors that may or may not motivate MNC’s to expand their operations overseas, researchers have focused on firm and market-related factors, using two interrelated hypotheses—the internationalization hypothesis and the monopolistic advantage hypothesis as summed up in the Dunning’s eclectic theory, (Dunning 1977, 1979, 1980; Singh and Jun 1995; Moosa 2002). Except for a few, the majority of the previous empirical work based on the eclectic theory tend to also consider one or two host-country specific advantages (Wheeler and Mody 1992; Cleeve 2000; Kreinin *et al.* 1999; Donnenfeld and Weber 2000; Okposin 1999; Globerman and Shapiro 1999; Tuman and Emmert 1999; Barrell and Pain 1999; Urata and Kawai 2000).²

Over the years, moreover, wide divergence and convergence of views and empirical results have characterized the FDI literature in so far as factors affecting the flow of FDI to developing countries are concerned. An attempt to streamline the issues and albeit provide some practical step towards resolving the diversity of views was made by Chakrabarti (2001). He employed the technique of extreme bound analysis (EBA) and the cumulative distribution function. The result of this recent effort provided some evidence on the sensitivity of earlier studies with regards to the determinants of FDI flows. It indicated a strong support for the explanatory power of market Size of the host country, measured by per capita GDP as a major, if not the most significant, determinant of FDI inflow. Other factors, such as openness to international trade, wages, net exports, growth rate, tax regime, tariffs and exchange rate turned out to be less robust though not very fragile as determinants of FDI inflow. According to these findings, while openness to trade, growth rate and tax regime are likely to be positively correlated, wages, net exports and exchange rate are more likely to be negatively correlated with FDI. Finally another set of indicators such as inflation, budget deficit, domestic investment, external debt, government consumption, political stability, human capital, natural resources and infrastructure was found to be very fragile in their effect on FDI inflow and are highly sensitive to small alterations in the conditioning information set.

The objective of this paper is not to contribute towards resolving the conflict in the literature as regards the fragility or otherwise of the respective factors so mentioned. We have rather attempted to examine which of these host countries’ and external factors

¹ For a recent comprehensive survey of literature on location specific advantage as host country determinants of FDI inflows, see Imad Moosa (2002); Asiedu (2002); and Chakrabarti (2001).

² For a review of the hypotheses and studies based on such, see Imad Moosa (2002); Urata and Kawai (2000); Billington (1999); Agarwal (1980); Ragazzi (1973).

could well explain the policy relevant issues as to why a foreign investor in the first instance may choose to or not to locate FDI in a previously neglected developing country. Second, whether or not the same set of variables may be relevant in determining the volume of FDI to allocate to existing FDI-receiving countries.

4 Conceptual framework

Most of the previous studies that try to explain FDI inflow to developing countries have used the traditional cross-section or cross-country multiple regression and/or panel estimation methods. These studies have been more or less directed at establishing the empirical linkages between FDI inflow and a number of explanatory variables. This regression model could be written as:

$$Y_{it} = \alpha_0 + \alpha_1 X + \xi \quad (1)$$

Where Y_{it} is the FDI share of GDP for country i , ($i = 1, 2, \dots, n, N$) and X a vector of independent variables viewed as possible host-country determinants of FDI. ξ is a random error term with the usual properties.

As mentioned above, this paper sets out to examine two important issues. The first relates to why foreign investors may decide whether or not to venture into those countries that never received FDI before and the second has to do with how much to allocate to countries already receiving significant FDI inflow. This is more or less an aggregate foreign investors' behaviour analysis, which necessarily involves in the first case an eligibility decision and, second, a decision on volume of allocation. The ordinary multiple regression model (equation 1) used in previous studies has not been able to adequately address these issues. Suffice is to say, therefore, that an appropriate methodology would be the two-part econometric approach which has been used to investigate the allocation of foreign aid by bilateral donors among developing countries.³ We have therefore adopted the two-part methodology for the analyses in this paper.

4.1 The two-part econometric model⁴

Two interdependent decisions are modelled under this approach. The first is aggregate foreign investors' decision as to whether or not to overcome an earlier inertia and locate investments in a hitherto neglected developing country. In this part the country selection process may be conceptualized as one in which foreign investors identify ' j ' different developing countries. These countries are evaluated based on a number of relevant socioeconomic and country characteristic indicators, ' Z_j ', depending on the motives of the investors, which in this case we can assume to be purely, profit maximization.

³□ For an elaborate exposition of the two-part methodology, see Dudley and Montmarquette (1976); McGillivray and Oczkwocki (1991); McGillivray and Oczkwocki (1992); Tarp *et al.* (1998).

