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FDI Flows to Latin America, East and Southeast Asia and China: Substitutes or Complements?

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Abstract

      China in recent years has emerged as the largest recipient of foreign direct investment (FDI) in the world. Many analysts and government officials in the developing world have increasingly expressed concerns that they are losing competitiveness to China. Is China diverting FDI from other developing countries?

      Theoretically, a growing China can add to other countries' direct investment by creating more opportunities for *production networking* and raising the need for *raw materials* and resources. At the same time, the extremely low Chinese labor costs may lure multinationals away from sites in other developing countries when the foreign corporations consider alternative locations for low-cost export platforms.

      In this paper, we explore this important research and policy issue empirically. We focus our studies on East and Southeast Asia as well as Latin America. For Asia, we use data for eight Asian economies (Hong Kong, Taiwan, Republic of Korea, Singapore, Malaysia, Philippines, Indonesia and Thailand) for 1985-2002 while for Latin America, we use data for sixteen Latin American economies (Argentina, Bolivia, Brazil, Chile, Columbia, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela) for 1990-2002. We control for the standard determinants of their inward direct investment. We then add China's inward foreign direct investment as an indicator of the "China Effect". Estimation of the coefficient associated with the China Effect proxy gives us indications about the existence of the China Effect.

      We have three results: (1) The level of China's foreign direct investment is *positively* related to the levels of inward direct investments of economies in East and Southeast Asia, while the China Effect is mostly insignificant for Latin American nations; (2) the level of China's foreign direct investment is *negatively* related to the direct investment of these economies as shares of total foreign direct investments in the developing countries; (3) The China Effect is generally *not* the most important determinant of the inward direct investments of these economies. Market sizes and policy variables such as openness and corporate tax rates tend to be more important.

1. Introduction

In recent years, China has become a favorite destination for foreign direct investment (FDI). In 2002, foreign direct investment in China reached US$53 billion. For 2003, despite the problems associated with SARS (Severe Acute Respiratory Syndrome), China received US$54 billion worth of foreign direct investment (UNCTAD 2004). China has become one of the top recipients of FDI in the world.

China is on its way to become "the factory of the world". The success of China in attracting foreign direct investment is no accident. One of the earliest strategic policy reforms of China was to open up the South to lure foreign investors. China's attempts to introduce markets into its economy go hand in hand with the liberalization of its FDI regime. In some ways, foreign direct investment reforms can be seen as the vanguard of domestic market reforms.

While increases in FDI from the outside world are complementary to China's efforts to modernize its economy, many developing countries in the world seem to be very worried about the prospects of a rising China that absorbs more and more of the investment from major multinationals. Several governments in Asia and Latin America have publicly noted that the emergence of China has diverted direct investment away from their economies. Policymakers and analysts in the developing world are convinced that the rise of China has contributed to the "hollowing out" phenomenon, with foreign and domestic investors leaving their countries and investing in China instead. This in

turn has led to continued loss of manufacturing industries and jobs, further weakening the vitality of these economies.[1]

In this paper, we would like to examine empirically the question of whether the successful FDI policy of China has diverted foreign direct investment away from a group of Asian and Latin American economies. In Asia, the economies we will consider include Hong Kong, Taiwan, Republic of Korea, Singapore, Malaysia, Indonesia, Philippines and Thailand. In Latin America, the economies we study include Argentina, Bolivia, Brazil, Chile, Columbia, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela. The research strategy is to control for the standard determinants of foreign direct investment and then add a proxy to represent "the China Effect". We then would investigate the sign, significance and magnitude of such a "China Effect".

The organization of this paper is as follows. In the next section, we will provide some background discussions related to foreign direct investment in China in general. In section 3, we then survey the relevant policy issues. In section 4 we examine the current academic literature of the determination of FDI. In section 5, we set up the empirical model to be estimated. In section 6, we present and discuss our results. Section 7 concludes.

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[1] Popular press has reported that in 2002, Mexico lost more than 200,000 jobs in the maquiladora assembly industry along the U.S.-Mexico border, as more than 300 companies have moved to China (Miami Herald 2003).

