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Rabin Hattari and Ramkishen S. Rajan

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Trends and Drivers of Bilateral FDI Flows in Developing Asia

Rabin Hattari*
George Mason University

and

Ramkishen S. Rajan**
George Mason University
Hong Kong Institute for Monetary Research

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Abstract

Developing countries are rapidly emerging as new and important sources of foreign direct investment (FDI) to other developing countries. While Asian companies have become significant foreign direct investors abroad, a large share of outward investments from Asia appears to have been recycled intraregionally. However, unlike trade flows, there has been little to no detailed examination of FDI flows between Asian economies at a bilateral level. This paper uses bilateral FDI flows data to investigate trends and patterns of intra-Asian FDI flows over the period 1990 to 2005. It also employs an augmented gravity model framework to examine the main determinants of intra-Asian FDI flows. A range of drivers of FDI flows, including transactional and informational distance (proxied by distance), real sector variables, financial variables and institutional quality are examined.

Keywords: Developing Asia, Distance, Foreign direct investment (FDI), Institutions, Intra-regional, Gravity model.
JEL Classification: F21, F23, F36

* George Mason University, VA. E-mail: rhattari@gmu.edu

** George Mason University, VA. E-mail: rrajan1@gmu.edu

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1. Introduction

According to the UNCTAD (United Nations Conference on Trade and Development), "a number of developing countries have emerged as significant sources of FDI in other developing countries and their investments are now considered a new and important source of capital and production know-how, especially for host countries in developing regions" (p.6). South-South FDI flows has been a rapidly growing phenomenon and has generated significant interest from policymakers, academia and the popular press in recent times (Sauvant, 2005). Given the aggressive overseas acquisition plans by cash-rich and highly confident firms from Mainland China, India, Hong Kong SAR, Singapore, South Korea, and Taiwan POC, and other Asian countries, as well as by national holdings companies in Asia such as Singapore (Temasek Holdings) and Malaysia (Khazana National Berhad), outward investments from Asia are set to rise even further.

Apart from the usual efficiency-seeking, resource-seeking and market-seeking investments, outward FDI from developing Asia is motivated by a desire to build a global presence and buy brand names, technology, processes, management know-how and marketing and distribution networks. The international expansion of some Asian firms may also have been motivated by a desire to offset or diversify risks at home, for tariff-jumping reasons, geopolitical factors, etc.[1] Policy makers in many Asian countries have been particularly keen on promoting an internationalization thrust and have facilitated outward FDI via gradual liberalization of rules governing capital account outflows and in many cases, providing a financing mechanism to domestic firms looking to invest abroad.[2]

While Asian companies have become significant foreign direct investors abroad, a large share of outward investments from Asia may have been recycled intraregionally. According to some rough estimates, intra-Asian FDI flows in 2004 have accounted for about 40 percent of Asia's total FDI inflows in 2004 (Kwan and Cheung, 2006; also see UNCTAD, 2006, Chapter 2). If correct, this share is broadly comparable to the extent of intra-Asian trade flows. However, unlike trade flows there has been little to no detailed examination of FDI flows between Asian economies at a bilateral level.

This paper uses bilateral FDI flows data to investigate trends and drivers of intra-Asian FDI flows over the period 1997 to 2004-2005. Eichengreen and Tong (2007), Liu, Chow and Li (2007) and Sudsawasd and Chaisrisawatsuk (2006) are three of just a handful of papers that examine FDI to Asia using bilateral data. However, these papers only consider FDI from OECD economies as the source country since they use data from the OECD.[3] In contrast, the focus of this paper is on developing Asian economies as the sources of FDI to other developing Asian economies using data from UNCTAD.

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1 A rather tangential rationale for – or rather, result of – overseas acquisitions and concomitant capital outflows has been an easing of exchange rate pressures on Asian currencies, thus reducing the need for reserve buildup and having to manage its inflationary consequences.

2 See Lunding (2006) for a discussion of China's outward investments. Gopinath (2007) discusses the steps taken by the Indian government to facilitate outward FDI. Sauvant (2005) describes policies by both India and China to promote outward FDI.

3 A selective list of recent papers that use bilateral FDI data from the OECD but are not specifically limited to Asia are Bénassy-Quéré, Coupet and Mayer (2007), Daude and Stein (2004), Head and Ries (2008), Loungani, Mody and Razin (2002), Razin, Rubinstein and Sadka (2003), and Stein and Daude (2007).

Before proceeding with the analysis it may be instructive to say a few words on the official definition of FDI and data sources to be used. The most common definition of FDI is based on the OECD *Benchmark Definition of FDI* (3rd Edition, 1996) and IMF *Balance of Payments Manual (5th Edition*, 1993*)*. According to this definition, FDI generally bears two broad characteristics. First, as a matter of convention, FDI involves a 10 percent threshold value of ownership.[4] Second, FDI consists of both the initial transaction that creates (or liquidates) investments as well as subsequent transactions between the direct investor and the direct investment enterprises aimed at maintaining, expanding or reducing investments.

More specifically, FDI is defined as consisting of three broad aspects, viz. new foreign equity flows (which is the foreign investor's purchases of shares in an enterprise in a foreign country), intra-company debt transactions (which refer to short-term or long-term borrowing and lending of funds including debt securities and trade credits between the parent company and its affiliates) and reinvested earnings (which comprises the investor's share of earnings not distributed as dividends by affiliates or remitted to the source country, but rather reinvested in the host country). New equity flows could either take the form of M&A of existing local enterprises or Greenfield investments.

For developing economies, the two most comprehensive databases on FDI inflows and outflows are the IMF-BOP Manual and UNCTAD (see Duce, 2003 for a comparison of the two sources). Neither source divides FDI into M&A versus Greenfield investments.[5] UNCTAD by far has the most complete FDI database, and unlike the IMF-BOP data, it compiles data on *bilateral* FDI flows – both inflows and outflows. The UNCTAD data are on a net basis (capital transactions credits less debits between direct investors and their foreign affiliates). The main sources for UNCTAD's FDI flows are national authorities (central banks or statistical office). These data are further complemented by data obtained from other international organizations such as the IMF, the World Bank (*World Development Indicators*), the Organisation for Economic Co-operation and Development (OECD), the Economic Commission for Europe (ECE) and the Economic Commission for Latin America and the Caribbean (ECLAC), and UNCTAD´s own estimates.

The remainder of the paper is organized as follows. Section 2 discusses broad patterns and trends in intra-Asia FDI flows using bilateral net FDI flows over the period 1990 to 2005. Section 3 employs an augmented gravity model framework to examine the main determinants of intra-Asian FDI flows using bilateral data based on a panel dataset. While many papers have considered different versions of gravity models to understand intra-OECD FDI flows and FDI flows from OECD economies to developing economies in Asia and elsewhere, this paper applies such a framework to intra-(developing) Asian FDI flows. We examine a range of drivers of FDI flows, including transactional and informational distance

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4 This said, the 10 percent threshold is not always adhered to by all countries systematically. For a detailed overview of the FDI definitions and coverage in selected developing and developed countries, see IMF (2003). Also see Duce (2003). UNCTAD (2007) discusses data issues pertaining to FDI inflows to China.

5 See UNCTAD (2006, pp.15-21) for a discussion of Greenfield versus M&As. Cross-border M&As in the past three years have been experiencing a surge. While most M&A statistics are compiled by commercial data sources, they tend to include *announced* rather than *actual* financial flows, and some of the announced flows may not even include activities considered to be FDI (as defined above). More to the point, announced flows often includes funding of capital via equity from local minority share-holders or local/international borrowing (as opposed to funds from the parent or sister companies).

(proxied by distance), real sector variables, financial variables and institutional quality. As far as we know, ours is one of the very few papers that tries to determine the drivers behind FDI flows between developing Asia economies. The final section offers a few concluding remarks.

2. The Extent of Intra-Asian FDI Flows: Trends and Patterns

One could analyze FDI data on either *stocks* (i.e. International Investment Positions) or *flows* (i.e. financial account transactions) data. While much empirical analysis to date has been undertaken using the former, changes in stocks could arise either because of net new flows or because of valuation changes and other adjustments (such write-offs, reclassifications etc). To abstract from these valuation and other changes we consider only data on flows of outward FDI (net decreases in assets or when a foreign country invests in the country in question) and inward FDI (net increases in liabilities or when the source country invests abroad). Our focus is on selected South, Southeast and East Asian developing economies. The economies included in our sample are Bangladesh, Cambodia, Mainland China, Hong Kong SAR, India, Indonesia, Malaysia, Pakistan, the Philippines, Singapore, Taiwan POC, Thailand, South Korea, and Vietnam. Thus, apart from excluding West Asia and some smaller Asian economies in South, South-East and East Asia, we exclude Japan but follow UNCTAD in defining the newly industrialized economies (NIEs) like Hong Kong SAR, Singapore, South Korea and Taiwan POC as "developing".