⁴ This sub-section derives substantially from Tarp *et al.* (1998).

Each of these indicators could be assigned different weights ‘ α ’ such that ‘ l ’ number of countries are chosen as FDI recipients among the evaluated ‘ j ’ countries. That is, as in Woodward and Rolfe (1993) and Urata and Kawai (2000) we can describe the profit (π) of multinational firm ‘ i ’ obtainable from undertaking FDI in country ‘ j ’ as:

$$\pi_{ij} = \beta' X_j + \xi_{ij} \quad (2)$$

X_j is a vector of observable characteristics of country j and ξ_{ij} is a random disturbance term reflecting measurement and/or specification error. The probability of selecting a specific country depends on the attributes of the selected country relative to the attributes of all other countries in the sample.

Given the profit equation (2) and on the assumption that ξ_{ij} are independently and identically distributed with Weibull density functions (McFadden 1974), then the probability of locating in country j will be given by:

$$P_j = \frac{\exp[\beta' X_j]}{\sum_{k=1}^l \exp[\beta' X_k]} \quad (3)$$

Estimates of β can be obtained by maximizing the likelihood function:

$$L(\beta) = \prod_{j=1}^l P_j \quad (4)$$

The second decision has to do with how much of FDI to allocate to the ‘ l ’ selected countries. Since it is reasonable to assume that this decision should be related to the first one above, then the amount to invest in a chosen country should be non-zero. In this regard, a positive cut-off level, which distinguishes FDI receiving from non-FDI receiving developing countries, was set at an FDI/GDP ratio of 0.01. This threshold derives from Pigato (2000) who showed that on average, the FDI/GDP ratio for low- and middle-income developing countries between 1987 and 1998 was about 1.3 per cent. Similarly, Singh and Jun (1995) classified as a low FDI receiving country any developing country with an average FDI/GDP ratio of 1 per cent and as a high FDI receiving any country with an average above 1 per cent. An FDI receiving country is then being treated as one which, over the decade 1990 to 2000, received a gross inflow that is greater than this cut-off point.

From above if we denote as ‘ j ’ the potential FDI recipient countries, the econometric model can be written as:

$$E_j^* = \alpha Z_j + \xi_j \quad \xi_j \sim N(0,1) \quad (5)$$

$$A_j^* = \beta X_j + \mu_j \quad A_j^* > 0, \mu_j \sim N(0,1) \quad (6)$$

Z_j and X_j are regressors, α and β are parameters to be estimated. E_j^* according to McGillivray and Oczkowski (1991: 148) represents the difference of the indirect utilities between the events of allocating FDI or not and A_j^* denotes the potential positive or significant amount of FDI, that is, an amount which is greater than the cut-off point. Equations (5) and (6) above actually describe latent unobservable events of the two-part decision processes. The events that can be observed and considered could then be conceptualized as the decision of whether or not to allocate FDI to a country I_j (a dummy endogenous indicator) and the potential or actual FDI allocated to any receiving country over and above the cut-off point A_j . The relationships defined by the two observable events can then be written as:

$$I_j = 1 \quad \text{if } E_j^* > 0 \quad (7)$$

$$I_j = 0 \quad \text{if } E_j^* \leq 0 \quad (8)$$

$$A_j = A_j^* \quad \text{if } I_j = 1 \quad (9)$$

$$A_j = 0 \quad \text{if } I_j = 0 \quad (10)$$

Equations (7) to (10) simply highlight the stylized facts of the two-part aggregate foreign investors' decision processes. That is, if given the evaluation criteria, a country is chosen as an FDI recipient ($I_j = 1$), then the amount of FDI allocated to such a country will be equal to an amount designated as the significant flow of FDI ($A_j = A_j^*$). On the other hand, if a country is not chosen, ($I_j = 0$), then FDI inflow to such a country will not be observed and as such, $A_j = 0$. This implies that such a country or countries will not feature in the second step of the analyses. The dependent variable in this first step is then a binary variable with a value 1 if FDI flows to a country j is greater than the cut-off point or threshold value and 0 if below the cut-off point. The parameters of the explanatory variables in this step could then be estimated using the one way random effects probit model.

In the second step, FDI as discussed above is allocated to only selected countries in the first step, or to those countries that by our definition in this paper had received over the last decade significant inflow of FDI. This implies that A_j is only observed when $I_j \neq 0$. That is, step two is dependent on step one, such that the conventional multiple regression or panel estimation method could be undertaken to obtain the parameter estimates of the explanatory variables.