2. Some General Characteristics of Foreign Direct Investment in China

One of the most important elements of China's economic reform has been the promotion of foreign direct investment inflow. FDI in China has grown dramatically over the past two decades, since China initiated its 'open-door' policy in 1978 (Table 1). When China initiated its 'open-door' policy, the amount of FDI inflow was very little. It was not until the mid-1980s when FDI in China surged and marked the beginning of China's ride on the wave of globalization. In the early 1990s, it once again gained momentum. After it achieved an unprecedented growth between 1991 and 1993 however, both the number of projects and the contracted value began to go down in 1994. This downturn continued until the next big wave of FDI inflow hit China in 2000. In 2002, despite the widespread decline in FDI in the world, China experienced an increase in FDI inflow and overtook the United States to become the world's second largest destination of FDI.

Table 1
Contracted and Realized FDI, 1979-2002

US$ million/%

	Contracted		Realized	
Year	Amount	Growth Rate	Amount	Growth Rate
1979-1982	6,010		1,166	
1983	1,732		636	
1984	2,651	53.1%	1,258	97.8%
1985	5,932	123.8%	1,661	32.0%
1986	2,834	-52.2%	1,874	12.8%
1987	3,709	30.9%	2,314	23.5%
1988	5,297	42.8%	3,194	38.0%
1989	5,600	5.7%	3,392	6.2%
1990	6,596	17.8%	3,487	2.8%
1991	11,977	81.6%	4,366	25.2%
1992	58,124	385.3%	11,007	152.1%
1993	111,436	91.7%	27,515	150.0%
1994	82,680	-25.8%	33,767	22.7%
1995	91,282	10.4%	37,521	11.1%
1996	73,277	-19.7%	41,725	11.2%
1997	51,004	-30.4%	45,257	8.5%
1998	52,102	2.2%	45,463	0.5%
1999	41,223	-20.9%	40,319	-11.3%
2000	62,380	51.3%	40,715	1.0%
2001	69,195	10.9%	46,878	15.1%
2002	82,768	19.6%	52,743	12.5%
1979-2002	827,809		446,258	

Source: China Foreign Economic Statistical Yearbook.

Tables 2a and 2b present the contracted value and the realized value of FDI from 15 leading investing territories, respectively. One of the features of the inflow of FDI in China is the large contribution of investment from Hong Kong, Taiwan and Macau, especially during the late 1980s and the early 1990s. One of China's reform strategies is to first open up Special Economic Zones (SEZs) in the southeast part of China in an attempt to attract foreign capital from its neighbors. Four SEZs were established in two southeast coastal provinces, Guangdong and Fujian. In Guangdong province, three SEZs are established in Shenzhen, Zhuhai, and Shantou. Shenzhen was a small town sharing a border with the then British colony, Hong Kong. Zhuhai is located next to Macao. Shantou is another coastal town lies near the border between Guangdong and Fujian. The fourth SEZ, Xiamen in Fujian province was a relatively industrialized city, located near Taiwan.