2.1 Aggregate Inflows to and Outflows from Developing Asia

Table 1 reveals relative shares of global FDI inflows and outflows. As is apparent, the Triad (the EU, Japan and the United States) continue to dominate, both as sources and destinations of FDI in terms of both stocks and flows. However, it is interesting to note that in 2003-2005 the Triad's share of FDI flows declined to a low of below 60 percent compared to about 80 percent on average between 1978 and 1990, while that to developing economies rose to a corresponding high of 40 percent, over half of which was destined to Asia. The share of FDI outflows from developing economies which were negligible until the mid 1980s, rose to about 15 percent of world outflows in 2005. According to the UNCTAD (2006), the stock of outward FDI from developing economies rose from around US$ 70 billion in 1980 to about US$ 150 billion in 1990 and to more than US$ 1 trillion in 2005.

Table 2 focuses specifically on FDI inflows and outflows of selected Asian developing economies between 1990 and 2005. Between 1990 and 1996, FDI inflows to Asia grew at an average annual rate of just over US$ 50 billion, while outflows grew at a rate of US$ 30 billion during the same period. Buoyant global economic conditions and the liberalization of most of the Asian economies in the early 1990s led to an influx of FDI inflows to the region. In contrast, during 1997 to 2005 average annual FDI growth in outflows from Asia outpaced inflows to Asia (US$ 22 billion on average compared with US$ 50 billion annually). Further, FDI outflows and inflows for most countries during the sub-periods 1990 to 1996 and 1997 to 2005 are positively correlated, with the exceptions of Korea (first sub-period), the Philippines (second sub-period), and Bangladesh (entire period). The correlations in Greater China (Mainland plus Hong Kong SAR) and India are particularly high, suggesting that periods of economic liberalization have been characterized by simultaneous rises in both FDI inflows as well as outflows (Table 3).

Interestingly, the two countries with the highest magnitudes of inflows and outflows are Mainland China and Hong Kong SAR. In both of our sample periods 1990 to 1996 and 1997 to 2005, Mainland China has been the single largest destination of FDI, constituting about two-fifths of inflows to developing

Asia during the last 15 years. More specifically, for the period 1990 to 1996, the average FDI inflows to Mainland China was around US$ 20 billion, while for the second sub-period, 1997 to 2005, the average FDI inflows to Mainland China crossed US$ 50 billion. With regard to outflows, Hong Kong SAR is clearly the single largest source of FDI outflows from Asia. FDI outflows from Hong Kong SAR averaged just under US$ 15 billion annually in the first sub-period and over US$ 25 billion in the second sub-period.[6] As will be noted below, a large part of outflows from Hong Kong SAR is bound for Mainland China, some of which is due to round-tripping from the Mainland to begin with. This round-tripping significantly inflates the amount of outward FDI from the Mainland which itself experienced a spurt between 1990 and 2005 (UNCTAD, 2006, p.12).[7]

Referring again to Table 2, apart from Hong Kong SAR and Mainland China, the three NIEs of Singapore, South Korea and Taiwan POC have consistently remained among the top developing economy sources of FDI over the last two decades. Malaysia (a near-NIE) is also notable for the size of their outward FDI flows, particularly since the 1990s. While there is not necessarily a one-to-one link between nationality of TNCs and FDI outflows, it is instructive to note that the handful of firms from developing economies that made the top 100 list were from Hong Kong SAR, Taiwan POC, Mainland China, Singapore, Korea and Malaysia. TNCs from the first four economies (i.e. Greater China and Singapore) constituted 60 percent of the top 100 TNC from developing economies (UNCTAD, Chapter 1).

2.2 Intraregional Asian FDI Flows: A First Look

Having considered broad country aggregate outflows and inflows to and from Asia, we analyze bilateral FDI between Asian economies. This exercise is far from straightforward. UNCTAD data on inflows and outflows do not match exactly (also see UNCTAD, 2006, Chapter 3). It is apparent that UNCTAD FDI outflows data from source countries are incomplete for many countries. While some source countries have relatively complete outflows data, others either have incomplete data or no data at all. Different reporting practices of FDI data create bilateral discrepancies between FDI flows reported by source and host countries, and the differences can be quite large. For example, data on FDI flows to Mainland China as reported by the Chinese authorities and by the investing countries' authorities differ by roughly US$ 30 billion in 2001, US$ 8 billion in 2001, and US$ 2 billion in 2002.[8] Faced with these concerns we draw inferences on FDI flows by examining FDI inflow data reported in the host economies as they are more complete and are available for all developing Asian economies under consideration. In other words, we focus on the *sources of inflows* rather than *destination of outflows*. To keep the analysis manageable we examine data for the averages of 1997 to 2000, and 2001 to 2005 rather than on an annual basis.[9]

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6 Chen and Lin (2006) discuss patterns and determinants of FDI outflows from Hong Kong SAR and Mainland China.

7 Estimates put round-tripping at between 25 and 50 percent of total FDI flows from Hong Kong SAR to Mainland China (UNCTAD, 2006, p.12).

8 Apart from round-tripping and trans-shipping issues (discussed later in this section), part of the data inconsistencies between inflows and outflows arise because many countries do not include retained earning or loans when considering FDI outflows.

9 It is instructive to note that the top destinations of FDI using data based on FDI inflow data in the host economy and FDI outflow data from the source economy have roughly stayed the same during the period under consideration.

FDI inflows between Asian countries accounts for about one-third of all FDI inflows to the region (Table 4 and Figure 1), and is particularly pronounced between and within East Asian economies and South-East Asian economies. This is apparent from Table 5 which emphasizes that the bilateral flows between East Asian countries are the highest in Asia with an average of US$ 28 billion for the period of 1997 to 2005. According to Table 6, the average of FDI flows from Hong Kong SAR to Mainland China and vice versa from 1997 to 2005 has been around US$ 24 billion and accounts for almost of 48 percent of intra-Asian FDI flows. Apart from Hong Kong SAR-Mainland China-Taiwan POC flows, bilateral flows between East and South-East Asia are also significant. Almost three-fifths of flows from East Asia to South-East Asia have been destined for the relatively higher-income South-East economies, viz. Singapore, Malaysia, Philippines, and Thailand. Singapore has attracted about half of all East Asian FDI destined for South-East Asia. The city state has also been a major investor to China. Malaysia and Thailand have also invested in China.

Consideration of intra-Asian bilateral flows highlights a few other important characteristics of intra-Asian FDI flows (Tables 5 and 6). First, the leading investors from the region have stayed the same between 1997 to 2006, with Hong Kong SAR as the leading investor, followed by Singapore, Taiwan POC, Korea, Mainland China, and Malaysia, in that order. The importance of Mainland China as a source of capital is noteworthy in that there has been a great deal of debate on whether China has diverted extra-regional FDI from the rest of Southeast and East Asia (for instance, see Chantasasawat, Fung, Iizaka and Siu 2004, Eichengreen and Tong, 2007, Liu, Chow and Lim, 2007, Mercereau, 2005 and Sudsawasd and Chaisrisawatsuk, 2006).[10] While Hong Kong SAR's FDI to the Mainland has remained stable between the two sub-periods, that from the Mainland to Hong Kong SAR has declined. Second, intra South-East Asia investment accounted for 6.7 percent of cumulative FDI flows in Asia between 1997 and 2005. Comparing the two sample periods, intra South-East Asia's investment share of cumulative FDI flows in Asia increased between the two periods from 3.6 percent to 7.4 percent, with Singapore as the leading investor in both periods. Singapore's investments to its ASEAN neighbors, Malaysia and Thailand, have increased in the second sub-period, while the city state's investments to Mainland China and especially Hong Kong SAR have declined. Third, FDI flows between East Asia and South Asia remains low and stagnant.[11]

It is important to note that the data analyzed above exclude the offshore financial centers (OFCs) such as the British Virgin islands (BVI), Bermuda, Cayman islands, Mauritius, and Western Samoa as sources of FDI. Insofar as at least some part of inflows from the OFCs involve FDI that originated from other Asian economies, and the inflows are not destined back to originating country (i.e. trans-shipping as opposed to round-tripping), we may be undercounting the size of intra-Asian FDI flows. For instance, the BVI has consistently been the second largest source of FDI into Mainland China, surpassed only by

[10] This said, the bulk of FDI flows from China have been to Hong Kong. However, there is evidence of growing investments by China into Southeast Asia.

[11] Recent interest expressed by Japanese, Korean, and Taiwanese firms in the booming Indian economy may alter this, though that remains to be seen. There appears to be some desire to diversify export market platforms from China although it is unclear whether this will lead to a shift of some FDI from Korea, Japan, and Taiwan to India or to developing Southeast Asian economies such as Indonesia, Thailand, Vietnam, Philippines, Malaysia, etc.

Hong Kong SAR, with the Cayman Islands and Western Samoa also being among the top 10 in 2006.[12] Similarly, investments from other sources may have been re-routed to India via Mauritius which has consistently been the top source of FDI to India.[13]

3. Determinants of FDI Flows to Emerging Asia

The previous section has highlighted the extent of FDI outflows from developing countries and, more specifically, the intensification of intraregional FDI flows. But what explains the rise of intraregional FDI flows in Asia? This section undertakes an empirical investigation of some of the possible determinants of FDI flows from Emerging Asia to the rest of the region over the period 1990 to 2005. Can a gravity model framework that is commonly used to rationalize outward FDI flows from OECD economies be used to understand intra-Asian FDI flows?