The equations for the two steps are as follows:

$$E_j^* = \alpha_0 + \alpha_1 X_j + \alpha_2 Y_j + \alpha_3 Z_j + \xi_j \quad (11)$$

$$A_j^* = \beta_0 + \beta_1 X_j + \beta_2 Y_j + \beta_3 Z_j + \mu_j \quad (12)$$

X 's are the independent variables, Y 's the country characteristic variables and Z 's are variables representing any external indicator. α 's and the β 's are the parameters to be estimated. It is assumed as usual that the error components are normally distributed.

The model as elaborated above indicates that once a decision as to whether or not to invest in a particular country has been made in the first step, based on the selected indicators, the decisionmaking problem changes in the subsequent or second step. Assuming that countries $k = 1, 2, \dots, l$ are selected in the first step as potential investment destinations, then, $l \leq j$ and foreign investors will allocate FDI to receiving country 'k' at subsequent periods also based on selected indicators. Accordingly, if we could hypothesize that the decisions of aggregate foreign investors are always consistent with their objectives in the two-part interdependent decision processes, then the same set of explanatory variables could be used in the two steps. In the empirical analysis that follows therefore, we investigated whether the impacts of the chosen explanatory variables are the same in the two steps.

4.2 Data and data sources

4.2.1 Variables

The dependent variable used in the two steps of our analyses is the net FDI/GDP ratio obtained from the World Bank *World Development Indicators* (WDI) online (2002a). The explanatory variables, on the other hand, derive essentially from the pull or host-country variables as had previously been considered in the FDI literature, and five external or push factors. The push factors are:

ECONCYCLE: The indicator of economic cycle in the developed world (OECD countries). This indicator (ECONCYCLE) is computed as the deviation from the long-term growth trend of the GDP in OECD countries. We expected this variable to have a positive sign since an upswing in the level of economic activities in advanced countries should generate a positive flow of FDI to developing countries.

OECDGRATE: This is the annual growth rate in OECD countries, which is expected to have the same effect on FDI inflow to developing countries as ECONCYCLE.

OECDDRATE: This is the weighted average of discount rate in OECD countries. This variable is used to proxy the EURO DOLLAR London rate and it is expected to have a negative effect of reducing FDI flows to developing countries.

OECDGNS and OECDEBAL: These are the gross national savings and external balance in OECD countries, respectively. These two variables proxy the maximum volume of resources available for foreign resource transfers by both the private and public sectors in OECD countries. They are expected to have positive signs.

For the pull variables, we had relied on the results of the EBA analysis of Chakrabarti (2001), Asiedu (2002), Addison and Heshmati (2002), Noorbakhsh and Paloni (2001), Singh and Jun (1995) and other previous studies for the expected signs. The explanatory variables added to the push factors are:

- Real per capita GDP (PINCOME) (+);
- Ratio of exports plus imports to GDP (OPEN) (+);
- Growth rate of real GDP (GROWTH) (+);

- Taxes on income, profits and capital gains (TAXES) (-);
- Import duties as percentage of imports (MDUT) (-);
- Wages and salaries as per cent of total expenditure (WAGES) (+);
- Commercial energy use (kg of oil equivalent per capita) (COMM) (+);
- Rate of change of consumer price index, inflation (INF) (-);
- Domestic credit to the private sector as per cent of GDP (CREDIT) (+);
- Fuel exports as percentage of total merchandise exports (FUEX) (+);
- Ores and metal exports as percentage of merchandise exports (ORES) (+);
- General government final consumption expenditure as percentage of GDP (GCOM) (+);
- Index of political freedom (POLT) (-);
- Index of government crises (CRISES) (-);
- Dummy variable to capture events of the 1990s, particularly opening up of Eastern European countries and countries of the former Soviet republics to the international trade and financial system which may be exerting a negative influence on the flow of FDI to developing countries (DUMMY90) (-);
- Real interest rate (per cent) (REINT) (+);
- Manufacturing value added as per cent of GDP (GDPMAN) (+).

4.2.2 Data sources

Pooled, cross-country, annual time series data for the period 1970-2000 for 89 developing countries⁵ are used for the empirical analyses. Most of the macroeconomic and country characteristic or institutional variables are obtained from two World Bank sources, the *World Development Indicators* (online) and the *Global Development Network* growth database (online). Data on political freedom, which are a composite of

⁵ The 89 developing countries and the countries eliminated after step one are as follows: Algeria, Angola, Argentina, Bangladesh, Benin, Bolivia, Botswana, Brazil, Burkina Faso, Burundi, Cameroon, Central Africa Republic, Chad, Chile, China, Colombia, Congo, Dem. Rep., Congo Rep., Costa Rica, Côte d'Ivoire, Cyprus, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, Fiji, Gabon, Gambia, Ghana, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, India, Indonesia, Iran, Jamaica, Jordan, Kenya, Korea, Rep., Lesotho, Liberia, Madagascar, Malawi, Malaysia, Mali, Malta, Mauritania, Mauritius, Mexico, Morocco, Mozambique, Nepal, Nicaragua, Niger, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Senegal, Seychelles, Sierra Leone, Singapore, Somalia, South Africa, Sri Lanka, Sudan, Swaziland, Syria, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Uruguay, Vanuatu, Venezuela, Zambia, Zimbabwe.