Table 2a
Contracted FDI by Source Country/Territory, 1983-2002
US$10,000/%

ta	1983-1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1992-2002	1983-2002
Total	5066740	5873545	1.1E+07	8267977	9128153	7327642	5100353	5210205	4122302	6237952	6919455	8276833	77607983	82674723
Hong Kong, China	3107746	4199377	7393852	4697141	4099555	2800172	1822229	1761328	1332892	1696105	2068586	2520183	34391420	37499166
United States	464887	314191	681275	601018	747113	691576	493655	648373	601611	800089	751487	815647	7146035	7610922
Taiwan	0	554790	996487	539488	587907	514098	281449	298168	337444	404189	691419	674084	5879523	5879523
Japan	368782	220025	296047	444029	759236	513068	340124	274899	259128	368051	541973	529804	4546384	4915166
Singapore	92161	100255	295420	377796	866575	631440	46919	300152	225824	203074	198417	278548	3524420	3616581
Virgin Islands	560	4345	29856	83570	132115	312105	515571	613613	348749	752162	877177	1264980	4934243	4934803
Korea	0	42054	155669	180626	299839	423646	218098	164085	148385	238582	348740	528222	2747946	2747946
United Kingdom	78476	28741	198832	274838	357723	254238	144551	168159	108540	83418	151564	114199	1884803	1963279
Germany	116778	13434	24938	123314	165963	99809	61281	237467	93872	290009	117145	91532	1318764	1435542
France	24450	29165	23623	24813	64242	123539	108112	48884	47031	63440	56577	87886	677312	701762
Macau, China	0		281466	172111	111529	44873	35865	30718	42656	34801	50300	63154	867473	867473
Netherland	22017	4143	15169	36582	60232	88921	56718	56268	67581	341412	97397	51629	876052	898069
Canada	33406	31578	118374	89033	98248	82256	90659	94679	69915	86843	129546	114843	1005974	1039380
Malaysia	6173	20928	75855	61734	106066	75737	49021	32591	26573	38851	47221	79284	613861	620034
Australia	33977	27583	63791	84892	125738	52162	61447	69899	58838	69668	67500	91044	772562	806539
Share in total	**1983-1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**1992-2002**	**1983-2002**
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Hong Kong, China	61.3%	71.5%	66.4%	56.8%	44.9%	38.2%	35.7%	33.8%	32.3%	27.2%	29.9%	30.4%	44.3%	45.4%
United States	9.2%	5.3%	6.1%	7.3%	8.2%	9.4%	9.7%	12.4%	14.6%	12.8%	10.9%	9.9%	9.2%	9.2%
Taiwan	0.0%	9.4%	8.9%	6.5%	6.4%	7.0%	5.5%	5.7%	8.2%	6.5%	10.0%	8.1%	7.6%	7.1%
Japan	7.3%	3.7%	2.7%	5.4%	8.3%	7.0%	6.7%	5.3%	6.3%	5.9%	7.8%	6.4%	5.9%	5.9%
Singapore	1.8%	1.7%	2.7%	4.6%	9.5%	8.6%	0.9%	5.8%	5.5%	3.3%	2.9%	3.4%	4.5%	4.4%
Virgin Islands	0.0%	0.1%	0.3%	1.0%	1.4%	4.3%	10.1%	11.8%	8.5%	12.1%	12.7%	15.3%	6.4%	6.0%
Korea	0.0%	0.7%	1.4%	2.2%	3.3%	5.8%	4.3%	3.1%	3.6%	3.8%	5.0%	6.4%	3.5%	3.3%
United Kingdom	1.5%	0.5%	1.8%	3.3%	3.9%	3.5%	2.8%	3.2%	2.6%	1.3%	2.2%	1.4%	2.4%	2.4%
Germany	2.3%	0.2%	0.2%	1.5%	1.8%	1.4%	1.2%	4.6%	2.3%	4.6%	1.7%	1.1%	1.7%	1.7%
France	0.5%	0.5%	0.2%	0.3%	0.7%	1.7%	2.1%	0.9%	1.1%	1.0%	0.8%	1.1%	0.9%	0.8%
Macau, China	0.0%	0.0%	2.5%	2.1%	1.2%	0.6%	0.7%	0.6%	1.0%	0.6%	0.7%	0.8%	1.1%	1.0%
Netherland	0.4%	0.1%	0.1%	0.4%	0.7%	1.2%	1.1%	1.1%	1.6%	5.5%	1.4%	0.6%	1.1%	1.1%
Canada	0.7%	0.5%	1.1%	1.1%	1.1%	1.1%	1.8%	1.8%	1.7%	1.4%	1.9%	1.4%	1.3%	1.3%
Malaysia	0.1%	0.4%	0.7%	0.7%	1.2%	1.0%	1.0%	0.6%	0.6%	0.6%	0.7%	1.0%	0.8%	0.7%
Australia	0.7%	0.5%	0.6%	1.0%	1.4%	0.7%	1.2%	1.3%	1.4%	1.1%	1.0%	1.1%	1.0%	1.0%
Above 15	85.8%	95.2%	95.6%	94.2%	94.0%	91.5%	84.8%	92.1%	91.4%	87.7%	89.5%	88.3%	91.7%	91.4%

Source: China Statistical Yearbook, China Foreign Economic Statistical Yearbook, Almanac of China External Economies and Trade, various issues.
Note: Data for 1983 - 1992 include data of Foreign Direct Investment and Other Foreign Investment.

