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The Role of South-South FDI in the Economies of Developing Asia

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Robert E. Lipsey and Fredrik Sjöholm
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Contents

Abstract

This paper attempts to measure the size of South–South foreign direct investment (FDI) in developing East Asia and the trends in it, and the characteristics of the investing countries and the investments themselves. It also summarizes the findings of studies in individual countries of the effects of these investments. The studies of individual countries will be used to try to find some consensus on differences between South–South FDI and North–South FDI. Among the comparisons of the two types of FDI we try to summarize are findings about their industrial composition; their effects on their host countries; and their host-country firms' productivity, wages, and employment, and explore how these differ across industries. Our analysis shows that the increased presence of South FDI in East and Southeast Asia might have different effects on host economies from those of FDI from the North.

I. Introduction

The rising importance of South–South foreign direct investment (FDI) from developing countries to other developing countries was heralded in United Nations (2006), and that new importance was emphasized by the fact that outflows from developing and transition countries were less affected by the 2009 contraction in FDI flows than those from developed countries (United Nations 2010, xix). FDI flows to developed countries suffered the worst decline, possibly because affiliates in developed countries were more dependent on reinvested earnings as a source of growth in FDI stocks than affiliates in developing countries, particularly those relatively new ones owned by other developing countries. The latest United Nations Conference on Trade and Development (UNCTAD) *World Investment Report* predicts that the "… shift in foreign investment inflows towards developing and transition economies is expected to accelerate.…" (United Nations 2010, 3).

Considering the expected increase in the importance of FDI from developing to other developing countries, it is unfortunate that most studies examine FDI between developed countries (North–North FDI) or FDI from developed to developing countries (North–South FDI). This paper contributes to the literature by examining South–South FDI in Asia.

All firms, whether from South or North, need to have firm-specific assets to compete with local firms in foreign markets. There are many reasons why the competition might be more difficult for firms from the South than for those from the North. For instance, South firms tend to have weaker brand names and inferior technologies (Cuervo-Cazurra and Genc 2008). Moreover, host governments sometimes favor North FDI through subsidies and licenses because of the belief that they bring in more advanced technology and have access to a wider international distribution network (Stopford and Strange 1992).

However, it has been suggested that some other factors actually favor South FDI, at least in developing countries. More precisely, developing countries are typically characterized by relatively poor institutions. A lack of well-developed market mechanisms, poorly developed contracting and property rights, and poor infrastructure are obstacles that firms in developing countries need to address and overcome. The poor home market institutions will shape the business practices and organization of the firms. As Cuervo-Cazurra and Genc (2008) note below, once the developing country firms invest in other developing countries, their previous experience of working in a similar environment might turn out to be an advantage. The business practices and distribution networks will be well adapted to other developing countries.

Thus a source of relative disadvantage—having a home country with poorly developed institutions—becomes a source of relative advantage when the MNE moves into other countries with poor institutional environments (Cuervo-Cazurra and Genc 2008, 975).

Firms from developed countries are presumably less experienced at working in ill-functioning markets and might therefore face more difficulties entering into and growing in developing countries.

Differences in home country conditions might also lead to differences in their effects on the host economies. For instance, similarities in home and host countries in terms of culture and level of technology development might increase the potential for spillovers to local firms.

The main reason for differentiating North–South from South–South FDI in Asia is to learn how they differ, and how any differences, if we find them, determine the way they affect their host countries. This paper attempts to measure the size of South–South FDI and the trends in it, and the characteristics of the investing countries and the investments themselves. It also summarizes the findings of studies in individual countries of the effects of these investments. The studies of individual countries will be used to try to find some consensus on differences between South–South FDI and North–South FDI. Among the comparisons of the two types of FDI we will try to summarize will be findings about their industrial composition; their effects on their host countries and their host-country firms' productivity, wages, and employment; and how these differ across industries.

We find that a large share of FDI in developing Asia comes from developing countries in the region. There are signs of an increased importance of this South–South FDI but data problems make it difficult to detect the exact trend. We also find South–South FDI to differ substantially from North–South FDI: the investing firms tend to locate their affiliate operations in more labor-intensive industries, and their affiliates tend to be smaller in size and with lower productivity. The effects on the local economy from South–South and North–South FDI seem to differ depending on the country in question.

II. Trends in South–South FDI

A. Results from Balance of Payments Data

Data for the location and size of most countries' stocks of FDI have always been scarce, especially for past periods. The UNCTAD report on South–South FDI (United Nations 2006) is a starting point for estimates of the size of South–South FDI, particularly South–South FDI in Asia, based on balance of payments measures. For example, the report

announced that “Over half of the inflows to the region (South, East, and Southeast Asia) came from developing home countries, mostly within the region. The figures for inward stock show significant growth in the share of these sources …. to about 65% in 2004” (United Nations 2006, xx). Total outflows from developing and transition economies (excluding offshore financial centres) increased to $61 billion in 2004; most of these were destined for other developing or transition economies. As FDI of transition countries account for a very small proportion of these transactions, the estimate can also be used as a proxy for the size of South–South FDI. The bulk of South–South FDI (excluding offshore financial centres) is intra-regional in nature during the period 2000–2004, average annual intra-Asian flows amounted to an estimated $48 billion" (United Nations 2006, xxiv).

To place these numbers in perspective, we might note that total FDI inflows into South, East, and Southeast Asia in 2004, including flows from offshore financial centers (OFCs), amounted to $138 billion in 2004 (United Nations 2006, Appendix Table B.1). The inward stock in South, East, and Southeast Asia in 2005 was estimated to be $1,400 billion (United Nations 2006, Appendix Table B.2).

Table 1 shows that the share of developing Asia in the inward stock of FDI rose from 31% to 41% between 1991 and 2001, before falling back to 38% in 2008, according to these estimates. However, the share labeled as “Others”, which includes the OFCs as well as others not reporting, rose from 15% in 1991 to 32% in 2008. Since developed countries are more prone than developing countries to report their FDI, it also seems reasonable to suppose that most to the “Other” category was FDI from the latter group. That assumption would imply that about 70% of the FDI stock in developing Asia originated from developing countries.

Table 1: Major Sources of FDI to South, East, and Southeast Asia, 1991, 2001, and 2008

Country/Region of Origin	1991		2001		2008	
	Value ($ billion)	Share (%)	Value ($ billion)	Share (%)	Value ($ billion)	Share (%)
World	142	100	1,124	100	2,306	100
South, East, and Southeast Asia	43	31	462	41	875	38
PRC	0.6	0.4	125	11	307	13
NIEs	38	27	307	27	512	22
Others	21	14.7	306	27	735	32
OFCs[a]	0.7	0.5	204	18	349	15

FDI = foreign direct investment, NIEs = newly industrialized economies, OFCs = offshore financial centers, PRC = People's Republic of China.
Note: The OFCs are Bahamas, Bermuda, British Virgin Islands, and Cayman Islands.
Source: United Nations (2010, Table II.6).

Hattari and Rajan (2009) use similar balance of payments data using a different approach and examine bilateral FDI within developing Asia. They find that about 35% of FDI flows to developing Asia in the period 1990–2005 came from within the region. The

People's Republic of China (PRC) and Hong Kong, China and dominate both as host and home countries. For instance, FDI from Hong Kong, China to the PRC and vice-versa constituted, in the period 2001–2005, about two thirds of total bilateral FDI flows in developing Asia. Moreover, either the PRC or Hong Kong, China were16th of 20 largest bilateral FDI flows recipients.

A more specific measure of inflows to the Association of Southeast Asian Nations (ASEAN) since 2002 is given by the data from that organization (Table 2). The share of North–South FDI in inflows to that group of Southeast Asian countries was more than half from 2003 to 2006 and fell to around 43% in 2008 and 2009, but it is hard to conclude that there was a clear trend. The inclusion of FDI from major OFCs in 2007–2009, but not consistently earlier, suggests that their role was increasing, along with the ambiguities surrounding the ultimate origins of their FDI.