Countries eliminated after step one: Algeria, Bangladesh, Botswana, Burundi, Cameroon, Central African Republic, Congo, Dem. Rep., Congo Rep., Haiti, India, Iran, Kenya, Liberia, Nepal, Niger, Rwanda, Sierra Leone, Turkey.

two indices (political rights and civil liberty) are obtained from the Freedom House database (online). Data on legislative fractionalization and constitutional changes which may also proximate for political risk are obtained from the Polyarch dataset (Vanhanen 2001). FDI inflow and related data as shown in the different tables were obtained from various World Bank (*Global Development Finance*) and UNCTAD (*World Investment Report*) sources between 1992 and 2002 and the IMF's *International Financial Statistics* (online).

One major problem with the various dataset and particularly, data from the World Bank (2002a and 2002b) is the issue of missing data points which is so acute. In this regard, such important variables as black market premium, rate of unemployment, exchange rate overvaluation, rate of unemployment, secondary school enrolment rate, real effective exchange rate, tend to reduce the number of useable observations, significance of parameter estimates as well as the goodness of fit of the equations when combined with other variables. This limited our use of these variables and some of the variables listed above.

Given the problem of missing data points and the assumption that on average, multinational corporations that undertake FDI in developing countries may face information lag, our estimations were based on non-overlapping five-year averages of all the variables. By so doing, we were able to reduce the problem of random fluctuations in the data and at the same time exploit the time-series variation in the dataset.

5 Empirical analyses and results

Equation (11) above describes step 1 of the analyses and was estimated using the probit model. Equation (12), on the other hand represents the second step and was estimated using the Heckman's sample selection-corrected two-stage method. This involved computing the Heckman's parameter (λ or the inverse Mill's ratio) for each observation on the basis of the first step probit estimation and including this in the second step regression as an explanatory variable. A second step estimation without the Heckman's parameter would only give unbiased estimates if the two error terms in the two steps were independent. This means that for a country, which receives FDI, eligibility would be independent of the amount of FDI received, a situation which may or may not be true (Tarp *et al.* 1998: 18; Heckman 1979). The estimations in the second step were based on the panel regression technique and the one way error component random effects model.⁶

Different combinations of the variables were tried for the two steps of the analyses. Only four variables, real per capita income (PINCOME), real interest rate (REINT), (proxy for rate of return on vestment as in Addison and Heshmati 2002), the indicator of openness (OPEN), and phones per 1,000 people (an indicator of the level of infrastructure development adopted for our analysis) turned out to be significant and robust in the numerous combinations considered for the two steps. These four variables

⁶ For a discussion of the econometric theory behind the one way error component model as well as the differences between the use of the fixed and random effects model, see Baltagi (1995) and Hsiao (1986).

then constituted the control variables for our model such that the specification shown in column 1 of Tables 8A and 8B is the basic model for our analyses. The final results are as shown in columns 1 to 5 of the two Tables, Table 8A for the probit estimations of step one and Table 8B for the panel estimations in step two. The proportion of correct predictions in Table 8A and the R^2 in Table 8B indicate that to a large extent, the two models have strong explanatory power.