Table 2b
Realized FDI by Source Country/Territory, 1983-2002
US$10,000/%

Country (Territory)	1983-1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1992-2002	1983-2002
Total	2329049	1100751	2751495	3376650	3752053	4174548	4527701	4546275	4031871	4071481	4687759	5274300	42294884	44623933
Hong Kong, China	1367575	750707	1727475	1966544	2006037	2067732	2063200	1850836	1636305	1549998	1671730	1786093	19076657	20444232
United States	258496	51105	206312	249080	308301	344333	323915	389844	421586	438389	443322	542392	3718579	3977075
Taiwan	0	105050	313859	339104	316155	347484	328939	291521	259870	229658	297994	397064	3226698	3226698
Japan	311589	70983	132410	207529	310846	367935	432647	340036	297308	291585	434842	419009	3305130	3616719
Singpore	27014	12231	49004	117961	185122	224356	260641	340397	264249	217220	214355	233720	2119256	2146270
Virgin Islands	0				30376	53761	171717	403134	265896	383289	504234	611739	2424146	2424146
Korea	0	11948	37381	72283	104289	135752	214238	180320	127473	148961	215178	272073	1519896	1519896
United Kingdom	33107	3833	22051	68884	91414	130073	185756	117486	104449	116405	105166	89576	1035093	1068200
Germany	40021	8857	5625	25899	38635	51831	99263	73673	137326	104149	121292	92796	759346	799367
France	20552	4493	14141	19204	28702	42375	47465	71489	88429	85316	53246	57560	512420	532972
Macau, China	0	20200	58650	50937	43982	58039	39455	42157	30864	34728	32112	46838	457962	457962
Netherland	6383	2841	8400	11105	11411	12511	41380	71882	54168	78948	77611	57175	427432	433815
Canada	6765	5824	13688	21605	25702	33793	34412	31652	31442	27978	44130	58798	329024	335789
Malaysia	566	2467	9142	20099	25900	45995	38183	34049	23771	20288	26298	36786	282978	283544
Australia	19241	3503	10996	18826	23299	19392	31374	27197	26331	30888	33560	38070	263436	282677
Share in total	1983-1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1992-2002	1983-2002
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Hong Kong, China	58.7%	68.2%	62.8%	58.2%	53.5%	49.5%	45.6%	40.7%	40.6%	38.1%	35.7%	33.9%	45.1%	45.8%
United States	11.1%	4.6%	7.5%	7.4%	8.2%	8.2%	7.2%	8.6%	10.5%	10.8%	9.5%	10.3%	8.8%	8.9%
Taiwan	0.0%	9.5%	11.4%	10.0%	8.4%	8.3%	7.3%	6.4%	6.4%	5.6%	6.4%	7.5%	7.6%	7.2%
Japan	13.4%	6.4%	4.8%	6.1%	8.3%	8.8%	9.6%	7.5%	7.4%	7.2%	9.3%	7.9%	7.8%	8.1%
Singapore	1.2%	1.1%	1.8%	3.5%	4.9%	5.4%	5.8%	7.5%	6.6%	5.3%	4.6%	4.4%	5.0%	4.8%
Virgin Islands	0.0%				0.8%	1.3%	3.8%	8.9%	6.6%	9.4%	10.8%	11.6%	5.7%	5.4%
Korea	0.0%	1.1%	1.4%	2.1%	2.8%	3.3%	4.7%	4.0%	3.2%	3.7%	4.6%	5.2%	3.6%	3.4%
United Kingdom	1.4%	0.3%	0.8%	2.0%	2.4%	3.1%	4.1%	2.6%	2.6%	2.9%	2.2%	1.7%	2.4%	2.4%
Germany	1.7%	0.8%	0.2%	0.8%	1.0%	1.2%	2.2%	1.6%	3.4%	2.6%	2.6%	1.8%	1.8%	1.8%
France	0.9%	0.4%	0.5%	0.6%	0.8%	1.0%	1.0%	1.6%	2.2%	2.1%	1.1%	1.1%	1.2%	1.2%
Macau, China	0.0%	1.8%	2.1%	1.5%	1.2%	1.4%	0.9%	0.9%	0.8%	0.9%	0.7%	0.9%	1.1%	1.0%
Netherland	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.9%	1.6%	1.3%	1.9%	1.7%	1.1%	1.0%	1.0%
Canada	0.3%	0.5%	0.5%	0.6%	0.7%	0.8%	0.8%	0.7%	0.8%	0.7%	0.9%	1.1%	0.8%	0.8%
Malaysia	0.0%	0.2%	0.3%	0.6%	0.7%	1.1%	0.8%	0.7%	0.6%	0.5%	0.6%	0.7%	0.7%	0.6%
Australia	0.8%	0.3%	0.4%	0.6%	0.6%	0.5%	0.7%	0.6%	0.7%	0.8%	0.7%	0.7%	0.6%	0.6%
Above 15	89.8%	95.8%	94.8%	94.4%	94.6%	94.3%	95.2%	93.8%	93.5%	92.3%	91.2%	89.9%	93.3%	93.1%