Table 2: Sources of FDI Inflows to ASEAN (percent)

Share	2002	2003	2004	2005	2006	2007	2008	2009
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
North	39.48	53.06	62.31	54.11	54.26	49.16	42.82	43.45
South	60.52	46.94	37.69	45.89	45.74	50.84	57.18	56.55
ASEAN	21.16	11.36	7.98	9.17	11.92	13.01	21.13	11.18
Other than ASEAN								
including OFCs	39.36	35.58	29.70	36.72	33.83	37.82	36.05	45.38
Other than ASEAN								
excluding OFCs	n.a.	33.14	22.08	n.a.	n.a.	31.30	26.63	34.83

ASEAN = Association of Southeast Asian Nations, FDI = foreign direct investment, OFCs = offshore financial centers.

Note: Regions are given as follows: Total: as reported; North: the sum of Australia, Canada, the EU, Japan, New Zealand, and the US; ASEAN: as reported; South other than ASEAN including OFCs: total minus (North and ASEAN); South other than ASEAN excluding OFCs: South other than ASEAN minus OFCs (when OFCs are available).

Sources: Statistics of Foreign Direct Investment in ASEAN (ASEAN 2007), Foreign Direct Investment Statistics (ASEAN 2011**).**

Some estimates by UNCTAD describe the country and regional composition of outward FDI flows for individual Asian countries. The estimates for the PRC since 2003 (Table 3) point to its increasing role as an investor in developing countries outside Asia, in developed countries, and in OFCs, for which the ultimate destination of the investment is not reported. The predominant role for East Asia has been reduced, but it remains still, by far, the main destination. The PRC was already principally a South–South investor in 2003 and continued in that role in 2008, but it had a greater weight in total world investment by the later year and therefore added more to the world total of such FDI.

Table 3: Outward FDI Stock: People's Republic of China, 2003 and 2008

Destination	2003	2008
Total	33,222	147,949
Total	33,222	183,971
Developed	1,492	10,700
Developing	31,731	173,271
Total minus OFCs	28,954	153,164
Total Asia	26,018	129,906
East Asia	25,329	119,271
South Asia	46	1,738
Southeast Asia	587	6,487
Other Asia	56	2,410
OFCs	4,268	30,807
Other, excluding developed	1,445	12,558

FDI = foreign direct investment, OFCs = offshore financial centers.
Source: UNCTAD website (available: unctadstat.unctad.org/).

The estimates for Hong Kong, China (Table 4) are notable for the extremely large share of the outward stock held in, or through, OFCs, and the extreme year-to-year changes in the aggregate. There was some increase in the share of holdings that were South–South FDI in the 10 years up to 2008, but the large share of FDI that was through OFCs, with unknown characteristics and unknown ultimate destinations, makes the trend questionable.

Table 4: Outward FDI Stock: Hong Kong, China, 1998, 2003, and 2008

Destination	1998	2003	2008
Total	223,811	339,649	762,038
Total	223,811	339,649	762,041
Developed	18,456	15,189	15,096
Developing	200,780	315,318	713,270
Total minus OFCs	105,579	163,291	408,993
Total Asia	79,606	135,845	354,855
East Asia	73,771	123,938	338,636
South Asia			
Southeast Asia	5,252	11,675	16,218
Unspecified South, East, and Southeast Asia	583	232	
Other Asia			
OFCs	118,232	176,358	353,048
Other, except developed	2,942	3,115	5,367
Unspecified	4,575	9,142	33,675

FDI = foreign direct investment, OFCs = offshore financial centers.
Source: UNCTAD website (available: unctadstat.unctad.org/).

For both Hong Kong, China and Singapore, the interpretation of outward FDI data is obscured by the fact that substantial portions of their FDI have been by firms based in other countries, both North and South. Low, Ramstetter, and Yeung (1998, 144) asserted that "…much of what the [Chinese] record as FDI from Hong Kong, [China] is in fact investment originating in local [Chinese] firms but circulated through Hong Kong, [China] in order to benefit from the incentives offered to foreign investors." Of Hong Kong, China-owned firms in Singapore, almost half the value added and more than half the output was by firms with ultimate owners outside Hong Kong, China (Low, Ramstetter, and Yeung 1998, 146). At least in the 1990s, "…classifying Hong Kong, [China]'s FDI by country of Ultimate beneficial owner greatly reduces such FDI, especially in Asia" (Low, Ramstetter, and Yeung 1998, 146–7).

FDI from Singapore, a major investor despite the country's small size, was split between about a quarter in developed countries, and three quarters in developing countries (Table 5). That division has not shown any trend over the 17 years for which data are available, and does not confirm any shift toward South–South FDI from this source.

Table 5: Outward Investment Stock: Singapore

Destination	1990	1995	2000	2007
Total	7,808	35,050	56,755	218,201
Total	7,808	35,050	56,755	206,461
Developed	2,136	9,016	10,503	53,262
Developing	5,673	26,034	46,252	153,199
Total minus OFCs	7,808	35,050	52,407	206,461
Total Asia	3,991	20,370	32,611	92,912
East Asia	1,720	7,887	17,435	44,985
South Asia	128	511	2,940	
Southeast Asia	2,045	12,186	13,541	43,181
Unspecified South, East, and Southeast Asia	62	218		
Other Asia				
Unspecified Asia	226	170	1,062	1,588
OFCs			4,348	
Other		4,292	5,879	36,583
Unspecified	1,682	1,372	3,414	23,704

FDI = foreign direct investment, OFCs = offshore financial centers.
Source: UNCTAD website (available: unctadstat.unctad.org/).

The other Asian country for which we have some data on the geographical division of outward FDI stocks is the Republic of Korea. Korean FDI shifted substantially from developed to developing countries between 1990 and 1995, and has continued to move in that direction since then, but only gradually (Table 6). The change since 1995 has been even more gradual if OFCs are excluded from the South–South FDI measure on the ground that the ultimate destination is unknown. Most of the Korean FDI in developing countries is in developing Asia.

Table 6: Outward Investment Stock: Republic of Korea

Destination	1990	1995	2000	2005
Total	2,301	10,231	26,833	38,680
Total	2,306	10,265	27,045	44,093
Developed	1,326	4,711	11,822	18,524
Developing	980	5,554	15,223	25,569
Total minus OFCs	2,305	10,255	25,467	42,274
Total Asia	697	4,544	10,967	19,750
East Asia	53	2,179	5,978	13,451
South Asia	31	204	757	936
Southeast Asia	566	1,994	3,928	5,083
Other Asia	47	167	304	281
OFCs	2	10	1,578	1,819
Other	282	970	2,517	3,630
Unspecified	0	30	161	369

FDI = foreign direct investment, OFCs = offshore financial centers.
Source: UNCTAD website (available: unctadstat.unctad.org/).

On the whole, the outward FDI data confirm the rise in importance of countries in the South, especially Asian countries, as recipients of FDI from other South countries, particularly from Asian countries. However, the extent of the growth in this share is obscured by deficiencies in the data, particularly the growth of indirect flows, including flows through tax havens.

Evidence from the inward FDI side is less available than from the outward side. One of the few countries for which the origin of inward flows is available is the Republic of Korea. About 23% of inward flows of FDI were from the South in the late 1980s. The South share virtually disappeared in 1990–1994, then returned to the late 1980s level in 1995–1999, and gradually increased to 28% in 2005–2009 (Table 7). Asia's share in this rising trend was volatile, reaching a peak in 1995–1999 that was not matched in the 5-year periods after that.

Table 7: Republic of Korea: Shares of World Areas in Inward FDI Stock (percent)

Year		South		
	North	Total	Asia	Total
1985–1989	77.15	22.85	2.91	100.0
1990–1994	99.21	0.79	1.56	100.0
1995–1999	78.02	21.98	18.56	100.0
2000–2004	74.37	25.63	11.31	100.0
2005–2009	71.87	28.13	8.36	100.0

Source: OECD Statistics (available: stats.oecd.org/index.aspx).

Another country that publishes the geographical distribution of sources of inward FDI stocks is Singapore. The share of developed countries barely changed from 1999 to 2004, but then fell from 74% to 64% percent by 2008 (Table 8). The share of developing Asia did not change substantially between 1999 and 2008, but there was a substantial growth of FDI from the Americas other than Canada and the United States (US). Unfortunately, that category includes the Caribbean OFCs, and the ultimate source of the FDI is therefore uncertain. It is therefore also uncertain whether the share of countries in the South as sources of FDI into Singapore increased at all.