3.1 The Model

The aim of this section is to develop a relatively parsimonious model which includes commonly-used determinants as well as focus on specific bilateral variables. To this end we follow the basic gravity type framework which argues that market size and distance are important determinants in the choice of location of direct investment's source countries. The theoretical basis for a gravity model of FDI has recently been proposed by Head and Ries (2008). The model has been used in a host of papers with some variations.[14]

The basic specification of our estimated model is outlined below:

$$\ln(FDI_{ijt}) = \beta_0 + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(GDP_{jit}) + \beta_3 LANG + \beta_4 \ln(DIST_{ij}) + \beta_6 X_{ijt} + \eta_i + \mu_j + \lambda_t + \nu_{ijt} \quad (1)$$

where: FDI_{ijt} is the real FDI flow from source country (i) to host country (j) in time (t); GDP_{it} and GDP_{jt} are real GDPs in US dollar for the source country (i) and the host country (j) in time (t); LANG is a binary variable equal to 1 if the source and host countries have a common official language; $DIST_{ij}$ is the geographical distance between the host and source countries; X_{ijt} is a sector of control variables influencing FDI outflows; η_i denotes the unobservable type of source country effects (we use source country dummies); μ_j denotes the unobservable type of host country effects (we use host country dummies); λ_t denotes the unobservable time effects (we use year dummies); and ν_{ijt} is a nuisance term.[15]

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[12] http://www.uschina.org/info/forecast/2007/foreign-investment.html#table4. In the literature, OFCs have mainly been discussed in the context of bank flows and portfolio flows. For instance, see Dixon (2001), Rose and Spiegel (2006) and Zoromé (2007).

[13] Mauritius has low corporate tax and has signed a liberal Double taxation agreement (DTA) with India. As such, the actual extent of flows of FDI between India and East and Southeast Asia may be understated. This is especially so as many companies from abroad and in India use Singapore as a regional headquarters, in particular following the signing of a bilateral Comprehensive Economic Cooperation Agreement (CECA). This said, Pardhan (2005) has argued that outward investments from Indian multinationals since the mid 1990s have been more global in nature.

[14] The augmented gravity model for FDI is broadly similar – but by no means identical – to those used in recent papers, including Loungani, Mody and Razin (2002). Stein and Daude (2007), Liu, Chow and Li (2007). di Giovanni (2005) applies a gravity model to analyze cross-border M&A transactions, while Portes and Rey (2005) and Lee (2006) apply a gravity model for portfolio equity flows.

[15] According to CEPI's website, geographical distance is calculated following the great circle formula, which uses latitudes and longitudes of the most important cities/agglomerations (in terms of population).

The set of controls used are: real GDP per capita differentials of the host and source countries, lag of real export of goods from the source country to the host country; change in bilateral real exchange rate of the source country with respect to the host country; the ratio of stock market capitalization to GDP of the host country's stock market, average corporate tax rates in the host country, a political risk index in the host country, a binary variable equal to 1 if the countries' legal system is originated from the British common law system, a binary variable equal to 1 if the source and host countries have an operational free trade agreement (FTA); and a financial openness index in the host country.

a) Basic Gravity Variables

We expect the coefficients of the real GDP of the source and destination countries to both be positive as they proxy for masses which are important in gravity models.[16] A destination country that has a large market tends to attract more FDI. The sign of the source country size is ambiguous. While large real GDP indicates greater aggregate income and therefore higher ability to invest abroad, small real GDP implies limited market size and consequent desire by companies to expand their wings overseas to gain market share. The sign for common language ought to be positive, while the sign for distance from the source to the host country should be negative, as greater distance between countries makes a foreign operation more difficult and expensive to supervise and might therefore discourage FDI.[17]

b) Real Control Variables

The prior sign of the difference in real GDP per capita (source minus host) is unclear, depending on whether FDI flows are vertical or horizontal in nature. Similarly, the nexus between FDI and trade is ambiguous a priori. Insofar as both are a means of servicing a market, they could be competitive in nature. On the other hand, their relationship could be complementary if FDI is export-oriented or if greater exports increase familiarity with a country, hence stimulating FDI inflows as well. Clearly there may be issues of reverse causality between FDI and exports. We therefore lag the exports variables by one period.[18] We also hypothesize that the change in the real exchange rate should have a negative sign as a real exchange rate depreciation of the host country (i.e. fall in the index) should raise FDI flows from the source country (due to the wealth effects). However, there are other channels that could lead to ambiguity of the signage (Cushman, 1985).

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16 In physics, the law of gravity states that the force of gravity between two objects is proportional to the product of the masses of the two objects divided by the square of the distance between them. Most gravity models in bilateral trade and FDI have replaced the force of gravity with the value of bilateral trade or direct investments and the masses with the source and destination countries' GDP.

17 However, if the foreign firm is looking to service the destination country's market, a longer distance also makes exporting from source countries more expensive and might therefore make local production more desirable and encourage investment. This argument is not unlike the tariff-jumping one.

18 As a robustness check we also excluded exports altogether in the regression. Results remained largely unchanged.

c) Financial control variables

As with di Giovanni (2005), we also test if greater financial depth of the host country impacts bilateral FDI flows to them. We proxy financial depth by higher stock market capitalization of the host country. This variable could also be suggestive of general bullishness in and robustness of economic activity, thus generating capital inflows. However, the sign of this coefficient for the host country could be uncertain as there is a line of research suggesting that FDI tends to flow into countries with weaker financial systems, i.e. FDI is "bad cholesterol" (see Hausman and Fernández-Arias, 2000). Apart from financial depth, the link between financial liberalization and international capital flows is of great importance to emerging market policymakers. We therefore also test whether financial openness in general can lead to more FDI flows between emerging Asia economies when controlling for other factors.

d) Institutional Quality and Other Variables

Anghel (2005) and Bénassy-Quéré, Coupet and Mayer (2007) and Daude and Stein (2004) have discussed and explored in some detail the importance of institutional variables in determining FDI flows. In view of this we include a Political Risk Index – broadly defined to reflect government stability, socioeconomic conditions, investment climate, internal and external conflict, corruption, involvement of the military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and bureaucratic quality – of International Country Risk Group (ICRG) database. (The higher the index the lower is the overall institutional quality). La Porta et al. (1996) have emphasized how different commercial laws could have different levels of protection of corporate share-holders and creditors, and quality of law and enforcement. Therefore, the other institutional quality variable we include is a binary variable equal to 1 if our sample countries' legal system has originated from British common law system.[19]

We also included two other controls sometimes used in other studies. One, higher corporate tax in the host country should deter FDI.[20] Two, free trade agreements (FTAs) in form of regional trade agreements (RTAs) and bilateral trade agreements (BTAs) between Emerging Asia have proliferated rapidly. It is commonly believed that FTA tends to stimulate FDI flows (for instance, see Levy Yeyati, Stein, and Daude, 2002). We examine this linkage by including dummies for operational bilateral trade agreements.[21]

3.2 Data and Methodology

Tables A1 to A3 summarize the data sources to be used. The FDI data are based on the *UNCTAD FDI/TNC* database in millions of US dollars. We deflated it by 1996 US CPI for urban consumers. Real GDP and real GDP per capita in constant 2000 US dollars are taken from the World Bank's *World Development Indicators* database. Export data from the source to the host countries are taken from the IMF's Direction

[19] We are less concerned about the impact of FDI on institutional quality (as stressed by Bénassy-Quéré et al., 2007) since our dependent variable is FDI *flows* as opposed to *stocks*.

[20] Bénassy-Quéré, Fontagné, and Lahrèche-Révil (2005) explore the impact of various tax schemes on FDI.

[21] The FTA dates are based on when the agreement was operationalized as opposed to just being signed.

of Trade and Statistics database.[22] We also deflated our export data by the 1996 US CPI for urban consumers. Data on distance and common official language are taken from the CEPII. [23] As noted, the Political Risk index is taken from International Country Risk Group (ICRG) database. Data on the ratio of stock market capitalization to GDP is taken from the World Bank's *World Development Indicators* database. The source of average corporate tax rate is a combination of the World Tax Database created by the Office of Tax Policy Research (OTPR) at the University of Michigan Business and KPMG Corporate Tax Survey.[24] The data on FTAs is constructed from the World Trade Organization (WTO) website. For financial openness, we used the well-known index developed by Chinn and Ito (2002).[25]

Our sample is based on an unbalanced panel of annual data on 14 source countries and 10 host countries between 1990 and 2005. The data contains a large number of missing variables – approximately 48 percent – and a very small number of disinvestment figures – approximately 48 observations (shown in the data as negative). A missing variable for bilateral FDI may indicate either "unreported FDI," reflecting the fact that the two countries have chosen to report low FDI values as zero, or "no FDI," indicating no FDI flows between the two. After a thorough observation of our data we feel that most of missing variables in our dataset happen because of "no FDI". As for the negative disinvestment figures, we treated them as zero observations since they represent no investment in the destination countries. In all of our estimations we deal with the issue of censored data. The common approach to dealing with censored data is to run a Tobit model (for instance see Bénassy-Quéré, Coupet and Mayer, 2007, Daude and Stein, 2007 and Loungani, Mody, and Razin, 2002.[26] We follow di Giovanni (2005) by computing a Tobit model using the two-step procedure. First, a Probit model is estimated for whether a deal is observed or not conditional on the same right-hand variables as in equation (1), and the inverse Mills' ratio is constructed from the predicted values of the model. Second, a regression is run to estimate equation (1) including the inverse Mills ratio as a regressor.[27]

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22 The data are limited to merchandise trade only.