Source: China Statistical Yearbook, China Foreign Economic Statistical Yearbook, Almanac of China External Economies and Trade, various issues.
Note: Data for 1983 - 1986 include data of Foreign Direct Investment and Other Foreign Investment.

Hong Kong has by far been the biggest investor in China throughout the years. The investment from Hong Kong to China has increased dramatically since the early 1980s. Between 1983 and 2002, the contracted amount and the realized amount of FDI from Hong Kong amount to more than US$375 billion and US$204 billion respectively. These figures account for 45.4% and 45.8% of the total respective contracted amount and realized amount of FDI from the world. However, it has been frequently estimated that a significant portion of investment from Hong Kong to China originates from China itself or from countries outside Hong Kong (Fung, 1997). A large amount of China's capital outflow is channeled to Chinese firms located in Hong Kong and finds its way back to China as FDI. This type of "round tripping" of funds is mostly used to escape regulations such as barriers to trade or to gain eligibility to incentives available to only foreign investors (e.g. tax concessions). According to the World Bank (2002), round tripping accounts for twenty to thirty percent of FDI in China.

Between 1983 and 2002, Singapore and Macao ranked 6th and 12th in total contracted FDI in China, and they ranked 6th and 11th respectively in total realized FDI. The presence of both economies appears to have been stronger in the beginning of the 1990's.

While several East and Southeast Asian economies are among the top investors in China, none of the Latin American economies is among the top fifteen foreign investors in China. In the last few years, prices of commodities and raw materials such as copper, aluminum, cement, steel, petroleum and soybeans have soared partly due to the breakneck pace of China's industrialization. This seems to have benefited countries such as Brazil, Argentina and Venezuela as China became one of their largest export markets.

But overall, the economic relationship between China and Latin America, in contrast to that between China and East and Southeast Asia is still at a very low stage. Another difference between the Asian and Latin American economies is that there is increasing evidence that a vertical production and business network is thriving among the Asian economies (including China) but not among the Latin American economies (Ando and Kimura 2003, Fukao and Okubo 2003).[2]

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[2] There is of course a production network between Mexico and the United States. But in this respect, Mexico is quite different from the rest of Latin America.