Table 8: Singapore: Shares of World Areas in Inward FDI Stock (percent)

	1999	2004	2008
Total	100.0	100.0	100.0
North[a]	72.4	73.9	64.4
South			
Asia, excluding Japan[b]	11.2	8.9	12.6
Americas, excluding US and Canada[c]	15.5	15.0	20.3
Other[d]	.9	2.1	2.7

[a] Australia, Canada, Europe, Japan, New Zealand, and the United States.
[b] ASEAN; the People's Republic of China; Hong Kong, China; the Republic of Korea; Taipei,China.
[c] As in source: South and Central America and the Caribbean.
[d] As in source.
Source: *Foreign Equity Investment in Singapore* (Singapore Department of Statistics 2008).

An unusual set of inward FDI data is produced by Hong Kong, China, including a breakdown of inward FDI from OFCs, identifying "FDI from nonoperating companies in OFCs set up by Hong Kong, China companies for indirect channeling of funds" (Table 9). Since these inflows are from affiliates of Hong Kong, China companies themselves, their inclusion obscures the sources of inward direct investment. The data excluding these inflows exhibit a sharper decline in the share of FDI inflows from the North and a corresponding increase in the growth of the share of FDI inflows from the South.

Finally, Rao and Dhar (2011), examining sources of inward FDI into India, also found a shift toward South–South FDI, blurred by the usual ambiguities in the data. These shifts are summarized in Table 10, for several periods since 1991. The sources of inward FDI appear to have shifted markedly, with the share of developed countries (North–South FDI) declining from 46% and 47% in 1991–2000 and 2001–2004 to 28% in 2005–2009, and that of developing countries (South–South FDI) rising from 30% to two thirds. However, in the last period, FDI from Mauritius had risen to half the total inflows, and the share from all tax havens had risen from 40% to almost 70%, leaving the ultimate sources of the much increased inflow in doubt.

Table 9: Hong Kong, China: Shares of World Areas in Inward FDI Stock (percent)

	1999	2004	2009
A. Including All OFC FDI			
Total	100.0	100.0	100.0
North[a]	22.0	21.8	15.2
South	71.8	73.5	79.5
Asia, excluding Japan[b]	30.4	32.1	38.9
PRC	25.9	29.0	36.4
OFCs[c]	41.4	38.9	40.6
Others, including unknown	6.1	7.3	5.2
B. Excluding FDI from Nonoperating Companies in OFCs Set Up by Hong Kong, China Companies for Indirect Channeling of Funds			
Total	100.0	100.0	100.0
North[a]	34.2	29.9	20.9
South	57.2	60.7	72.2
Asia, excluding Japan[b]	47.2	44.0	53.3
PRC	40.1	39.7	49.8
OFCs[c]	10.0	16.7	18.9
Others, including unknown	8.6	9.3	7.0

FDI = foreign direct investment, OFCs = offshore financial centers.
[a] Australia, Japan, Netherlands, the UK, the US.
[b] People's Republic of China; Cook Islands; Singapore; Taipei,China.
[c] Bermuda, British Virgin Islands, Cayman Islands.

Table 10: Sources of FDI Inflows into India, 1991–2009 (percent of total)

	August 1991 to December 2000	2001–2004	2005–2009
Developed Countries[a]	46.54	46.49	28.23
Developing Countries[b]	30.40	41.90	67.11
Mauritius	31.51	38.81	49.62
Other Countries	19.10	11.81	9.20
Total	100.00	100.00	100.00
of which, Tax Havens	39.51	45.55	69.17

[a] Cyprus, France, Germany, Japan, Netherlands, the UK, the US.
[b] Mauritius, Singapore, United Arab Emirates
Source: Rao and Dhar (2011, Table 8).

B. Some Notes on Data Problems

There is some evidence that South–South FDI has become a larger part of the FDI universe, despite the weakness of much of the data from lack of reporting and from deliberate obscuring of the sources and direction of investment. The compilers, as well as the users, of the balance of payment data on FDI are aware that the flows often do

not originate from the countries to which they are attributed; do not enter the countries that are their supposed destinations; and if they do enter the declared destinations, do not remain in those destinations. They often represent bookkeeping entries in corporate accounts, but no economic activity such as the employment of labor, the production of goods and services, or the installation of capital assets.

For instance, UNCTAD's *World Investment Report*, which was focused on South–South FDI, included a "cautionary note" (United Nations 2006, 106) that pointed out some of the problems. For one thing, few developing countries report any data on outward FDI. Among those that do, important ones report their outward FDI as going to OFCs, which, when they transship the funds, are then reported as the sources of the investment. Furthermore, in some developing and transitional economies (e.g., the PRC; Hong Kong, China; the Russian Federation) "a significant amount of FDI takes the form of round tripping" (United Nations 2006, 106). In that case, the investment leaves the home country and returns to it quickly, never leaving the control of the home country firm, and never being used outside the home country.

Another problem is that FDI flows and stocks, as defined by the International Monetary Fund (IMF), include FDI by sovereign wealth funds (SWFs), mainly based in developing countries. While purchases of ownership shares of 10% or more meet the IMF definition of FDI in terms of the extent of ownership (10%)—United Nations (2010, 14) assumes that investments other than mergers and acquisitions are "extremely limited"—they are more akin to portfolio investment than to private FDI with respect to the characteristics ascribed to FDI in the literature. These include the parent firm's exploitation of its firm-specific advantages, acquired by experience in the industry, by production in the home country, and by R&D or advertising. The SWFs typically have no firm-specific advantages except large amounts of capital; they do not generally seek control of firms they invest in; and move in and out of industries in pursuit of higher returns (or smaller losses), much as private equity firms do.

FDI by SWFs was a small part of FDI from developing countries through 2004, but increased rapidly after that, reaching over 25 billion in 2009, over 10% of all FDI outflows from developing countries (United Nations 2010).

Finally, the reliance on balance of payments measures makes the role of financial centers important in measurement, since they are important in financial flows despite their lack of connection to productive activity. As pointed out in the UNCTAD report on the rise of South–South FDI (United Nations 2006), the top recipients of FDI from Hong Kong, China and Singapore included Bermuda and the British Virgin Islands; and FDI from the PRC included the Cayman Islands and the Virgin Islands. These flows would almost completely disappear from any measure based on the amount of economic activity involved.

The problems with balance of payments data on FDI limit the conclusions that can be reached with respect to sources of aggregate stocks and directions of flows. Partly for this reason, we focus most of our discussion below on data on real economic activities rather than on data on financial flows.

III. How do North–South and South–South FDI in Asia Differ?

A. Determinants of FDI

Few studies on determinants of FDI take into account whether the home country is a developed or a developing country. At best, existing studies examine if there are differences in determinants between FDI from North and South, and not how determinants of South–South FDI differ from determinants of North–North or North–South FDI. For instance, Ma and Van Assche (2011) examine determinants of FDI from OECD and non-OECD countries. Their results suggest that FDI from OECD countries is negatively affected by institutional differences between home and host countries. They also find economic differences to be negative influences on FDI, which they interpret as a negative effect from differences in consumer preferences. FDI from non-OECD countries is only affected by economic differences and not affected by differences in institutions.

Hattari and Rajan (2009) examine the determinants of bilateral FDI flow in developing Asia using a gravity model. There are only 17 countries included and a large share of bilateral FDI flows are recorded as nonexistent, which calls for some caution in interpreting their results. Determinants of FDI in East Asia are similar to what have been found for other regions and countries: large countries have large FDI inflows and outflows, and FDI flows decline with geographic distance. Moreover, bilateral FDI is complementary to exports and is also affected by changes in exchange rates, and by institutional factors such as financial market development, political risks, and the legal system.

B. Industry Distribution of FDI

A study of manufacturing in Thailand in the 1990s by Ramstetter (2004) divided foreign plants into:

(i) those from the European Union, Japan, and the US, which we call North

(ii) those from the Republic of Korea; Singapore; and Taipei,China which we call South

(iii) an “other” group, which we cannot identify

The numbers of plants that are part of the FDI from the two regions (Table 11) show a relatively high representation of FDI from the South in textiles, apparel, rubber products, metal products, and some machinery. However, FDI in motor vehicles and in chemicals and products was predominantly from the North.