Table 8A
Probit estimations

	Estimates and P-values				
	(1)	(2)	(3)	(4)	(5)
Constant	3.681 (0.06)	0.996 (0.82)	3.742 (0.08)	-1.914 (0.77)	11.265 (0.52)
Real per capita GDP (log)	0.691 (0.03)	0.545 (0.02)	0.726 (0.03)	1.351 (0.09)	1.334 (0.10)
Trade (exports and imports)(% of GDP)	0.009 (0.02)	0.027 (0.02)	0.009 (0.03)	0.034 (0.04)	0.030 (0.04)
Real interest rate (%) log	0.055 (0.00)	2.008 (0.00)	1.07 (0.00)	0.031 (0.16)	0.034 (0.15)
Phones per 1,000 people (infrastructure)	0.739 (0.00)	0.843 (0.02)	0.750 (0.00)	1.241 (0.00)	1.175 (0.00)
Manufacturing value added (% of GDP) (log)	–	1.993 (0.00)	–	–	–
Indicator of economic cycle in advanced (OECD) countries (log)	–	–	–	35.419 (0.07)	–
OECD external balance	–	–	0.177 (0.19)	0.067 (0.06)	0.116 (0.59)
Gross national savings in OECD countries	–	–	–	–	4.032 (0.44)
Domestic credit to private sector (% of GDP) (log)	–	–	–	–	0.015 (0.96)
Post-1990 dummy	–	–	-0.888 (0.03)	–	–
Ores and metal exports (% of merchandise exports) (log)	–	–	0.893 (0.00)	–	–
Fuel exports (% of merchandise exports) (log)	–	–	–	–	0.521 (0.00)
General government final consumption expenditure (% of GDP)	–	-0.015 (0.73)	–	-0.179 (0.03)	–
Taxes on income, profits and capital gains (% of total taxes)	–	0.024 (0.07)	-0.016 (0.04)	–	–
Inflation, consumer prices (annual %) (log)	–	–	-0.019 (0.38)	-0.005 (0.83)	-0.002 (0.94)
Political risk	–	–	-0.003 (0.96)	-0.181 (0.29)	-0.109 (0.52)
Number of observations	206	117	201	115	111
Number of countries	89	89	89	89	89
Log likelihood	-76.168	-28.523	-38.55	-18.45	-18.676
P(n)	0.84	0.91	0.84	0.90	0.92

Notes: The numbers in parentheses below the parameter estimates are the p-values. A p-value that exceeds 0.10 indicates that the parameter estimate is not significant at 1%, 5% and 10% levels;

P(n) refers to the proportion of correct predictions in each equation.

Source: UNCTAD (1999).

Table 8B
Panel estimations

	Estimates and P-values				
	(1)	(2)	(3)	(4)	(5)
Constant	6.781 (0.14)	0.996 (0.82)	7.481 (0.00)	6.398 (0.22)	5.778 (0.27)
Real per capita GDP (log)	1.314 (0.04)	2.396 (0.09)	0.034 (0.00)	0.119 (0.05)	1.177 (0.09)
Trade (exports and imports)(% of GDP)	0.019 (0.00)	0.018 (0.02)	0.020 (0.00)	0.019 (0.00)	0.018 (0.00)
Real interest rate (%) log	0.032 (0.07)	2.345 (0.09)	0.034 (0.10)	0.053 (0.00)	0.025 (0.00)
Phones per 1,000 people (infrastructure)	0.139 (0.00)	1.388 (0.03)	1.378 (0.02)	1.246 (0.00)	1.232 (0.00)
Manufacturing value added (% of GDP) (log)	–	2.379 (0.09)	–	–	–
Indicator of economic cycle in advanced (OECD) countries (log)	–	–	–	24.615 (0.03)	–
OECD external balance	–	–	0.545 (0.00)	0.120 (0.35)	0.109 (0.39)
Gross national savings in OECD countries	–	–	–	–	5.000 (0.10)
Domestic credit to private sector (% of GDP) (log)	–	–	–	–	0.263 (0.57)
Post-1990 dummy	–	–	-1.787 (0.00)	–	–
Ores and metal exports (% of merchandise exports) (log)	–	–	1.319 (0.02)	–	–
Fuel exports (% of merchandise exports) (log)	–	–	–	–	0.118 (0.41)
General government final consumption expenditure (% of GDP)	–	-0.080 (0.28)	–	-0.08 (0.17)	–
Taxes on income, profits and capital gains (% of total taxes)	–	0.024 (0.07)	-1.038 (0.28)	–	–
Inflation, consumer prices (annual %) (log)	–	–	-0.032 (0.11)	-0.021 (0.33)	-0.031 (0.14)
Political risk	–	–	-0.051 (0.76)	-1.275 (0.11)	-0.151 (0.39)
Heckman's parameter	0.021 (0.00)	0.471 (0.80)	1.481 (0.951)	1.851 (0.16)	1.86 (0.18)
Number of observations	120	94	97	94	97
Number of countries	71	71	71	71	71
R ²	0.75	0.84	0.83	0.79	0.76

Notes: The numbers in parentheses below the parameter estimates are the p-values. A p-value that exceeds 0.10 indicates that the parameter estimate is not significant at 1%, 5% and 10% levels.

Source: UNCTAD (1999).