3. Recent Policy Concerns in Asia and Latin America

It is not hard to find various analysts, commentators and policymakers in Asia and in Latin America who have voiced concerns about the emergence of China and that China is adversely affecting direct investment flows into their economies. In November 2002, Singaporean Deputy Prime Minister Lee Hsien Loong (who has since become the Prime Minister of Singapore) commented that "Southeast Asian countries are under intense competitive pressure, as their former activities, especially labor-intensive manufacturing, migrate to China. One indicator of this massive shift is the fact that Southeast Asia used to attract twice as much foreign direct investment as Northeast Asia, but the ratio is reversed." (ChinaOnline November 14, 2002). According to KOTRA, the state-run trade and investment promotion agency of the Republic of Korea, the rate of foreign direct investment in most Asian countries is falling as global investors are being drawn to invest in China (Republic of Korea Times August 27, 2002). World Economic Forum director for Asia, Frank J. Richter, said if the Asian countries do not take prudent and pragmatic steps to be as competitive as China, the foreign direct investment flows into these economies would be adversely affected (New Straits Times-Management Times March 9, 2002). Furthermore, Taiwan's Vice Premier Lin Hsin-I said that facing the rapid rise of the Mainland Chinese economy, Taiwan would have to take effective measures to increase its competitiveness. Taiwan has to implement the "go south" policy to encourage Taiwan to switch their investments from the Mainland to Southeast Asian countries (Taiwanese Central News Agency November 21, 2002).

In Latin America, Cesar Gavina, head of the 34-country Organization of American States, was quoted to have said, "The fear of China is floating in the atmosphere here. It has become a

challenge to the Americas not only because of cheap labor, but also on the skilled labor, technological and foreign investment front." Panama's Vice Minister of Foreign Affairs, Nivia Rossana Casrellen, said, "The FTAA is moving ahead because of a collective will to speed up development and a collective fear of China" (Miami Herald November 21, 2003). According to Businessweek's Mexico City Bureau Chief, Geri Smith, " China has siphoned precious investment and jobs from Mexico…" (Businessweek November 8, 2004).

4. Recent Academic Research on the Determinants of Foreign Direct Investment

Is China's FDI policy a *friend* or an *enemy* to other developing economies in Asia and in Latin America? What determines foreign direct investment flows into the Asian, Latin American and other economies? Is there a "China Effect"? To get some insights as to what methodology we should pursue, we now look at selectively some recent relevant academic literature.[3]

Brainard (1997) empirically examines the determinants of the ratio of U.S. export sales to total foreign sales (the sum of export sales by sales by foreign affiliates) by industry. She uses a framework of focusing on factors that favor concentration of production (i.e. favoring exports) vs. proximity to overseas customers (i.e. favoring sales by foreign affiliates). The explanatory variables include freight costs to the export market, tariffs of the host country, per capita gross domestic product, corporate tax rates, measures of trade and foreign direct investment openness, measures of plant scale economies and corporate scale economies. She also adds a dummy representing whether a country has a political coup in the last decade. In her random effects estimation, almost all the variables have the right signs and are significant. The major exception is the corporate tax rates, which has the opposite sign as predicted.

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[3] This review is not meant to be exhaustive.

Gastanaga, Nugent and Pashamova (1998) focus on policy reforms in developing countries as determinants of foreign direct investment inflows. They employ both ordinary least squares as well as panel estimations. The expected rates of growth, the corporate tax rates, the degree of corruption and the degree of openness to foreign direct investment are all important determinants of foreign direct investment flows into these economies. Hines (1995) and Wei (1997) both examine the impact of institutional factors on foreign direct investment. By employing a corruption index, Hines shows that after 1977, U.S. foreign direct investment grew faster in less corrupt countries. Wei (1997) uses OECD direct investment data and shows that both corruption and tax rates have negative effects on foreign direct investment flows. Wei's estimations are cross-sectional.[4] Fung, Iizaka and Parker (2002), Fung Iizaka and Siu (2003) and Fung, Garcia-Herrero, Iizaka and Siu (2005) show with panel regressions that market sizes, labor costs, tax rates and institutional reforms are important for determining various sources of FDI into different provinces of China. Weiss (2004) provides an up-to-date review of the literature related to the investment and trade opportunities and threats of a rising China.