Table 11: Thailand: Number of FDI Plants by Origin

	Origin of FDI											
	1996 Census				1998 Survey				2000 Survey			
	Total	N	S	Unknown	Total	N	S	Unknown	Total	N	S	Unknown
Food	25	16	3	6	31	19	5	7	30	18	5	7
Textiles	57	36	10	11	45	21	10	14	40	12	9	19
Apparel	34	14	7	13	64	28	7	29	31	16	1	14
Leather and footwear	25	10	11	4	13	3	4	6	15	3	11	1
Chemicals and products	58	47	5	6	57	42	7	8	49	44	1	4
Rubber products	47	30	10	7	61	42	11	8	58	47	6	5
Plastics and products	36	18	5	13	35	19	9	7	39	18	2	19
Nonmetallic mineral products	24	9	10	5	60	51	5	4	30	24	5	1
Metal products	60	32	11	17	50	35	10	5	56	35	17	4
General machinery	72	59	10	3	92	84	3	5	85	83	1	1
Electric machinery, etc.	90	63	20	7	93	65	22	6	89	78	10	1
Motor vehicles	89	88	0	1	93	92	1	0	91	89	2	0
Furniture	25	6	12	7	13	8	5	0	28	16	10	2
Jewelry	50	21	2	27	44	25	0	19	73	45	23	5
Other manufacturing	27	21	2	4	44	20	3	21	25	22	1	2

Source: Ramstetter (2004, Table 2).

An earlier study of non-oil manufacturing plants in Thailand in 1990, also by Ramstetter (1994), divided foreign-owned firms in Thailand into those based in developed economies and those based in developing economies (Table 12), and compared the industry distribution of sales between the two groups. The paper reported that the share in sales by firms from developing countries was particularly high in food; textiles and apparel; wood, paper, and printing; rubber and plastics; and the combination of precision machinery and miscellaneous manufactures. The share in sales of firms based in developed countries was especially larger in nonmetallic mineral products, nonelectric machinery, electrical machinery and computers, transport machinery (almost entirely Japanese firms), and nonmetallic mineral products.

Table 12: Thailand: Industry Distribution of Sales Non-oil Manufacturing Firms

Industry	Firms Based in			Developing Economies
	Japan	Other Developed Economies	All Developed Economies	
Non-oil Manufacturing	100.0	100.0	100.0	100.0
Food	4.7	22.0	12.1	19.1
Beverages, tobacco	0.0	7.4	3.1	0.3
Textiles, apparel, etc.	5.9	8.5	7.0	25.3
Wood, paper, printing	0.5	2.3	1.3	4.0
Chemicals	11.6	11.7	11.6	9.8
Rubber, plastics	2.7	2.6	2.7	10.8
Nonmetallic mineral products	1.6	10.0	5.2	0.6
Metals, metal products	10.6	4.4	7.9	8.2
Nonelectric machinery, nec	5.9	0.8	3.7	0.8
Electric machinery, computers	24.4	27.6	25.8	12.3
Transport machinery	30.9	0.1	17.8	1.5
Precision machinery, miscellaneous manufactures	1.3	2.5	1.8	7.3

Source: Ramstetter (1994), Table 1

A recent study by Takii (2011) of Indonesian manufacturing shows employment by industry in plants owned by Japanese (North), and in plants owned by other Asian countries (South) in three periods from 1986 through 2003. The origins of non-Asian plants are not identified, but we suspect they are mainly investments from countries classified as North and treat them as such below. In 1997–2003 (Table 13), plants owned by firms from the South were the predominant employers, compared with plants of Japanese owners; in food, textiles, wood, and furniture; paper and printing; and other manufacturing. Meanwhile, firms from Japan were predominant in chemicals, basic and fabricated metals, and machinery.

Table 13: Employment in Foreign-Owned Plants in Indonesian Manufacturing, 1997–2003 (percent)

Employment	Plants from		
	North		South (Other Asia)
	(Japan)	(Non-Asian)	
Food	1	4	4
Textiles	4	4	20
Wood/furniture	2	2	7
Paper/printing	3	1	13
Chemicals	9	9	6
Nonmetallic mineral	7	6	5
Basic metal	18	5	8
Fabricated metal and machinery	30	7	11
Other manufacturing	5	12	29

Source: Takii (2011, Table 1).

If we treat plants owned by non-Asian countries as being owned in the North, we still find the same industry concentrations of South-owned plants and North-owned plants.

Working from the original Indonesian data, we use information on ownership in Indonesian plant-level data between 1995 and 1997 to get additional information on the industry distribution of North and South FDI.[1] Table 14 shows the distribution of foreign-owned plants in Indonesian manufacturing by home country. Similar to the finding by Takii (2011), we find that South and North FDI each contributes about 50% of the foreign plants. There are plants from 16 different South countries and 17 different North countries. We show the five largest home countries in each group. Among South FDI investors, the Republic of Korea is the largest home country with about 16% of the foreign-owned plants. Singapore and Taipei,China are other large home countries, followed by Hong Kong, China and Malaysia.

These five South home countries are not typical developing countries, at least as measured by their income levels. They are either high- or middle-income countries. For instance, in the latest version of the Penn World Tables (Heston, Summers, and Aten 2011), Singapore is ranked as number 6 out of 188 countries in real (purchasing power parity-adjusted) income per capita in 1996, and Hong Kong, China is ranked as number 16, both higher than the median developed country. Taipei,China is ranked 32nd and the Republic of Korea as 36, both not far from the developed-country median. Malaysia is ranked 60. All of these countries are at a far higher level of development than the host country: Indonesia is ranked as number 110 in terms of income per capita. A recent paper by Petri (2011, 1) refers to this pattern as “Asian exceptionalism”, in that intra-Asian FDI “…is dominated by flows from high-technology economies to medium technology economies, while FDI elsewhere primarily consists of flows among high technology economies.”

The distribution of North FDI in Indonesia is much more skewed than the South distribution. Japanese plants account for one third of total FDI and two thirds of North FDI in Indonesia. Investments from western countries are not very important. The next largest home country is the US with only about 4% of total foreign plants in Indonesia. Belgium/Luxemburg, Germany, and Switzerland have each about 2% of the foreign plants.

[1] See, e.g., Lipsey, Sjöholm, and Sun (2010) for a description of the Indonesian plant-level data.

Table 14: Distribution of FDI by Country of Origin, 1995–1997 (share of total foreign plants)

South		48.3
	Korea, Rep. of	15.8
	Taipei,China	11.5
	Singapore	8.5
	Hong Kong, China	4.8
	Malaysia	1.9
North		51.7
	Japan	33.0
	US	3.7
	Germany	2.5
	Belgium/Luxemburg	2.1
	Switzerland	2.0

Source: Plant-level data provided by the Indonesian Statistical Office.

Table 15 examines the sector distribution of foreign plants by home country. There are some noticeable differences in the distributions of FDI from different home countries. For instance, more than one third of plants from the North are located in the fabricated metals industry, including, for instance, machinery and electronic products. Fabricated metals is an important industry also for South FDI with about 23% of the plants, but not the most important industry. Instead, 30% of South plants are in the labor-intensive textile industry. Textiles are not very important for North FDI, which instead has a relatively large share of 23% in the chemical industry.

Looking at individual home countries, it is seen that their plants tend to be highly concentrated in a few industries. For instance, the largest investor, Japan, has most of its plants in the fabricated metal industry. Germany, Switzerland, and the US cluster in the chemical industry. Belgium and Luxemburg differ from the other included countries by a high concentration in the food product industry.

Plants in Hong Kong, China; the Republic of Korea; and Taipei,China are primarily engaged in the textile industry. Singaporean FDI is more like Japanese FDI with a large share in fabricated metals and also with a relatively large share in chemicals. Singapore is a country that receives large amounts of FDI inflows and as discussed earlier, it is possible that much of the FDI in Indonesia from Singapore is owned by regional offices of foreign-owned Singapore companies, a factor that could explain some of the similarities with the distribution of plants from the North. Malaysia differs from all other countries by its high concentration in the wood product industry.