The results shown in column 1 of Tables 8A and 8B indicate that real per capita income, (an indicator of market size, degree of affluence or command over commodities in a country), and the trade/GDP ratio (an indicator of the degree of openness of an economy to international trade), real interest rate (an indicator of the rate of return on investment), and the level of infrastructure development, which are statistically significant in the first

step also have a statistically significant impact in the second step of the analyses. Similarly the signs of the parameter estimates of these variables are the same in the two steps. These imply that there is a very high degree of consistency in terms of the criteria which aggregate foreign investors may employ in deciding to choose whether or not to venture into a previously neglected developing country and the decision as to the volume of FDI to allocate to existing FDI-receiving developing countries. Table 8B also shows that the Heckman's parameter is significant, which may indicate that there is some correlation between step one and step two of the analyses.

The results reported in columns 2 to 5 of the two tables show that the basic model is to a large extent, robust to changes in specifications. Column 2 of Table 8A and 8B indicate that when interacted with the control variables, the level of industrialization of a developing economy turned out to be important in the decision of multinational corporations (MNCs) to venture into such a country as well in deciding on the amount of further FDI to locate in the receiving countries. Similarly high levels of taxes on income, profits and capital gains may act as deterrent to MNCs that may want to venture into previously neglected developing countries. This may also negatively impact on the volume of FDI to further allocate to existing FDI-receiving countries (column 2, Table 8B). The level of government final consumption expenditure, as percentage of GDP, which may indicate the size of government in an economy, turned out to be insignificant at conventional levels and, therefore, may not be important in the two-part decision processes.

Column 3 of Table 8A seems to indicate that the presence of solid minerals, external balance situation in advanced (OECD) countries and the post-1990 dummy may also constitute, in addition to the control variables, dominant variables in the allocation criteria of foreign investors, when deciding on whether or not to venture into a previously neglected developing country. These variables also turned out to be significant in the second-round decision of the volume of FDI to allocate to receiving countries. The results reported in column 4 of Table 8A show that in addition to the control variables, the indicator of economic cycle, the external balance situation, in advanced (OECD) countries and the level of government final consumption expenditure as percentage of GDP are important in choosing which developing countries to venture into by foreign investors. On the other hand, the rate of inflation and political risk may not be as important. For the existing FDI-receiving countries moreover, these variables are weakly significant in the decision whether or not to locate more investments.

Finally, column 5 of Tables 8A and 8B show that besides the control variables, it is only the presence of petroleum resources that may constitute an important factor in deciding whether or not to venture into a previously neglected developing country. For the existing FDI-receiving countries, the volatility of FDI inflow may, on the other hand, be explained by the level of gross national savings in advanced (OECD) countries. Inflationary tendencies and political risk again turned out to be insignificant.

On the basis of the results of our empirical analyses, we are able to conclude that a combination of four variables—real per capita income, real interest rate, the indicator of openness and the level of infrastructure development—reasonably explain why previously neglected developing countries may have failed to attract foreign direct investment in the last three decades. This is an indication that not only is the level of per capita income or size of the market very important in the choice of investment location by foreign investors, it is also necessary that countries actively engage in international

trade. Similarly, one may posit that since foreign investors have primarily commercial motives, they will only choose such countries where a high rate of return on their investments could be assured and where they will not have to commit so much of their initial investable resources to road construction, power generating equipment, water treatment plants and telecommunication facilities.

6 Flow of FDI to neglected low-income developing countries: what lies ahead?

In the last section we identified the factors that seem to be the major determinants of international investors' decision whether or not to locate FDI in neglected developing countries as well as the volatility of flows to existing FDI-receiving ones. These are the presence of local markets as proxied by the level of real per capita GDP, the degree of linkage of the host economy to the international trading system, the rate of return on investments, and availability of infrastructure. All of these four factors may have resulted in the increasing concentration of FDI in middle-income developing countries and the industrialized countries. At the same time, they may have resulted in the declining competitiveness of low-income developing countries in attracting significant inflow of FDI. This is because per capita income continues to be very low (below US\$800 on average) in the low-income countries, infrastructure is poorly developed in many of these countries and the ratio of exports plus imports to GDP, which measures the degree of openness falls significantly below appreciable level. Thus the situation of declining competitiveness of the low-income developing countries have prevailed despite quite favourable policy framework put in place for FDI inflow in many of these countries in recent years. This finding corroborates the results of a number of earlier quantitative studies, which have reached convergence on the major factors that determine FDI inflow. This similarly corroborates the findings of UNCTAD that the concentration of FDI seems to reflect the concentration of economic activity, and that richer and more competitive economies tend to receive more international direct investment than the poorer and less competitive ones (UNCTAD 2001b).

All of these would suggest that low-income countries and the least developed countries of the world may continue to be marginalized well into the coming decades in terms of the distribution of FDI inflow. This is because many of the economic reform programmes instituted in these countries are yet to transform into positive results in terms of increasing rates of growth, increasing level of economic activity, increasing participation in international trade, and high per capita income levels. Similarly, most of the low-income countries continue to rely more on locational advantages to attract FDI inflow which, on the other hand, are based on cheap labour and natural resource endowments, factors that have turned out to be weakly significant in many earlier studies. This means that the concentration of FDI inflow in high and middle-income countries may even intensify.