23 For more information, see CEPII's website at http://www.cepii.fr/.

24 The corporate tax figures in OTPR's tax database refers only to the top marginal tax rate on corporations, while KPMG Tax Survey data refers to top marginal tax rates and other local taxes that burden a foreign corporation. OTPR's tax database extends only to 2002, while KPMG goes all the way to 2005. However, OTPR has a longer history which extends back to 1990, while KPMG only starts at 1993. We used KPMG data as our starting point and then filled in the missing data on our country samples by comparing tax rates data for each country in our sample.

25 The financial openness index is based on the four binary dummy variables, viz. does the country have multiple exchange rates, current account restrictions, capital account restrictions, and requirements of the surrender of export proceeds (as reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER).

26 Another alternative suggested by Santos Silva and Tenreyo (2006) is to use the Poison pseudo maximum likelihood method. This methodology has been recently applied to FDI by Head and Ries (2008). Coe, Subramanian, and Tamirisa (2007) suggest another log-linear estimation method to deal with this problem.

27 The standard errors are corrected for heteroskedasticity and we use an estimated parameter of an exogenous variable (the inverse Mills' ratio) in the second stage. See di Giovanni (2005) for details.

3.3 Empirical Results

We considered four initial specifications, each building on the previous one (Table 7). First, we start with a basic gravity model without additional controls in regression (1). We then add the real sector control variables in regression (2), the financial variables in regression (3), and the institutional quality variables and other variables (corporate tax rates and bilateral FTA) in regression (4).

In the four specifications the distance variable remains statistically and economically significant. Greater distance between the host and source country tends to lower bilateral FDI. As expected, larger countries receive (and send) volumes of FDI. A common language is also positively associated with more FDI inflows, though not statistically significant. This may at least partly be reflective of the fact that English dominates economic transactions, especially within Asia.

Regression (2) highlights that the difference in GDP per capita between host and source countries is positive and statistically significant, implying that the smaller the degree of income divergence between the countries, the more likely there is to be bilateral FDI flows between the countries. While this may be indicative of FDI inflows being more horizontal rather than vertical in nature, the estimated coefficient is effectively zero, suggesting little economic significance of this variable. A 1 percent rise in lagged exports from source to host economy is associated with a 0.3 to 0.4 percent rise in FDI flows, suggesting a degree of complementary between exports and FDI flows. A 1 percent real exchange rate appreciation of the source country vis-à-vis the host country by 1 unit is associated with roughly a 3.6 to 4.0 percent rise in FDI flows from the source to the host country.[28] Both results are robust across the regressions.

Regression (3) includes the financial market variables. The effect stock market capitalization in the host country is positive and statistically significant. A 1 percent increase in the ratio of market capitalization to GDP in the host country is associated with a 0.4 percent rise in FDI inflows. We also tested for the impact of financial openness by including the Chinn-Ito index. We find that a host country that is more financially open seems to attract more regional FDI flows. However, this result should be interpreted with some caution, once again because of the limitation of the proxy used. In particular, the index may be too aggregated (i.e. an economy may be financially closed to capital flows in general but what matters is openness to FDI). In addition the index only captures *de jure* as opposed to *de facto* controls and, as is well known, controls tend to be leaky when there are sufficient incentives for agents to circumvent them.

Regression (4) adds the institutional quality variables, the corporate tax rates of the host country, and bilateral FTA between the two countries. The political risk index has the correct sign, i.e. lower political risk (proxied by a higher ICRG rating) in the source country leads to more FDI inflows. The effects are economically and statistically significant; lower political risk of the host country is associated with greater

[28] The finding is aligned with works by Cushman (1985), Front and Stein (1991), Blonigen (1997), and others.

FDI inflows. When the host country adopts a similar legal system to the British common law system it appears to facilitate more FDI inflows. The finding concurs with a growing body of literature which suggests that Anglo-American law (i.e. common law) improves the quantity of finance and the efficiency with which it is utilized.[29] The presence of an operational FTA also facilitates FDI flow between the source and host countries. We find that if two countries have an operational FTA then bilateral FDI flows between them will be increased by roughly 68 percent. This result is also robust. The corporate tax rate has a negative sign and is statistically significant, implying that a lowering of the corporate tax rate in the host country is associated with a rise in FDI inflows. However, this result must be cautiously treated since we have not controlled for double tax agreements, tax sparing agreements, tax incentives, transfer pricing etc, all of which may muddy the results.

3.4 Robustness Check[30]

We performed a number of sensitivity analyses to ascertain the robustness of these results (Table 9). In regression (5), we added a dummy variable equal to 1 to capture that Mainland China and Hong Kong SAR are the same country post-1997. The rationale behind for this is to treat flows between Mainland China and Hong Kong SAR separately between pre-1997 and post-1997.[31] In regression (6), we take Greater China to be a single sovereign entity across time (i.e. we view Mainland China, Hong Kong SAR, and Taiwan POC to be part of the same country). In regression (7) we added the disinvestment from source country to host country to the investment flow from host country to source country. In regression (8) we dropped all divestment and missing observations are re-run in a simple OLS pooled regression. In regression (9) – and purely for comparison – we converted all missing and negative observations to be zero and expressed the dependent variable as ln(1+FDI), similar to Eichengreen and Irwin (1995) and re-ran an OLS.[32]

The results are shown in Table 9. In regression (5) with the inclusion of the same country dummy variable for Mainland China and Hong Kong SAR post 1997, the results are almost identical to the baseline regression (4). The one exception is that the FTA dummy now becomes insignificant, while the same country dummy becomes significant and positive.[33] In regression (6), once again the same country dummy ("Greater China") is significant and positive while the FTA dummy becomes insignificant. Everything else broadly remains unchanged.[34] In regression (7), when we add the divestment from

[29] These results broadly concur with Beck et al. (2004) which finds that a country's legal origin influences its firms' access to foreign finance.

[30] We thank an anonymous referee for suggesting some of these checks.

[31] Results did not alter much with a change in breakpoints.

[32] Thus regression (9) has almost double the observations as the other regressions.

[33] Mainland China and Hong Kong SAR signed an FTA in 2003-04 which is captured in our FTA dummy.

[34] The only other difference between regression (6) and the baseline regression (4) is that the common language becomes negative, though it is statistically insignificant in both cases.

country i to j to investment flows from j to i, results are virtually identical to the baseline regression (4). In the last two robustness checks, (regressions (8) and (9)), the control variables broadly have the same correct signs as in our baseline regression, though their economic and statistical significances are different given the use of ln (1+FDI) as the dependent variable and the OLS methodology which does not adequately deal with the selection bias, unlike the previous regressions. Nonetheless, by and large our results are highly robust to various checks.

4. Concluding Remarks

This paper has investigated trends, patterns and drivers of intra-Asian FDI flows using bilateral FDI flows involving 14 developing Asian countries for the period 1990 to 2005. The primary contribution of this paper is that it is one of the first – if not the first – to examine the magnitudes and determinants of FDI flows from developing Asian sources to other developing Asian hosts. The data indicates that around 35 percent of FDI flows to developing Asia between 1990 and 2005 have come from within the region, with over 90 percent of the flows originating from Hong Kong SAR, Mainland China, Singapore, and Taiwan POC. Clearly some of these flows are overstated as they involve recycling or round-tripping of funds (especially between Mainland China and Hong Kong SAR). Against this, trans-shipping from offshore financial centers have not been included, implying a degree of understating.[35] While the intra-Asian flows are substantial, two issues stand out. One, a large part of these flows pertains to bilateral flows between Hong Kong SAR and Mainland China. Two, the data do not indicate that intra-Asian flows are necessarily intensifying. Given that developing Asia is investing aggressively overseas, what this suggests is that relatively more investments are being made outside developing Asia.

The paper finds that an augmented gravity model fits the data fairly well. Our model is able to capture most of the variations in existing intra-Asian FDI flows. Most of the estimated coefficients are the correct signs and are statistically and economically significant. Intra-regional FDI activity between emerging Asian economies is driven by economic factors such as market size (especially in the host country), export intensity, real exchange rate changes, measures of financial depth, institutional factors (such as political risk and legal origin), an operational FTA, and level of financial openness of the host country. As in the case of international trade, distance stands out as an important determinant of bilateral FDI flows even after the inclusion of bilateral FTA, suggesting that transport costs and informational asymmetries are factors that could hinder FDI flows.[36] While geographical distance is “natural”, there could still be a role for government policy in reducing “transactional distance” and “informational distance” between countries *a la* Loungani, Mody, and Razin (2002).[37] There is clearly a need for more work in this area.

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[35] See UNCTAD (2006, pp.12-13) for a brief discussion of round-tripping and trans-shipping in the context of cross-border FDI flows.