Table 15: Distribution of Plants by Different Home Countries, 1995–1997 (share of total plants from each home country)

	31	32	33	34	35	36	37	38	39	Total
North	13.5	12.1	7.8	1.4	23.4	4.0	1.6	34.0	2.3	100.0
Japan	8.7	15.6	8.4	1.2	17.9	2.6	2.4	41.7	1.5	100.0
US	16.3	8.1	8.1	2.2	41.5	4.4	0.7	18.5	0.0	100.0
Germany	6.8	5.7	5.7	0.0	54.5	0.0	0.0	27.3	0.0	100.0
Belgium/Luxemburg	66.1	1.7	5.1	0.0	22.0	5.1	0.0	0.0	0.0	100.0
Switzerland	21.5	0.0	0.0	0.0	46.2	0.0	0.0	15.4	16.9	100.0
South	8.2	30.0	9.2	3.3	14.6	2.1	3.5	22.9	6.3	100.0
Republic of Korea	3.1	46.7	6.6	2.4	11.2	1.8	0.6	12.5	15.1	100.0
Taipei,China	5.5	31.3	9.6	4.7	10.4	1.6	11.7	22.7	2.6	100.0
Singapore	11.5	9.3	9.3	4.3	22.9	3.1	1.5	37.8	0.3	100.0
Hong Kong, China	12.6	34.6	7.5	1.9	14.5	0.0	0.0	25.2	3.8	100.0
Malaysia	4.2	4.2	43.1	0.0	19.4	0.0	0.0	26.4	2.8	100.0

Source: Plant-level data provided by the Indonesian Statistical Office.

According to Abraham et al. (2010), among investors in the PRC, those from Hong Kong, China; Macau, China; and Taipei,China (South–South investors) are particularly present in such "labour-intensive sectors as Apparel and other textile products. Investors from other countries are predominant in Chemicals and allied products, Industrial machinery and equipment, Electronic and other electric equipment, and Transportation equipment" (Abraham et al. 2010, 151 and Table 2).

While much of what we can learn about the characteristics of FDI apply only to manufacturing, where almost all the microdata studies are concentrated, the 2004 World Investment Report (United Nations 2004) was devoted to the rise of service industry FDI. It included a comparison, unfortunately not repeated in later volumes, of the industry distributions of service industry FDI from and to developed and developing countries in 1990 and 2002.

One clear conclusion is that outward service industry FDI from developing countries, and therefore also South–South service industry FDI, was negligible in 1990 (Table 16). The total from developing countries was only 1% of the world total stock, and was no more than 2% in any individual service industry, but it reached 10% of the total outward stock by 2002. At that point the developing country share in outward FDI in construction was 20% and in business activities, 16%. Some part of the explanation for the low developing country shares of outward FDI stocks in services may be that these countries were slow to begin collecting such data and reporting them to international agencies.

Table 16: Shares of Developed and Developing Countries in Outward FDI in Service Industries, 1990 and 2002

	1990		2002	
	Developed	**Developing**	**Developed**	**Developing**
Total FDI Stock	99	1	90	10
Electricity, gas, and water	100	–	100	–
Construction	99	1	80	20
Trade	99	1	88	12
Hotels and restaurants	100	–	90	10
Transportation, storage, communications	99	1	93	7
Finance	98	2	93	7
Business activities	98	2	84	16
Public admininistration and defense	–	–	100	–
Education	100	–	100	–
Health and social services	100	–	100	–
Communications, social, and personal services	100	–	99	1
Other services	100	1	90	10

FDI = foreign direct investment.
Source: United Nations (1994, Table III.2).

Developing countries played a much larger role as hosts of inward FDI in services, than of outward FDI, and that role has also grown (Table 17). Major areas of growth have been trade, hotels and restaurants, and particularly business activities and health and social services, although again, some of the growth may result from improvements in reporting.

Changes in the composition of developing countries' inward and outward service industry FDI are summarized in Table 18. The change in composition is strongly influenced by the treatment of investment holding companies, apparently included in business activities in Hong Kong, China's data for 2002, and so large that their inclusion or exclusion greatly affects the apparent role of finance. The combination of finance and business activities has been a very large part of developing country service industry FDI, over 60% on the inward side and over 70% on the outward side.

Table 17: Shares of Developed and Developing Countries in Inward FDI in Service Industries, 1990 and 2002

	1990		2002[a]	
	Developed	**Developing**	**Developed**	**Developing**
Total FDI Stock	83	17	72	25
Electricity, gas, and water	70	30	63	32
Construction	77	25	47	45
Trade	90	10	78	19
Hotels and restaurants	87	13	70	26
Transportation, storage, communications	58	43	71	22
Finance	76	24	77	29
Business activities	93	7	61	38
Public admininistration and defense	–	–	99	1
Education	100	–	92	4
Health and social services	100	–	67	32
Communications, social, and personal services	100	–	91	8
Other services	85	15	61	36

[a] The missing group is Central and Eastern Europe.
Source: United Nations (2004).

Table 18: Industry Distribution of Inward and Outward Service Sector FDI Stocks of Developing Countries, by Industry, 1990 and 2002

	Inward		Outward	
	1990	**2002**	**1990**	**2002**
Total	100.00	100.00[a]	100.00	100.00
Electricity, gas, and water	1.87	6.84	–	.03
Construction	3.16	5.06	1.57	1.58
Trade	14.79	22.32	16.18	12.09
Hotels and restaurants	1.95	2.98	–	1.72
Transportation, storage, communications	7.54	15.91	4.41	6.84
Finance	56.90	37.07	61.92	21.73
Business activities	5.08	–	11.30	53.90
Public admininistration and defense	–	.01	–	–
Education	–	–	–	–
Health and social services	–	.61	–	–
Communications, social, and personal services	–	.82	–	.02
Other services	8.00	5.75	4.63	2.10
Unspecified tertiary	.71	2.61	–	–

[a] Excluding business activities, 40% concentrated in Hong Kong, China on the inward side in 2002, mainly because Hong Kong, China data include investment holding companies.
Source: United Nations (2004, Annex Tables A.1.18 and A.1.19).

Another sign of the relative importance of FDI in manufacturing and services is found in published Singapore data shown in Table 19. Of the stock of inward FDI in Singapore from sources in the South in 2009, a little over 15% was in manufacturing, while the share in investment from the North was about a quarter. In contrast, while about a third of investment from the North was in financial and insurance services, more than half that from the South was in these industries, mostly from South and Central America and the Caribbean, the home of many OFCs, and the large role of developing country FDI investors from that area carried over to real estate, rental, and leasing. In professional, technical, etc. services, a relatively high-skill area, the share of FDI from developed countries was, at 6%, twice as high as in FDI from developing countries.

Table 19: Foreign Direct Investment in Singapore by Country and Industry, 2008 (millions of Singapore dollars)

Country/Region	Total	Manufacturing	Construction	Wholesale and Retail Trade	Hotels and Restaurants	Transport and Storage
Asia except Japan	54,008	4,190	377	8,275	496	4,993
South and Central America and the Caribbean	95,550	22,023	232	10,828	1,021	6,414
Other Countries nec	12,744	199	18	1,220	175	1,927
Total South	162,302	26,412	627	20,323	1,692	13,333
Japan	48,824	11,098	894	16,889	53	3,679
United States	51,802	12,005	–8	11,088	30	2
Europe	193,525	56,329	33	35,241	1,390	18,369
Other Developed Countries	13,864	969	87	1,036	8	125
Total North	308,014	80,401	1,006	64,254	1,481	22,175

	Information and Communications	Financial and Insurance Services	Real Estate, Rental and Leasing	Professional and Technical, Administrative and Support Services	Others
Asia except Japan	936	31,011	2,361	1,111	265
South and Central America and the Caribbean	–57	40,676	10,448	3,694	273
Other Countries nec	21	7,224	1,801	87	73
Total South	899	78,911	14,610	4,892	611
Japan	337	10,894	630	4,222	127
United States	2,289	24,469	-97	1,905	120
Europe	941	61,895	4,579	13,077	1,671
Other Developed Countries	–6	11,012	65	558	3
Total North	3,562	108,270	5,177	19,762	1,920

Note: Other developed countries are Australia, Canada, Israel, and New Zealand.
Source: Department of Statistics Singapore, Foreign Equity Investment in Singapore, 2008.

C. Comparisons of Plant Size

The average sizes of plants from home countries in the North and the South, as measured by output per plant, are compared in Table 20 for FDI in Hong Kong, China and Singapore in the late 1980s and the early 1990s. Plants of parents from the North were far larger than plants owned by parents in South countries throughout the period. There was some hint of a trend toward reducing the differential for Japanese plants in Hong Kong, China but not in Singapore, but in general, parents from the North were producing in plants more than twice as large in terms of output.