The question then arises as to whether the ability of the low-income countries to attract a substantial magnitude of FDI inflow from the conventional western sources can improve in the nearest future. One may be tempted to posit that the prospect does not look too bright. It is most unlikely that these countries could attain such a level of per capita income and integration into the global trading and financial systems that could make them internationally competitive in the next couple of years. This may suggest that even though the recent upsurge and expansion of FDI inflow into developing

countries as a whole is a welcome development in itself, it may not be able to compensate for the declining levels of official development financial assistance, which will need to be directed to the poorer or low-income developing countries. In this regard, a critical re-examination of current donors' practices, their major instruments and channels of aid delivery for private sector development in low-income countries may be required. This is because if for the observable factors, an improved flow of FDI to the hitherto neglected developing countries may not be realized in the nearest future, then the flow of official development assistance for private sector development from donors may serve as a veritable option.

Having said this, it is still important for the low-income developing countries to focus more on policy factors. These will include factors that could integrate them into the global trading system, fiscal and non-fiscal incentives, the improvement of infrastructure, human resources development, the creation and nurturing of local entrepreneurship. All of these will have to be consistent with the entrenchment of suitable political and legal framework and such other conditions for productive investment and private sector participation in order to set the stage for the process of growth and development.

In realization of these, many low-income developing countries have in recent times opened up their economies to foreign investment by eliminating or reducing various types of regulatory barriers. Many of these countries have designed policies to shift away from targeting specific sectors or specific foreign investors, and have sought to promote broad-based private sector participation in economic development. All of these efforts will need to be intensified and widespread in the low-income developing countries. Similarly the low-income countries will all need to strive to significantly reduce, if not completely abolish, the system of government equity participation in joint ventures. Government participation in joint ventures in many of these countries has continued to perpetuate the existence of underperforming and inefficient state-owned or state-managed enterprises which in most cases account for a disproportionately high share of the GDP (Ramamurti 1999). The move towards privatization of these enterprises or free market orientation as being recently undertaken in a sizeable number of countries may result in renewed interest by foreign investors in the form of equity, joint venture or even sub-contracting.

Regional economic cooperation among low-income developing countries may also help. Since the size of host-country market has turned out to be an important determinant of FDI inflow, developing countries, and especially the smaller ones could improve their chances of attracting FDI inflow through participation in regional economic integration. These schemes have the potentials to enlarge the size of accessible markets and attract the attention of market-seeking FDI. Similarly, regional economic cooperation among low-income developing countries could pave the way for exploiting the potentials of intra-regional investments that may be substantial and prove useful for the restructuring of industries in participating countries for improved efficiency. Recent experiences in this regard could be found in the way in which many South African corporations have expanded into the member countries of the Southern African Customs Union (SACU) and are now expanding further afield into the other countries of the much wider Common Market for Eastern and Southern African Countries (COMESA).

Significant changes in the productive structures in many low-income developing countries may also have an impact in attracting FDI. An important facet of this

structural shift could be in the form of greater foreign trade in manufactured inputs as opposed to the primary products and raw materials as is currently the case. Increased foreign trade in manufactured inputs may result in more FDI by the final users of these inputs and increased trade liberalization in both the host and home countries. Many countries, such as Mauritius, have been successful in their attempt in this regard by utilizing their low wage workers in export processing zones in order to expand their exports of intermediate goods. Though others have not been too successful (Nigeria, Botswana), the fact remains that the more outward oriented an economy becomes, the more successful such economies tend to be in their attempt to encourage FDI inflow. Lucas's (1993) investigation of Southeast Asian countries provides some evidence of the relative importance of the outward-oriented policies. Specifically that FDI is relatively more elastic with respect to demand for exports than to aggregate domestic demand. This implies too that for low-income developing countries to be successful as export-oriented economies and be able to attract FDI, they have to put in place liberal trade policies, remove to a significant extent all forms of quantitative and barriers of equivalent effect to the free flow of goods, services, payments and labour. Not only could this attract export-increasing FDI, it could also attract import-substituting FDI.