[36] Coe, Subramanian and Tamirisa (2007) discuss the issue of distance and international trade, referring to it as the “missing globalization puzzle”.

[37] Also see Portes and Rey (2005).

Reference

Anderson, J. and D. Marcouiller (2002), "Insecurity and the Pattern of Trade: An Empirical Investigation," *Review of Economics and Statistics,* 84: 342-52.

Anghel, B. (2005), "Do Institutions Affect Foreign Direct Investment?," mimeo, Universidad Autónoma de Barcelona (October).

Beck, T., A. Demirguc-Kunt and R. Levine (2000), "A New Database on Financial Development and Structure," World Bank Economic Review, 14: 597-605.

Beck, T., A. Demirguc-Kunt and R. Levine (2004), "Law and Firms' Access to Finance," World Bank Policy Research Working Paper No.3194, The World Bank.

Bénassy-Quéré, A., L. Fontagné and A. Lahrèche-Révil (2005), "How Does FDI React to Corporate Taxation?" *International Tax and Public Finance*, 12: 583-603.

Bénassy-Quéré, A., M. Coupet and T. Mayer (2007), "Institutional Determinants of Foreign Direct Investment," *The World Economy*, 30: 764-82.

Chantasasawat B., K. C. Fung, H. Iizaka and A. K. F. Siu (2004), "Foreign Direct Investment in China and East Asia," Working Paper No.1135, Hong Kong Institute of Economics and Business Strategy, The University of Hong Kong.

Chen, E. K. Y. and P. Lin (2006), "Mainland China and Hong Kong Emerging TNCs from East Asia," Working Paper No.WP31, East Asian Bureau of Economic Research, Australia National University.

Chinn, M. and H. Ito (2002), "Capital Account Liberalization, Institutions and Financial Development: Cross Country Evidence," NBER Working Paper No.8967, Cambridge MA: National Bureau of Economic Research.

Coe, D. T., A. Subramanian and N. T. Tamirisa (2007), "The Missing Globalization Puzzle: Evidence of the Declining Importance of Distance," *IMF Staff Papers*, 5: 34-58.

Cushman (1985), "Real Exchange Rate Risk, Expectations, and the Level of Direct Investment," *Review of Economics and Statistics*, 67: 297-308.

Daude, C. and E. Stein (2004), "The Quality of Institutions and Foreign Direct Investment," mimeo, University of Maryland (February).

di Giovanni, J. (2005), "What Drives Capital Flows? The Case of Cross-border Activity and Financial Deepening," *Journal of International Economics*, 65: 127-49.

Dixon, L. (2001), "Financial Flows via Offshore Financial Centres as Part of the International Financial System," *Financial Stability Review*, June: 105-16.

Duce, M. (2003), "Definitions of Foreign Direct Investment (FDI): A Methodological Note," Banco de Espana, mimeo (July).

Eichengreen, B. and H. Tong (2007), "Is China's FDI Coming at the Expense of Other Countries?" *Journal of Japanese and International Economics*, 21: 153-72.

Eichengreen, B. and D. Leblang (2006), "Democracy and Globalization," NBER Working Paper No.2006, Cambridge MA: National Bureau of Economic Research.

Froot, K. A. and J. C. Stein (1991), "Exchange Rates and Foreign Direct Investment: An Imperfect Capital Markets Approach," *Quarterly Journal of Economics*, 106: 1191-217.

Gao, T. (2003), "Ethnic Chinese Networks and International Investment: Evidence from Inward FDI in China," *Journal of Asian Economics*, 14: 611-29.

Gao, T. (2005), "Foreign Direct Investment in China: How Big are the Roles of Culture and Geography?" *Pacific Economic Review*, 10: 153-66.

Gopinath, S. (2007), "Overseas Investments by Indian Companies: Evolution of Policy and Trends," keynote address at the International Conference on Indian Cross-border Presence/Acquisitions (Mumbai, January 19).

Hausman, R. and E. Fernández-Arias (2000), "Foreign Direct Investment: Good Cholesterol?" Working Paper No.417, Inter-American Development Bank.

Head, K. and J. Ries (2008), "FDI as an Outcome of the Market for Corporate Control: Theory and Evidence," *Journal of International Economics*, 74: 2-20.

Hiratsuka, D. (2006), "Outward FDI from and Intraregional FDI in ASEAN: Trends and Drivers," Discussion Paper No.77, Tokyo, Japan: Institute of Developing Economies.

Hur, J., R. A. Parinduri and Y. E. Riyanto (2007), "Cross-border M&A Inflows and the Quality of Institutions: A Cross-country Panel Data Analysis," Working Paper No. 2007/08, Singapore Centre for Applied and Policy Economics, National University of Singapore.

International Monetary Fund (IMF) (2003), *Foreign Direct Investment Statistics: How Countries Measure FDI 2001*, IMF: Washington, DC.

Jaumotte, F. (2004), "Foreign Direct Investment and Regional Trade Agreements: The Market Size Effect Revisited,"IMF Working Paper No.04/206, Washington D.C.: International Monetary Fund.

Kwan, N. and F. Cheung (2006), "Asia Focus: Intra-Asia Investment Reinforces Integration," Standard Chartered, June 21.

Lipsey, R. E. (1999), "The Location and Characteristics of U.S. Affiliates in Asia," NBER Working Paper No.6876, Cambridge MA: National Bureau of Economic Research.

La Porta, R., F. Lopez-De-Silan, A. Schleifer and R. Vishny (1996), "Law and Finance," NBER Working Paper No.5661, Cambridge MA: National Bureau of Economic Research.

Liu, L. G., K. Chow and U. Li (2007), "Determinants of Foreign Direct Investment in East Asia: Did China Crowd Out FDI from Her Developing East Asian Neighbours?" *China and the World Economy*, May-June: 70-88.

Loungani, P., A. Mody and A. Razin (2002), "The Global Disconnect: The Role of Transactional Distance and Scale Economies in Gravity Equations," *Scottish Journal of Political Economy*, 18: 526-43.

Lunding, A. (2006), "Global Champions in Waiting: Perspectives on China's Overseas Direct on Direct Investment," Deutsche Bank Research, August 4.

Mercereau, B. (2005), "FDI Flows to Asia: Did the Dragon Crowd Out the Tigers?" IMF Working Paper No.05/189, Washington D.C.: International Monetary Fund.

Pardhan, J. P. (2005), "Outward Foreign Direct Investment from India: Recent Trends and Patterns," Working Paper No.153, Gujarat Institute of Development Research.

Portes, R. and H. Rey (2005), "The Determinants of Cross-border Equity Flows," *Journal of International Economics*, 65: 269-96.

Razin, A., Y. Rubinstein and E. Sadka (2003), "Which Countries Export FDI, and How Much?" NBER Working Paper No.10145, Cambridge MA: National Bureau of Economic Research.

Rose, A. K. and M. M. Spiegel (2006), "Offshore Financial Centers: Parasites or Symbionts?" mimeo (April 4).

Santos Silva, J. M. C. and S. Tenreyo (2006), "The Log of Gravity," *Review of Economics and Statistics*, 88: 641-58.

Sauvant, K. P. (2005), "New Sources of FDI: The BRICs," *The Journal of World Investment and Trade*, 6: 639-711.

Stein, E. and C. Daude (2007), "Longitude Matters: Time Zones and the Location of Foreign Direct Investment," *Journal of International Economics*, 71: 96-112.

Sudsawasd, S. and S. Chaisrisawatsuk (2006), "Tigers and Dragons against Elephants: Does the Rising Chinese and Indian Share in Trade and Foreign Direct Investment Crowd out Thailand and other ASEAN Countries?" *Asia-Pacific Trade and Investment Review*, 2: 93-114.

The Economist (2006), "The Dragon Tuck in," June 30.

Tong, S. Y. (2005), "Ethnic Networks in FDI and the Impact of Institutional Development," *Review of Development Economics*, 9: 563-80.

UNCTAD (2006), *World Investment Report 2006*, UN: New York and Geneva.

UNCTAD (2007), "Rising FDI into China: The Facts Behind the Numbers," *Investment Brief No.2*, UNCTAD.

Wei, S. J. (2000), "How Taxing is Corruption to International Investors?" *Review of Economics and Statistics*, 82: 1-11.

World Bank (2006), *Global Development Finance*, New York: Oxford University Press.

Levy Yeyati, E., E, Stein and C. Daude (2002), "The FTAA and the Location of FDI," Inter-American Development Bank (IADB), mimeo (December).

Zoromé, A. (2007), "Concept of Offshore Financial Centers: In Search of an Operational Definition," IMF Working Paper No.07/87, Washington D.C.: International Monetary Fund.