Table 20: Comparisons of Output per Plant:[a] Plants from South Relative to Plants from North in Hong Kong, China and Singapore

Location of Plants	1983–1996	1983–1986	1987–1996
Hong Kong, China			
Plants from South[b] relative to			
Plants from			
US	–52	–65	–45
Europe[c]	–51	–59	–48
Japan	–24	–33	–22
Location of Plants	**1980–94**	**1980–86**	**1987–94**
Singapore			
Plants from South[d] relative to			
Plants from			
US	–92	–90	–92
Europe[c]	–83	–82	–84
Japan	–73	–67	–76

[a] Real value added per plant.
[b] The PRC; Singapore; Taipei,China.
[c] Germany, the Netherlands, Switzerland, the UK.
[d] Hong Kong, China; Malaysia; Thailand.
Source: Ramstetter (1999, Tables 6 and 7).

A similar comparison in terms of employment size is made in Table 21. Plants in Hong Kong, China from developing countries were more than a third smaller than those from developed countries, although the differential with Japanese plants became much smaller at the end of the period. In Singapore, the differentials were much larger, more than half, and showed no decline over time.

Table 21: Comparisons of Plant Employment Size:[a] Plants from South[b] Relative to Plants from North in Hong Kong, China and Singapore

Location of Plants	1983–96	1983–86	1987–96
Hong Kong, China			
Plants from South[b] relative to plants from			
US	–48	–65	–37
Europe[c]	–45	–57	–40
Japan	–10	–25	–4
Location of Plants	**1980–94**	**1980–86**	**1987–96**
Singapore			
Plants from South[d] relative to plants from			
US	–79	–75	–81
Europe[c]	–53	–48	–56
Japan	–62	–61	–63

[a] Employees per plant.
[b] The PRC; Singapore; Taipei,China.
[c] Germany, the Netherlands, Switzerland, the UK.
[d] Hong Kong, China; Malaysia; Thailand.
Source: Ramstetter (1999, Tables 6 and 7).

In Thailand, in 1990, Ramstetter (1994) found that among firms from all investing countries, those from developed home countries were, on average, much larger than those from developing home countries (Table 22). There were two expected exceptions, textiles and apparel, and rubber and plastics, where the developing country affiliates were larger on average. There were also two unexpected exceptions, transport machinery, and precision machinery and miscellaneous manufacturing.

Table 22: Comparison of Firms by Sales Size: Non-oil Manufacturing Plants in Thailand Owned by Firms from Japan, Other Developed, and Developing Economies

Industry	All Sample Firms (Baht billions)			Medium–Large Firms[a] (% of all firms)		
	Japan	Other Developed Economies	Developing Economies	Japan	Other Developed Economies	Developing Economies
Non-oil manufacturing	258.7	190.7	72.3	98.3	98.7	94.7
Food	12.2	42.0	13.8	94.6	99.5	97.0
Beverages, tobacco	0.0	14.1	0.2	NA	100.0	100.0
Textiles, apparel, etc.	15.2	16.3	18.3	97.8	98.5	96.6
Wood, paper, printing	1.4	4.4	2.9	84.5	97.8	97.4
Chemicals	29.9	22.3	7.1	99.6	98.9	97.1
Rubber, plastics	7.1	4.9	7.8	93.1	94.2	88.8
Nonmetallic mineral products	4.1	19.1	0.4	96.4	99.5	85.3
Metal, metal products	27.3	8.4	5.9	97.8	99.3	95.2
Nonelectric machinery, nec	15.2	1.6	0.6	98.7	95.0	86.8
Electric machinery, computers	63.2	52.7	8.9	98.4	99.7	94.7
Transport machinery	79.9	0.2	1.1	99.6	67.8	98.7
Precision machinery, miscellaneous manufactures	3.3	4.7	5.3	90.3	81.1	86.1

NA = not applicable (no firms in category).
[a] Medium–large firms are firms with sales of 100 million baht or more.
Source: Ramstetter (1994, Table 1).

Part of the smaller average size of affiliates of developing country firms arises from the avoidance of small affiliates by developed country parents. That possibility is tested by Ramstetter by excluding small affiliates and comparing average sales size only for medium to large firms. In this comparison, the affiliates of developed-country parents are again larger in most industries, now including both textiles and apparel, and rubber and plastics, but the other two exceptions remain.

D. Comparisons of Productivity

One of the major topics of interest in comparisons of foreign-owned with locally owned plants is productivity, either labor productivity or total factor productivity, but comparisons among countries of origin are more unusual. One of these, for Indonesia, is shown in Table 23, revealing that labor productivity in plants representing FDI from the North (Japan) was significantly higher than in plants representing FDI from the South. The industry distribution of these differences is also of interest, because the exceptions to significant North productivity advantages were in foods, textiles, and wood/furniture, industries in which FDI from the South was most frequent.

Table 23: Labor Productivity in Foreign-Owned Plants in Indonesian Manufacturing, 1997–2003

	North (Japan)	South (Other Asia)
Manufacturing	138	93 [-]
Food	101	91
Textiles	86	77
Wood/furniture	72	63
Paper/printing	137	79 [-]
Chemicals	120	94 [-]
Nonmetallic mineral	145	65 [-]
Basic metal	128	(32) [-]
Fabricated metal and machinery	114	71 [-]
Other manufacturing	120	54 [-]

Note: Results of plants with unknown ownership are not shown. The numbers within ( ) indicate that the coefficient on a corresponding dummy was not statistically significant at the 5% level. The signs within [ ] indicate that the differentials from Japanese plants were statistically significant at the 5% level (i.e., smaller than that of Japanese).
Source: Takii (2011, Table 2).

Another set of productivity comparisons is given in Table 24, which shows differences in labor productivity, measured by real output per worker, between plants in Hong Kong, China and Singapore that are owned by firms from North countries, and plants in the same locations owned by firms from South countries. The plants owned by firms in the North (Europe, Japan, the US) reported higher productivity in Hong Kong, China by close to 20%; and higher productivity in Singapore by over 50% for US-owned and European–owned plants, and close to a third for Japanese-owned plants. The exception to these margins was in the period that included the 1987 crisis, particularly in Hong Kong, China, when the productivity margin in favor of affiliates of North-based firms was much reduced.

Table 24: Comparisons of Productivity[a] Plants from Owners in the South[b] Compared with Owners from the North

Location of Plants	**1983–96**	**1983–86**	**1987–96**
Hong Kong, China			
Plants from South[b] relative to plants from			
US	–17	–6	–20
Europe[c]	–15	–4	–18
Japan	–19	–9	–21
Location of Plants	**1980–94**	**1980–86**	**1987–94**
Singapore			
Plants from South[d] relative to plants from			
US	–59	–59	–59
Europe[c]	–64	–65	–63
Japan	–29	–18	–35

[a] Real value added per employee.
[b] The PRC; Singapore; Taipei,China.
[c] Germany, the Netherlands, Switzerland, the UK.
[d] Hong Kong, China; Malaysia; Thailand.
Source: Ramstetter (1999, Tables 6 and 7).

Ramstetter (1994) compared value-added per worker in foreign-owned manufacturing plants in Thailand (Table 25). For manufacturing as a whole, this crude measure of labor productivity, or mixture of labor productivity and capital intensity, showed Japanese-owned firms at two-and-one-half times the level of firms from developing countries, and other developed-country firms about 75% higher. If the comparison was confined to "medium–large" firms with both groups of owners, the differentials are a little smaller, but not very different. The margins by which value added per worker in Japanese and other developed-country affiliates exceeded those of affiliates from developing countries were particularly high in chemicals, nonmetallic minerals, metals and metal products, nonelectric and electric machinery and computers, and motor vehicles. On the other hand, plants based in developing countries reported value-added per worker above or close to that of developed-country affiliates in foods, beverages and tobacco, wood and paper, and rubber and plastics. Comparing only medium–large plants did not greatly change the ordering.