As was noted in this study, and as in many earlier studies, a high rate of return on investment could be an important determinant of FDI inflow to previously neglected low-income countries. The measure of rate of return adopted for this study is the real rate of interest, as previously used by Addison and Heshmati (2002). This implies that positive real rate of interest may signal positive return to domestic savings, an indicator which may be important to aggregate foreign investors. Moreover, a positive real rate of interest can only be ensured in an economy with a complement of monetary and fiscal policies that will guarantee monetary stability and low levels of inflation. This also implies that to a reasonable degree, the financial system will have to be liberalized, free of government controls and, therefore, free of repression. Liberalized financial markets in low-income developing countries will not only reduce the degree of fragmentation of the sector, it could also lead to a well-developed and diversified financial markets and instruments, all of which breed investor-friendly environment.

By way of summary, one may want to say that while a number of host-country factors may act as determinant of the decision by foreign investors to locate direct investment in previously neglected low-income countries, some are much more critical to the decision than others. Factors such as natural resource endowment and probably cheap labour may arouse investors' interest. More importantly, however, are macroeconomic fundamentals, openness of the economy to international trade and the availability of reasonably developed infrastructure. Similarly, the channelling of official development assistance towards private sector development in low-income countries may well complement the insufficient flow of FDI to these countries.

7 Summary and conclusions

In this paper we have shown that the last decade or so has witnessed dramatic increases in the inflow of foreign direct investment to developing countries of the world as a whole, and at the same time recorded a declining volume of flow of official development assistance. FDI inflow however has been uneven, but lopsided in terms of the geography of distribution across the developing countries. High and middle-income

developing countries, countries of Southeast Asia, Latin America and the Caribbean, have continued to receive larger share of the flows at the expense of lower-income developing and least developed countries of the world. The sectoral distribution of the flow has followed exactly the same pattern, such that in the low-income developing countries, FDI inflow is concentrated in the primary sectors, particularly in agriculture and mining.

Multi-country panel data for 89 developing countries over the period 1970 to 2000 were employed to explore two complementary policy issues that relate to aggregate foreign investors' decisions in terms of FDI location in developing countries. These two issues are the factors that may influence aggregate investors' decision first in choosing to or not to allocate FDI to hitherto neglected countries and second, in determining the volume of FDI to allocate to existing FDI-receiving countries. These issues are key in terms of shedding some light as to why many low-income developing countries have never attracted FDI and reasons for the volatility of FDI inflow to the few receiving countries. The methodology adopted for this study departs radically from what received FDI literature seems to suggest. We adopted the two-part econometric approach. This approach entailed the use of a probit model to examine the binary issue of whether or not to locate FDI in a developing country as a first step. A chosen country in this step is assumed to be a significant recipient of FDI inflow based on a threshold of FDI/GDP ratio of 0.01. Countries that have received more than this average inflow over the decade 1990 to 2000 were termed existing FDI-receiving country. In the second step of our analyses, a panel regression model was then used to examine the factors that may explain the volume of FDI to further allocate and the volatility of flows to the existing FDI-receiving countries. In the two steps, moreover, our assumption is that aggregate investor's decisions are always consistent and interdependent in the two steps, such that the same set of explanatory variables were used for the probit and the panel regression models.

The results of the first step analysis indicate that a combination of high per capita GDP, high rate of return on investment, outward-orientation to international trade and the level of infrastructure development are the significant and important decision parameters in choosing whether or not to locate investment in a developing country. The panel regressions of the second step seem to point to the fact that the volume of FDI to allocate to existing FDI-receiving developing countries and the volatility of such inflow may be explained to a large extent by the same factors. Though in this second step, some other determinants of FDI inflow as previously reported by earlier researchers turned out to be marginally significant. These variables include political risk, taxes on income, profits and capital gains, the level of inflation, the level of financial sector development and the availability or otherwise of solid minerals and petroleum resources. We also had integrated a number of push factors into our analyses. These include the indicator of economic cycle, the gross national savings, and the external balance situation in advanced (OECD) countries. However only the indicator of economic cycle turned out to be significant in the two steps.

What seems to have emerged from the analyses in this paper is the fact that low-income developing countries may continue to be marginalized far into the distant future in terms of the inflow of FDI. This is because these countries are still characterized by low levels of per capita income, fragmented and underdeveloped financial system, low level of integration into the international trading and financial systems, poorly infrastructural base, and slow pace of response of economic fundamentals to reforms that could arouse

to appreciable degree the level of investors confidence. One may be led to conclude, albeit with caution, given the nature of the data employed that a combination of mutually re-enforcing factors such as sound monetary, fiscal, trade and exchange rate policies, fewer records of political instability and macroeconomics crises, reforms tailored specifically at factors that hitherto hindered FDI inflow may all enable the previously neglected and the receiving countries to attract FDI inflow. Similarly, renewed donor efforts in terms of channelling substantial amount of official development assistance for private sector development may be an important component in the sustainability of external development financing for developing countries.

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