Table 1. Distribution of FDI by Region and Selected Countries, 1980-2005 (In Percent)

Region	Inward Stock				Outward Stock			
	1980	1990	2000	2005	1980	1990	2000	2005
Developed Economies	75.6	79.3	68.5	70.3	87.3	91.7	86.2	86.9
European Union	42.5	42.9	37.6	44.4	37.2	45.2	47.1	51.3
Japan	0.6	0.6	0.9	1.0	3.4	11.2	4.3	3.6
United States	14.8	22.1	21.7	16.0	37.7	24.0	20.3	19.2
Developing Economies	24.4	20.7	30.3	27.2	12.7	8.3	13.5	11.9
Africa	6.9	3.3	2.6	2.6	1.3	1.1	0.7	0.5
Latin America and the Caribbean	7.1	6.6	9.3	9.3	6.5	3.4	3.3	3.2
Asia	10.5	10.8	18.4	15.4	2.9	3.8	9.5	8.2
West Asia	1.4	2.2	1.1	1.5	0.3	0.4	0.2	0.3
South, East and South-East Asia	8.8	8.5	17.2	13.8	2.5	3.4	9.3	7.6
South-East Europe and CIS	-	0.01	1.2	2.5	-	0.01	0.3	1.2
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Region	Inflow				Outflow			
	1978-1980	1988-1990	1998-2000	2003-2005	1978-1980	1988-1990	1998-2000	2003-2005
Developed Economies	79.7	82.5	77.3	59.4	97.0	93.1	90.4	85.8
European Union	39.1	40.3	46.0	40.7	44.8	50.6	64.4	54.6
Japan	0.4	0.04	0.8	0.8	4.9	19.7	2.6	4.9
United States	23.8	31.5	24.0	12.5	39.7	13.6	15.9	15.7
Developing Economies	20.3	17.5	21.7	35.9	3.0	6.9	9.4	12.3
Africa	2.0	1.9	1.0	3.0	1.0	0.4	0.2	0.2
Latin America and the Caribbean	13.0	5.0	9.7	11.5	1.1	1.0	4.1	3.5
Asia	5.3	10.5	11.0	21.4	0.9	5.6	5.1	8.6
West Asia	-1.6	0.3	0.3	3.0	0.3	0.5	0.1	1.0
South, East and South-East Asia	6.7	10.0	10.7	18.4	0.6	5.1	5.0	7.7
South-East Europe and CIS	0.0	0.02	0.9	4.7	-	0.01	0.2	1.8
World	100.0	100.0	99.9	100.0	100.0	100.0	100.0	100.0

Source: UNCTAD FDI/TNC database.

Table 2. FDI Inflows and Outflows of Selected Asian Countries (In Billions of US Dollars)

Country	1990-1996	1997-2005	1997	1998	1999	2000	2001	2002	2003	2004	2005
Inflows											
World	*248.30*	*816.23*	*489.71*	*712.03*	*1,099.92*	*1,409.57*	*832.25*	*617.73*	*557.87*	*710.75*	*916.28*
Asia (excluding Japan)	*51.31*	*114.56*	*100.40*	*91.06*	*108.66*	*143.83*	*103.99*	*88.61*	*93.72*	*137.02*	*163.72*
New Industrial Asia	*9.18*	*21.55*	*18.64*	*12.60*	*29.13*	*30.06*	*23.62*	*11.83*	*14.72*	*24.45*	*28.91*
Korea	2.34	5.75	2.64	5.07	9.63	8.65	3.87	3.04	3.89	7.73	7.20
Singapore	5.89	13.60	13.75	7.31	16.58	16.48	15.65	7.34	10.38	14.82	20.08
Taiwan POC	0.95	2.21	2.25	0.22	2.93	4.93	4.11	1.45	0.45	1.90	1.63
China	*25.00*	*76.40*	*56.63*	*60.23*	*64.90*	*102.64*	*70.65*	*62.42*	*67.13*	*94.66*	*108.30*
China: Mainland	20.43	50.88	45.26	45.46	40.32	40.71	46.88	52.74	53.51	60.63	72.41
Hong Kong SAR	4.57	25.52	11.37	14.76	24.58	61.92	23.78	9.68	13.62	34.03	35.90
ASEAN-4	*8.48*	*8.50*	*16.13*	*11.72*	*9.37*	*4.83*	*1.66*	*5.84*	*4.32*	*8.62*	*14.05*
Indonesia	2.71	0.19	4.68	-0.24	-1.87	-4.55	-2.98	0.15	-0.60	1.90	5.26
Malaysia	3.62	3.50	6.32	2.71	3.90	3.79	0.55	3.20	2.47	4.62	3.97
Philippines	0.92	1.17	1.25	1.75	1.25	2.24	0.20	1.54	0.49	0.69	1.13
Thailand	1.23	3.63	3.88	7.49	6.09	3.35	3.89	0.95	1.95	1.41	3.69
South Asia	*2.44*	*5.90*	*5.34*	*3.87*	*3.21*	*4.65*	*6.38*	*6.97*	*5.70*	*7.29*	*9.75*
India	1.38	4.42	3.62	2.63	2.17	3.59	5.47	5.63	4.59	5.47	6.60
Pakistan	0.34	0.79	0.71	0.51	0.53	0.31	0.38	0.82	0.53	1.12	2.18
Sri Lanka	0.09	0.23	0.43	0.15	0.20	0.17	0.17	0.20	0.23	0.23	0.27
Bangladesh	0.63	0.47	0.58	0.58	0.31	0.58	0.35	0.33	0.35	0.46	0.69
Outflows											
World	*269.72*	*776.31*	*483.14*	*694.40*	*1,108.17*	*1,244.47*	*764.20*	*539.54*	*561.10*	*813.07*	*778.73*
Asia (excluding Japan)	*29.14*	*50.05*	*51.23*	*31.69*	*39.87*	*80.69*	*48.35*	*33.76*	*21.15*	*76.11*	*67.63*
New Industrial Asia	*8.92*	*16.87*	*20.60*	*10.74*	*16.62*	*17.62*	*28.07*	*9.79*	*12.25*	*20.32*	*15.86*
Korea	2.25	3.98	4.45	4.74	4.20	5.00	2.42	2.62	3.43	4.66	4.31
Singapore	3.62	7.40	10.90	2.16	8.00	5.92	20.17	2.29	3.14	8.51	5.52
Taiwan POC	3.05	5.49	5.24	3.84	4.42	6.70	5.48	4.89	5.68	7.15	6.03
China	*17.21*	*29.22*	*26.97*	*19.62*	*21.14*	*60.27*	*18.23*	*19.98*	*5.34*	*47.52*	*43.87*
China: Mainland	2.32	3.36	2.56	2.63	1.77	0.92	6.89	2.52	-0.15	1.81	11.31
Hong Kong SAR	14.89	25.85	24.41	16.98	19.37	59.35	11.35	17.46	5.49	45.72	32.56
ASEAN-4	*2.94*	*2.96*	*3.57*	*1.20*	*1.98*	*2.28*	*0.60*	*2.26*	*2.17*	*6.17*	*6.44*
Indonesia	0.91	0.80	0.18	0.04	0.07	0.15	0.13	0.18	0.01	3.41	3.07
Malaysia	1.44	1.73	2.68	0.86	1.42	2.03	0.27	1.90	1.37	2.06	2.97
Philippines	0.16	0.17	0.14	0.16	0.13	0.13	-0.14	0.07	0.30	0.58	0.16
Thailand	0.43	0.26	0.58	0.13	0.35	-0.02	0.35	0.11	0.49	0.13	0.25
South Asia	*0.07*	*1.00*	*0.10*	*0.11*	*0.13*	*0.52*	*1.45*	*1.72*	*1.38*	*2.09*	*1.46*
India	0.07	0.95	0.11	0.05	0.08	0.51	1.40	1.68	1.33	2.02	1.36
Pakistan	0.00	0.03	-0.02	0.05	0.02	0.01	0.03	0.03	0.02	0.06	0.04
Sri Lanka	0.00	0.01	0.01	0.01	0.02	0.00	0.00	0.01	0.03	0.01	0.04
Bangladesh	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.01	0.01

Sources: UNCTAD FDI/TNC database.

Table 3. Correlations Between Inflows and Outflows to and from Asia

Country	1990-96	1997-05
Asia	*1.0*	*0.9*
Newly Industrialized Asia	*0.9*	*0.5*
Korea	-0.4	0.6
Singapore	0.9	0.5
Taiwan POC	0.1	0.4
China	*1.0*	*0.8*
China: Mainland	0.2	0.6
Hong Kong SAR	0.9	0.9
ASEAN-4	*0.8*	*0.5*
Indonesia	0.1	0.6
Malaysia	0.9	0.8
Philippines	0.7	-0.1
Thailand	0.8	0.1
South Asia	*0.4*	*0.8*
India	0.8	0.9
Pakistan	0.4	0.4
Sri Lanka	0.8	0.1
Bangladesh	-0.4	-0.1

Sources: Authors calculation

Table 4. Average of Intra-Asian Bilateral FDI Outward Flows (In Millions of US Dollars, unless Otherwise Noted)