Table 25: Labor Productivity, Measured by Value Added per Employee: Non-oil Manufacturing Plants in Thailand Owned by Firms from Japan, Other Developed Countries, and Developing Economies

Industry	All Firms			Medium–Large Firms		
	Japan	Other Developed Economies	Developing Economies	Japan	Other Developed Economies	Developing Economies
Non-oil manufacturing	564	398	223	598	417	262
Food	251	382	289	267	386	325
Beverages, tobacco	NA	295	1,266	NA	295	1,266
Textiles, apparel, etc.	209	170	203	216	170	217
Wood, paper, printing	278	367	291	398	396	319
Chemicals	944	883	494	946	983	516
Rubber, plastics	470	331	458	714	477	955
Nonmetallic mineral products	1,205	1,012	157	1,382	1,059	651
Metals, metal products	777	1,002	386	842	1,098	437
Nonelectric machinery, nec	760	338	180	810	376	195
Electric machinery, computers	343	406	132	352	413	141
Transport machinery	1,859	168	111	1,913	179	111
Precision machinery, miscellaneous manufactures	144	152	104	152	197	145

Source: Ramstetter (1994, Table 2).

A paper on Malaysia (Khalifa and Adam 2009) that does not distinguish between investors by country of origin nevertheless includes some hints as to productivity differences. The authors find that wholly foreign-owned establishments tend to be more labor-intensive than locally owned firms, while those with partial ownership are more capital-intensive, suggesting that they are in different industries or industry segments. The authors suggest that the crucial difference is between investments based on parent firms' firm-specific

assets, which bring superior technology to the host country, and those based on taking advantage of low labor costs, which do not. That distinction might place FDI in electronics or machinery industries in the first category and investments in textiles and apparel or leather products in the second, although the authors do not make that assignment.

The proposition that FDI from developed countries brings technological advantages to host countries that are not brought by FDI from developing countries is reinforced by a recent study of acquisitions in the US (Chen 2011). Using propensity score matching to reduce the possibility that differences are the result of pre-existing differences in the target firms, Chen finds that targets acquired by firms from developed countries enjoyed labor productivity increases 3 years later of 13% relative to targets acquired by US domestic firms, while targets acquired by developing country firms experienced lower productivity gains than domestic acquisitions after 4 years. The difference suggests that investing firms from developed countries use outward FDI to exploit their technological advantages while firms from developing countries are more likely to be investing to seek technology.

E. Additional Comparisons of Plant Characteristics

Using the above described Indonesian plant-level data, we made additional comparisons between North and South FDI that covers many of the aspects discussed above. The ratios of North to South in Table 26 show, for instance, that North plants are on average 40% smaller than South plants in manufacturing as a whole. That size relationship is different from what we have seen in other countries discussed above. However, this difference is partly caused by a different sector distribution of plants. Looking at the difference in individual sectors, South plants are larger than North plants in five out of nine sectors. The difference in size is particularly large in paper products and in basic metal industries, with substantially larger South plants in the former and substantially larger North plants in the latter.

Continuing with the other characteristics, it is seen that there is a large degree of differences between sectors but some general observations can be made. Firstly, North plants tend to pay higher blue-collar wages and to be more energy-intensive than South plants. Secondly, South plants tend to be more export-oriented than North plants.

Table 26: Plant Characteristics: Ratio between North and South

	Total	31	32	33	34	35	36	37	38	39
Size	0.6	0.6	0.5	0.7	0.2	1.3	2.6	4.6	1.0	0.4
Productivity	1.1	0.9	1.3	1.1	0.8	1.0	0.8	0.4	1.4	1.6
Blue collar wages	1.2	0.8	1.1	1.2	1.0	1.2	1.0	1.8	1.2	1.1
White collar wages	1.1	1.1	0.7	1.4	0.9	1.4	1.0	3.9	1.4	0.4
Energy intensity	1.4	1.0	1.6	0.9	0.5	1.5	3.5	2.2	1.3	1.3
Export share	0.7	0.7	0.9	1.1	0.5	0.6	2.0	0.8	0.7	1.0

Note: Size is measured as number of employees; productivity is vale added (Rupiah '000s) per employee; wages are in Rupiah '000s per employee; energy intensity is quantity of electricity per employee; export is share of output.

Table 27 shows the average figures for individual countries from South. The figures are ratios with the North and the figures are likely to be affected by the previously discussed differences in industry distribution between firms from different home countries. Bearing this caveat in mind we find that, for instance, plants from Hong Kong, China; the Republic of Korea; and Taipei,China are relatively large: larger than plants from North and larger than plants from Malaysia and Singapore. Plants from Malaysia and Singapore have higher productivity than plants from other developing countries, and at the same productivity level as plants from the North. Export intensities are high in South plants, especially for plants from Malaysia and Singapore, and energy intensities tend to be low in South plants. White collar wages are very high in Hong Kong, China plants, but plants from Malaysia; Singapore; and Taipei,China have lower white collar wages than North plants. Blue collar wages in plants from Hong Kong, China; Malaysia; and Singapore are at the same level as in plants from North, but they are lower in plants from the Republic of Korea and Taipei,China.

Table 27: Plant Characteristics: Ratio with North

	Korea, Rep. of	Taipei,China	Singapore	Hong Kong, China	Malaysia
Size	2.4	1.5	1.0	1.5	1.0
Productivity	0.5	0.6	0.8	0.4	0.8
Blue collar wages	0.6	0.7	1.0	1.0	1.0
White collar wages	1.1	0.7	0.7	1.8	0.7
Energy intensity	0.6	0.7	0.7	0.4	0.7
Export share	1.5	1.3	1.8	1.2	1.8

Source: Plant-level data provided by the Indonesian Statistical Office.

Singapore also provides data that enable a comparison of several aspects of FDI from developed and developing countries (Table 28). Average output per worker in manufacturing plants in Singapore owned by developed-country (Europe, Japan, the US) firms was more than two-and-a-half times the average in firms owned by firms from developing countries (all others). Value added per worker was only one-and-a-half times as high. The difference between the output and value added measures suggests that affiliates of developed country firms were using a higher proportion of purchased inputs than affiliates of developing-country firms, perhaps because they were more deeply involved in worldwide production networks. Manufacturing establishments owned by developed country firms in all industries combined were about 25% larger, measured by employment, than those owned by developing-country firms. In addition to relative high productivity, firms from developed countries paid slightly higher wages. However, export shares and capital intensities were higher in firms from developing countries than in firms from developed countries.

Table 28: Singapore: Characteristics of Foreign-owned Manufacturing Establishments, by Country of Capital Source (50% or more)

Country of Capital Source	Europe, Japan, and US	Other Countries
Workers per establishment	207.39	164.93
Output per establishment	247,022.77	76,655.86
Output per worker	1,191.09	464.76
Average remuneration per worker	55.61	49.26
Value added per worker	223.85	144.41
Net fixed assets per worker	235.65	282.57
Direct exports/sales	0.74	0.79

Source: Singapore Economic Development Board (2009).

F. Comparisons of Spillovers to Local Firms

One of the issues of greatest interest to host countries is the extent to which the technology brought to the host country by foreign investors is absorbed by local firms, an absorption that is referred to as "spillovers" to local firms. These could be spillovers to competing local firms in the same industries as the investors, who imitate the foreign firms' techniques, copy their products or methods of doing business, or learn from them in other ways, possibly by hiring away some of their employees. There could also be spillovers to firms that sell to the foreign firms, who may be willing to invest in improving the products of their local suppliers, or spillovers to customers, who gain from the availability of improved products, and may be educated in their use by the foreign producers.

Although there are very few studies of spillovers that distinguish among sources of FDI, it is of interest that a meta-analysis of studies of spillovers in developing countries other than the PRC found positive spillovers in six and mixed results in three, all of which were for India. Of 10 studies of the PRC, considered a transition country rather than a developing country, eight found positive spillovers, one found a curvilinear relationship that had positive and negative segments, and one did not report either positive or negative results (Meyer and Sinani 2009).

A study by Buckley, Clegg, and Wang (2002) of manufacturing plants in the PRC compares the effects of the presence in an industry of affiliates of parents in Hong Kong, China; Macau, China; and Taipei,China with those of affiliates of parents in other countries, mainly Europe, Japan, and the US. They found that the former group had no effect on the productivity of locally owned firms while that of the affiliates of parents in the latter group led to productivity gains in locally owned firms.

Du, Harrison, and Jefferson (2010) make a similar distinction of foreign firms in the PRC. They find little evidence of spillovers within the industries of investment, but strong

evidence for spillovers to both supplying industries and customer industries. However, both effects take place from North–South FDI, but neither effect is observed from the FDI identified as South–South FDI. A later paper by the same authors (Du, Harrison, and Jefferson 2011) confirms the findings for upstream and downstream spillovers and, more uncertainly, for horizontal spillovers. They suggest that the lack of spillovers from FDI from Hong Kong, China; Macau, China; and Taipei,China suggests that much of that may really be round-tripping, rather than FDI. An additional finding is that FDI in firms benefiting from tax incentives to investing firms "generates greater productivity spillovers than unsubsidized firms" (Du, Harrison, and Jefferson 2011, 28).

Another paper on the PRC, based on four years of Census data, which uses the distinction between FDI from Hong Kong, China and Tiapie,China (South–South FDI) and FDI from all other locations (Xu and Sheng 2011) finds evidence of smaller spillovers from the South–South FDI. That is the case for the ordinary least squares equations and in one of the first difference equations.

Abraham et al. (2010) compare spillovers in the PRC from North–South FDI with those from South–South FDI. They define South–South FDI as FDI from Hong Kong, China; Macau, China; and Taipei,China plus FDI from tax havens, which they include following the suggestion of Naughton (2007) that they are generally "diverted investment from Hong Kong, China; Macau, China; and Taipei,China or [the PRC] itself for tax evasion" (Naughton (2007 164). Spillovers from Hong Kong, China; Macau, China; and Taipei,China and FDI from elsewhere are both positive and statistically significant, but those from Hong Kong, China; Macau, China; and Taipei,China are larger, but not significantly so. However, FDI from Hong Kong, China; Macau, China; and Taipei,China is negatively related to the productivity of domestic exporters and firms located in special economic zones.

An important aspect of spillovers that is related to differences among industries—not in principle the result of differences between North-South and South–South FDI but correlated with it—is the relation of the distance between foreign-owned and domestically owned operations and the extent of spillovers between them. A paper on impacts of foreign-owned manufacturing firms on domestic firms in the PRC finds that there are two opposite effects, a positive spillover effect on productivity in local firms in the same industry, attenuated by distance, and a negative competition effect, less affected by distance, i.e., "…domestic firms benefit from the presence of foreign multinationals located nearby, but suffer from those located in more remote areas" (Lu, Ni, and Tao 2009, 9). The implication of the effect of distance is relevant to the effects of FDI in mining or oil production, which is typically located far from other centers of population and production.

Another paper on the PRC that finds distance to be a factor in spillovers from FDI to state-owned enterprises is Girma and Gong (2008). One result they describe as "robust"

across all specifications is that there is no evidence of productivity spillovers outside the region [of] FDI [taking] place" (Girma and Gong 2008, 735–6). State-owned enterprises appeared to lose from the presence of "ethnic Chinese" FDI (South–South FDI) in downstream sectors in their regions. The authors suggest that the higher wages paid by foreign multinational firms and the consequent shift of skilled workers to them from the state-owned enterprises may be an important source of the negative spillovers (Girma and Gong 2008, 740).

Wei and Liu (2006, 553), using similar industry data and definitions of sources of FDI in China, conclude that FDI from OECD countries has played a much greater positive role in inter-industry productivity spillovers to indigenous firms in the PRC than FDI from Hong Kong, China; Macau, China; Taipei,China. FDI from these two different sources has played a similar role in terms of magnitude in intra-industry productivity spillovers within regions. They suggest that the contributions of FDI from the two sources to the productivity of the PRC's firms may be of a different nature. The technologies transferred or diffused by Hong Kong, China; Macau, China; and Taipei,China firms (South–South FDI) may be more compatible with the PRC's current resource endowments. Foreign-invested firms from countries of the Organisation for Economic Co-operation and Development have higher technological capabilities, and their productivity spillovers may enhance technological knowledge and competence in indigenous firms in the PRC, and this is very important for the PRC's move to a higher development stage (Wei and Liu 2006, 553).

Takii (2011) uses information from different sources to construct a panel of plants between 1990 and 2003 with home-country information on foreign plants. His focus is not on a comparison between North and South but rather between Japanese, other Asian, and Non-Asian FDI. Judging from our data used above, non-Asian FDI is almost entirely made up of FDI from the North although we observe a few plants from Africa and Latin America.

The largest spillovers were from other Asian plants followed by spillovers from Japanese plants. There were no statistically significant spillovers from non-Asian plants. Hence, South FDI generates the largest spillovers, and the most important distinction seems to be between Asian and non-Asian FDI rather than between North and South FDI.

Takii proposes two different explanations for a difference in the degree of spillovers. The first one is that other-Asian countries are at a development level more similar to that of Indonesia, and spillovers might be largest when the technology differences between home and host countries are not too large. However, most Asian FDI comes, as we previously noted, from relatively developed Asian countries such as the Republic of Korea; Singapore; and Taipei,China. Another proposed explanation is that the cultural distance between Asian countries and Indonesia is smaller than the cultural distance between non-Asian countries and Indonesia, and that a small cultural distance enhances spillovers.

IV. Summary and Concluding Remarks

Given the poor quality of the data, the limitation of most output and employment data to manufacturing, the consequent reliance on financial data that, for statistical convenience include flows and stocks of FDI that do not match the theoretical or descriptive literature on FDI, any conclusions about the effects of the rise of South–South FDI must be very cautious. The rise in importance of South–South FDI within Asia seems well established, although the extent is blurred by the use of offshore financial centers and the inclusion of FDI from sovereign wealth funds and other sources that probably do not possess the intangible assets associated with FDI in the literature.

Our analysis shows that the increased presence of South FDI in East and Southeast Asia might have different effects on host economies from those of FDI from North. Firstly, within manufacturing, FDI from the South locates mainly in textiles and apparel, food, wood and paper products, and rubber products. Firms from the North predominated in chemicals, transport equipment, and some, but not all, types of machinery. Although these industry categories are wide, it would be fairly safe to characterize the second group of industries with mainly developed-country owners, as more capital-intensive and more technology-intensive than those with mainly developing-country owners.

Secondly, plant size, as measured by output per plant and employment per plant, regardless of industry, shows that plants with developed country owners tend to be much larger than those with developing-country owners. Since plant sizes differ substantially by industry, and clothing plants, for example, are typically much smaller than auto plants, these differences partly reflect the industry distributions mentioned above. The margins are larger for output per plant than for employment per plant, pointing to productivity differences as well as industry mix. Indonesia differs from many other countries in that South plants are larger than North plants in more than half of the examined industries.

Thirdly, plants from the North tend to have higher productivity than plants from the South. For instance, labor productivity was higher in Japanese-owned plants than in plants owned by firms from other (developing) Asia in every industry in Indonesia. However, the productivity difference was not statistically significant in foods, textiles, and wood/furniture, the industries in which plants from the South were most important. We find similar productivity advantages for firms from the North in Hong Kong, China; Singapore; and Thailand, but firms from the South have sometimes comparable high productivity in the industries where they often were important, such as food, beverages, and tobacco; textiles and apparel; and wood products. For one country, Indonesia, we found that wages tended to be higher in plants from developed countries but that exports were higher in plants from developing countries.

Finally, the results reported in studies of spillovers to local firms are mixed, as in most of the spillover literature. A number of studies find positive spillovers in the PRC, some within the same industry as the foreign affiliates and some to local firms in upstream and downstream industries. Most studies find a difference between the spillovers from firms from developed and developing countries: there tend to be positive spillovers from the former and no spillovers from the latter. The results seem to be slightly different in Indonesia where FDI from developing countries generates more spillovers than FDI from developed countries, but there are also spillovers from Japanese FDI.

For policy decisions, the test of whether North-South and South–South investments that are identical in every measurable dimension produce different spillovers to domestic firms may not be as relevant as whether they are typically different in measurable dimensions such as size, industry, working conditions, and technology. In most of these characteristics, there does seem to be some edge in favor of benefits from North–South FDI.

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About the Paper

Robert E. Lipsey and Fredrik Sjöholm describe the size of South–South foreign direct investment (FDI) in developing East Asia and the trends in it, and the characteristics of the investing countries and the investments themselves. They summarize findings about industrial composition of FDI; effects on host countries; and effects on host-country firms' productivity, wages, and employment. Their analysis shows that the increased presence of South FDI in East and Southeast Asia might have different effects on host economies from those of FDI from the North.

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