	Host region 1/					
		(1997-00)			(2001-05)	
Source countries	Asia 2/	In percent of Asia	In percent of World	Asia 2/	In percent of Asia	In percent of World
Newly Industrialized Asia	*11,051.3*	*28.7*	*1.2*	*9,490.7*	*27.0*	*1.4*
Korea	656.4	1.7	0.1	276.8	0.8	0.0
Singapore	7,018.5	18.2	0.8	5,197.2	14.8	0.8
Taiwan POC	3,376.5	8.8	0.4	4,016.6	11.4	0.6
ASEAN-4	*1,101.2*	*2.9*	*0.1*	*1,129.2*	*3.2*	*0.2*
Indonesia	254.9	0.7	0.0	194.5	0.6	0.0
Malaysia	376.6	1.0	0.0	433.3	1.2	0.1
Philippines	180.4	0.5	0.0	263.8	0.8	0.0
Thailand	289.3	0.8	0.0	237.6	0.7	0.0
China	*26,226.6*	*68.2*	*2.8*	*24,436.0*	*69.6*	*3.6*
Mainland China	7,356.8	19.1	0.8	5,651.7	16.1	0.8
Hong Kong SAR	18,869.8	49.1	2.0	18,784.3	53.5	2.8
India	*43.9*	*0.1*	*0.0*	*34.9*	*0.1*	*0.0*
Low Income Asia	*10.7*	*0.0*	*0.0*	*5.5*	*0.0*	*0.0*
Bangladesh	0.2	0.0	0.0	0.5	0.0	0.0
Cambodia	0.5	0.0	0.0	3.1	0.0	0.0
Lao PDR	2.6	0.0	0.0	-0.5	0.0	0.0
Myanmar	4.7	0.0	0.0	2.2	0.0	0.0
Sri Lanka	2.7	0.0	0.0	0.2	0.0	0.0
Vietnam	0.0	0.0	0.0	0.0	0.0	0.0
Other Asia	*26.4*	*0.1*	*0.0*	*17.4*	*0.0*	*0.0*
Pakistan	1.4	0.0	0.0	6.2	0.0	0.0
Brunei Darussalam	25.1	0.1	0.0	11.1	0.0	0.0
Developing Asia 3/	*27,408.9*	*71.3*	*3.0*	*25,623.0*	*73.0*	*3.8*
Asia 2/	**38,460.2**	**100.0**	**4.1**	**35,113.6**	**100.0**	**5.2**

Source: UNCTAD FDI/TNC database.

1/ Asia data is based on FDI inflow data in host economy; world data is based on FDI outflow from donor economy.

2/ Asia consists of Newly Industrialized Asia, ASEAN-4, China, India, Low Income Asia, and Other Asia.

3/ Developing Asia consists of ASEAN-4, China, India, Low Income Asia, and Other Asia.

Table 5. Average Intra-Asian Bilateral FDI Outward Flows 1/ (In Millions of US Dollars)

	Host region					
	(1997-00)			(2001-05)		
Donor region	East Asia 2/	South-East Asia 3/	South Asia 4/	East Asia 2/	South-East Asia 3/	South Asia 4/
East Asia 2/	28,453.6	1,604.2	201.6	27,482.5	1,168.1	78.9
South-East Asia 3/	6,328.7	1,748.2	86.6	3,622.3	2,641.7	111.1
South Asia 4/	0.0	43.4	5.2	0.0	27.9	14.6
Rest of the world	45,393.3	20,845.5	3,971.4	49,070.8	20,403.7	4,060.3

Source: UNCTAD FDI/TNC database.

1/ Based on FDI inflow data in host economy.

2/ East Asia consists of China, Hong Kong SAR, Korea, Taiwan POC, Macau SAR, and Mongolia.

3/ South-East Asia consists of Brunei Darussalam, Cambodia, Lao PDR, Malaysia, Myanmar, Singapore, Philippines, Thailand, and Vietnam.

4/ South Asia consists of Bangladesh, India, Maldives, Sri Lanka, and Pakistan.

Table 6. Top 50 Bilateral Flow Between Asian Countries 1/ (In Million of U.S. Dollars)

Donor	Host	Average (1997-00)	Average (2001-05)	In percent to Asia (1997-00)	In percent to Asia (2001-05)
Hong Kong SAR	China	17,750.8	17,819.1	46.2	50.7
China	Hong Kong SAR	7,266.9	5,459.4	18.9	15.5
Singapore	China	2,706.3	2,136.7	7.0	6.1
Singapore	Hong Kong SAR	2,835.3	353.1	7.4	1.0
Singapore	Malaysia	844.1	1,133.8	2.2	3.2
Singapore	Thailand	441.7	1,381.9	1.1	3.9
Malaysia	China	290.8	316.7	0.8	0.9
Hong Kong SAR	Malaysia	272.3	296.5	0.7	0.8
Hong Kong SAR	Thailand	360.1	160.8	0.9	0.5
Korea	Hong Kong SAR	313.0	155.7	0.8	0.4
Thailand	China	185.8	183.7	0.5	0.5
Philippines	China	135.9	212.2	0.4	0.6
Hong Kong SAR	Singapore	250.1	81.9	0.7	0.2
Malaysia	Hong Kong SAR	62.0	147.2	0.2	0.4
Singapore	Philippines	88.9	76.1	0.2	0.2
Hong Kong SAR	Korea	79.2	51.5	0.2	0.1
Thailand	Hong Kong SAR	-3.1	110.7	0.0	0.3
Hong Kong SAR	Philippines	50.0	54.4	0.1	0.2
Singapore	India	22.0	67.6	0.1	0.2
China	Singapore	-17.3	99.9	0.0	0.3
China	Philippines	71.8	-0.1	0.2	0.0
India	Singapore	36.8	24.9	0.1	0.1
Philippines	Thailand	4.9	48.4	0.0	0.1
China	Cambodia	18.3	33.4	0.0	0.1
Malaysia	Cambodia	24.9	16.7	0.1	0.0
Malaysia	Thailand	19.4	21.2	0.1	0.1
Singapore	Cambodia	19.6	12.9	0.1	0.0
Thailand	Cambodia	19.1	13.4	0.0	0.0
Philippines	Malaysia	6.3	18.7	0.0	0.1
Malaysia	Bangladesh	5.1	19.4	0.0	0.1
Philippines	Singapore	37.5	-15.6	0.1	0.0
Thailand	Malaysia	10.2	11.1	0.0	0.0
Malaysia	Lao PDR	17.4	0.9	0.0	0.0
Thailand	Lao PDR	15.2	1.9	0.0	0.0
China	Malaysia	11.5	5.1	0.0	0.0
Pakistan	Bangladesh	1.3	10.7	0.0	0.0
China	Thailand	0.4	10.8	0.0	0.0
China	Lao PDR	3.9	6.6	0.0	0.0
Malaysia	Philippines	6.5	2.4	0.0	0.0
Singapore	Myanmar	0.0	8.7	0.0	0.0
Thailand	Myanmar	0.0	5.6	0.0	0.0
Myanmar	Singapore	4.1	1.1	0.0	0.0
China	Myanmar	0.0	4.7	0.0	0.0
Thailand	Philippines	3.0	0.8	0.0	0.0
Singapore	Lao PDR	1.0	2.3	0.0	0.0
Cambodia	Thailand	0.6	2.7	0.0	0.0
China	Bangladesh	1.2	1.0	0.0	0.0
Lao PDR	Thailand	2.3	-0.4	0.0	0.0

Source: UNCTAD FDI database

1/ Based on FDI inflow data in host economy.

Table 7. Established Trade Agreements between Emerging Asia between 1990 to 2005 1/

RTAs	BTAs
AFTA (ASEAN Free Trade Area, 1992, 1993)	India - Sri Lanka (1998, 2000)
SAPTA (SAARC Preferential Trading Arrangement, 1993, 1995)	China - Hong Kong SAR (2003, 2004)
PICTA (Pacific Island Countries Trade Agreement, 2001, 2001)	China - Thailand (2004, 2004)
	India - Thailand (2004, 2004)
	India - Singapore (2005, 2006)
	Pakistan - Sri Lanka (2005, 2005)

Source: World Trade Organization

1/ The first year in the bracket is the year when FTA was signed; and, the second year is the year that the FTA came into force.

Table 8. Gravity Equation 1/ 2/ 3/

Dependent variable: Ln of bilateral real FDI outflows	Regression (1)	Regression (2)	Regression (3)	Regression (4)
ln(real GDP i)	2.722***	2.172**	2.246**	1.956**
	(0.953)	(0.940)	(0.941)	(0.932)
ln(real GDP j)	3.087***	2.334***	1.670**	2.929***
	(0.690)	(0.692)	(0.729)	(0.718)
Common language	0.245	0.235	0.204	0.129
	(0.254)	(0.247)	(0.245)	(0.242)
ln distance	-0.809***	-0.447***	-0.445***	-0.354**
	(0.137)	(0.164)	(0.164)	(0.157)
Difference in real GDP per capita of i and j		0.000***	0.000***	0.000***
		(0.000)	(0.000)	(0.000)
Lag ln real export of goods from i to j		0.421***	0.417***	0.315***
		(0.096)	(0.098)	(0.105)
Change in real exchange rate of i to j		-0.039***	-0.036***	-0.036***
		(0.011)	(0.010)	(0.011)
Stock market capitalization to GDP in j			0.004**	0.004**
			(0.002)	(0.002)
Financial openness in j			0.325**	0.387**
			(0.134)	(0.158)
Corporate tax in j				-0.094*
				(0.049)
Political risk in j				0.046*
				(0.026)
Legal origin of UK in j				20.833***
				(4.310)
Free trade agreement between i and j				0.680***
				(0.253)
Observations	676	673	673	673
Adjusted R-squared	0.72	0.74	0.74	0.74

Notes: 1/ Robust standard error in parentheses.

2/ * significant at 10%; ** significant at 5%; *** significant at 1%.

3/ Year dummies, host/source country dummies, inverse Mills' ratio, and constant are not shown.

Source: Authors calculation

Table 9. Robustness Checks 1/ 2/ 3/

Dependent variable: Ln of bilateral real FDI outflows	Regression (5)	Regression (6)	Regression (7)	Regression (8)	Regression (9)
Robustness test	With HKG is CHN in post-1997	With same country-- CHN-HKG, HKG-CHN, TWN-CHN	Divestment in i to j becomes investment in j to i	Dropping all the missing variable	Dependent variable as ln (1+ FDI)
Econometric methodology	Two-stage tobit	Two-stage tobit	Two-stage tobit	Pooled OLS	Pooled OLS
ln(real GDP i)	1.831**	1.347	1.939**	1.676*	1.209**
	(0.921)	(0.905)	(0.932)	(0.888)	(0.540)
ln(real GDP j)	2.466***	1.998***	2.913***	2.977***	0.481
	(0.741)	(0.713)	(0.720)	(0.721)	(0.665)
Common language	0.116	-0.061	0.131	0.121	0.692***
	(0.242)	(0.232)	(0.242)	(0.243)	(0.164)
ln distance	-0.456***	-0.290*	-0.358**	-0.392**	-0.177
	(0.161)	(0.149)	(0.158)	(0.158)	(0.117)
Difference in real GDP per capita of i and j	0.000***	0.000***	0.000***	0.000***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Lag ln real export of goods from i to j	0.264**	0.405***	0.315***	0.282***	0.212***
	(0.105)	(0.089)	(0.105)	(0.106)	(0.082)
Change in real exchange rate of i to j	-0.038***	-0.038***	-0.036***	-0.040***	-0.027***
	(0.011)	(0.011)	(0.011)	(0.013)	(0.010)
Stock market capitalization to GDP in j	0.003*	0.004**	0.004**	0.003	0.007***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
Financial openness in j	0.382**	0.392**	0.380**	0.428***	0.066
	(0.158)	(0.160)	(0.158)	(0.158)	(0.104)
Corporate tax in j	-0.089*	-0.097**	-0.093*	-0.070	-0.049
	(0.049)	(0.047)	(0.049)	(0.047)	(0.030)
Political risk in j	0.038	0.036	0.047*	0.026	0.042***
	(0.026)	(0.025)	(0.026)	(0.023)	(0.014)
Legal origin UK in j	17.928***	14.941***	20.736***	20.512***	1.058**
	(4.439)	(4.270)	(4.317)	(4.337)	(0.528)
Free trade agreement between i and j	0.196	-0.704**	0.683***	0.621**	0.883***
	(0.270)	(0.329)	(0.254)	(0.251)	(0.230)
Same country 4/		3.197***			
		(0.469)			
Hong Kong Post- 1997	2.014***				
	(0.517)				
Observations	673	673	673	673	1,292
Adjusted R- squared	0.75	0.76	0.74	0.74	0.54

Notes: 1/ Robust standard error in parentheses.

2/ * significant at 10%; ** significant at 5%; *** significant at 1%.

3/ Year dummies, host/source country dummies, inverse Mills' ratio, and constant are not shown.

4/ Same country is a dummy variable for country-pair China – Hong Kong SAR and China – Taiwan POC.

Source: Authors calculation

Table A1. Variables Included in the Dataset

Variables	Source
FDI Inflows	UNCTAD FDI/TNC database
Real GDP in US dollar	World Development Indicators, World Bank
Real GDP per capita in US dollar	World Development Indicators, World Bank
Consumer price indices	International Financial Statistics, IMF
Exports of goods	Direction of Trade Statistics, IMF
Nominal Bilateral Exchange Rate	International Financial Statistics, IMF
Market capitalization of listed companies	World Development Indicators, World Bank
Distance	CEPII
Common Official Language	CEPII
Political risk	ICRG
Corporate tax rate	KPMG Indirect and Corporate Tax Survey, and OTPR's World Tax Database
Trade agreements	WTO website
Financial Openness	Menzie Chinn and Hiro Ito Index

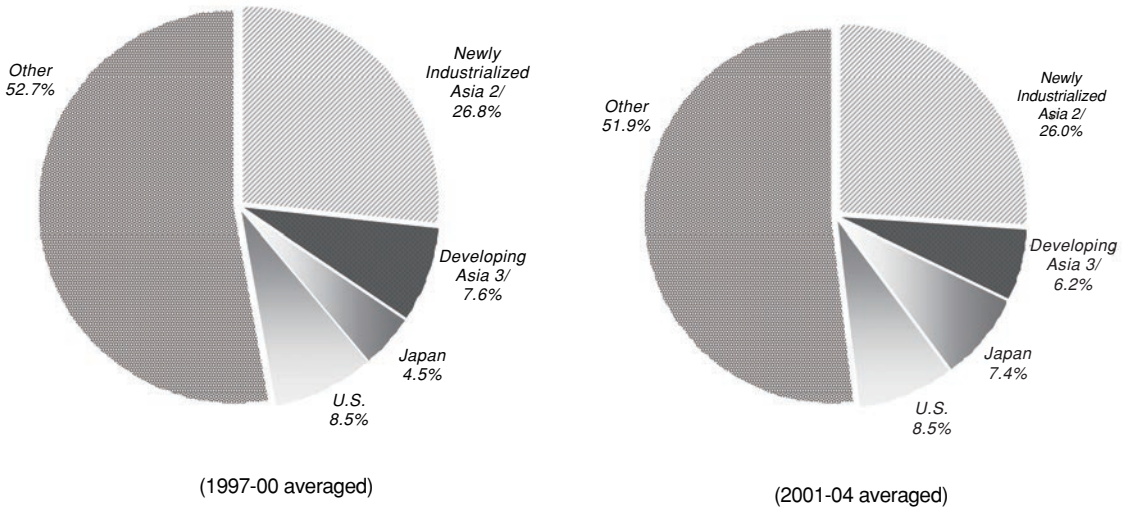
Table A2. Source and Host Economies in the Dataset

Source	Host
Bangladesh	Bangladesh
China (Mainland)	China (Mainland)
Hong Kong, SAR	Hong Kong, SAR
India	India
Indonesia	Korea
Korea	Malaysia
Malaysia	Pakistan
Pakistan	Philippines
Philippines	Singapore
Singapore	Thailand
Sri Lanka	
Taiwan, POC	
Thailand	
Vietnam	

Table A3. Summary of Statistics

Variable	Units	Observation	Mean	Std. Dev.	Min	Max
Bilateral FDI flows from i to j	U.S.$ millions	724	568.6	2,508.4	-1,274.8	20,677.0
Real GDP country i	U.S.$ billions	1,296	238.1	295.0	9.8	1,889.9
Real GDP country j	U.S.$ billions	1,296	244.8	380.5	29.5	1,889.9
Real GDP per capita country i	U.S.$	1,296	7,404.4	8,747.6	226.9	30,009.6
Real GDP per capita country j	U.S.$	1,296	6,361.5	8,819.9	283.3	30,009.6
Common official language	Dummy, 1=yes 0=no	1,296	0.3	0.5	0.0	1.0
Distance	Kilometers	1,296	2,783.5	1,260.1	315.5	5,220.9
Lag exports from i to j	U.S.$ millions	1,294	3,504.3	9,322.1	0.0	114,180.4
Bilateral nominal exchange rate of i w.r.t. j	Nominal	1,296	4.5	15.6	0.0	180.9
Average consumer price indices of i per year	Index with 2000 = 100	1,296	88.9	22.1	23.9	155.9
Average consumer price indices of j per year	Index with 2000 = 100	1,296	89.6	18.5	41.9	129.8
Average U.S. consumer price index for urban consumer per year	Index with 1996 = 100	1,296	103.5	14.5	83.3	128.5
Lag of market capitalization of listed companies in i	Percent of GDP	1,296	82.2	96.2	0.0	519.5
Market capitalization of listed companies in j	Percent of GDP	1,296	96.8	105.0	0.0	566.0
Average corporate tax in i	Percent	1,296	31.3	7.2	16.0	55.0
Political risk index in i	100=min; 0=max	1,296	66.6	12.3	29.3	89.1
Legal origin British common law system	Dummy, 1=yes 0=no	1,296	0.6	0.5	0.0	1.0
Free trade agreements	Dummy, 1=yes 0=no	1,296	0.2	0.4	0.0	1.0
Financial Openness Index	1.06=min; 2.62=max	1,296	0.3	1.5	-1.8	2.6

Figure 1. Source of FDI Inflows to Asia[1/]



Source: UNCTAD

1/ Asia consists of Newly Industrialized Asia, ASEAN-4, China, India, Low Income Asia, and Other Asia.

2/ Newly Industrialized Asia consists of Korea and Singapore; and, Developing Asia consists of ASEAN-4, China, India, Low Income Asia, and Other Asia.

3/ Developing Asia consists of ASEAN-4, China, India, Low Income Asia, and Other Asia.