5. The Empirical Model

In this section we provide an empirical model to estimate the impact of China on the inward direct investment of various Asian and Latin American economies. For the East and Southeast Asian empirical studies, we examine Hong Kong, Singapore, Taiwan, the Republic of Korea, Thailand, Malaysia, Philippines and Indonesia. For the Latin American empirical examinations, we include Argentina, Bolivia, Brazil, Chile, Columbia, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela. The

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[4] Other related literature includes Bao, Chang, Sachs and Woo (2002), Fung, Iizaka and Siu (2003), Zhang and Song (2001), etc.

strategy here is to control for all the standard explanatory variables of foreign direct investment in these economies. But we add an additional variable representing the China factor. To proxy for the China factor, we choose the level of the inflow of China's foreign direct investment. Obviously Chinese inward foreign direct investment can also be dependent on the inward direct investment of these Asian and Latin American economies as well as the standard explanatory variables. In order to capture such a reciprocal relationship between the inflow of FDI in China and that in other economies, the FDI equation for both sets of these economies and China are estimated simultaneously.

The basic regression model for inward foreign direct investment for Asian and Latin American countries and for China are written as a linear specification of the following form:

$$\ln(FDI_{i,t}) = \alpha_0 + \alpha_1 \ln(CFDI_t) + \beta_1 \ln(GPCGDPR00_{i,t}) + \beta_2 \ln(CORRUPT_{i,t}) + \beta_3 \ln(DUTY_{i,t})$$

$$+ \beta_4 \ln(GOVT_{i,t}) + \beta_5 \ln(WAGE_{i,t}) + \beta_6 \ln(OPEN_{i,t}) + \beta_7 \ln(ILLIT_{i,t}) + \beta_8 \ln(CPTAX_{i,t}) +$$

$$\beta_9 \ln(TEL_{i,t}) + \beta_{10} \ln(GDPUSD_{i,t}) + \beta_{11} \ln(OUTFLOW_t) + \beta_{12} \ln(LAW_t) + \beta_{13} \ln(GGDPR_{it})$$

$$\ln(CFDI_t) = \gamma_0 + \delta_1 \ln(FDI_{i,t}) + \rho_1 \ln(GPCGDPR00_t) + \rho_2 \ln(CCORRUPT_t) + \rho_3 \ln(CDUTY_t)$$

$$\rho_4 \ln(CGOVT_t) + \rho_5 \ln(CWAGE_t) + \rho_6 \ln(COPEN_t) + \rho_7 \ln(CILLIT_t) + \rho_8 \ln(CPTAX_t) +$$

$$\rho_9 \ln(CTEL_t) + \rho_{10} \ln(CGDPUSD_t) + \rho_{11} \ln(OUTFLOW_t) + \rho_{12} \ln(LAW_t) + \rho_{13} \ln(GGDPR_t)$$

where the subscript "i" and "t" stands for country i at period t and the variables used in this analysis are defined below.

FDI $_{i,t}$: the level of inward foreign direct investment in the ith Asian or Latin American economies in year t.

CFDI $_t$: inward foreign direct investment into China in year t.

GGDPR $_{i,t}$: growth rate of real GDP of country i at time t.

CGDPR$_t$: growth rate of real GDP of China at time t.

CORRUPT $_{i,t}$: an index of corruption of county i at time t.

CCORRUPT $_t$: an index of corruption of China at time t.

DUTY$_{i,t}$: import duty of country i at time t.

CDUTY$_t$: import duty of China at time t.

WAGE $_{i,t}$: average wage in manufacturing of country i at time t.

CWAGE $_t$: average wage in manufacturing of China at time t.

OPEN $_{i,t}$: the share of exports and imports in GDP of country i at time t.

COPEN $_t$: the share of exports and imports in GDP of China at time t.

ILLIT $_{i,t}$: the percentage of people who are illiterate of country i at time t.

CILLIT$_t$: the percentage of people who are illiterate in China at time t

TAX $_{i,t}$: corporate tax rate of country i at time t.

CTAX$_t$: corporate tax rate of China at time t

GOV $_{i,t}$: an index of government stability of country i at time t.

CGOV $_t$: an index of government stability of China at time t.

TEL $_{i,t}$: number of telephone mainlines per 1,000 people of country i at time t.

CTEL$_t$: number of telephone mainlines per 1,000 people of country i at time t

GPCGDP00 $_{i,t}$: growth rate of per capita GDP (base year 2000) of country i at time t.

CGPCGDP00 $_t$: growth rate of per capita GDP (base year 2000) of China at time t

OUTFLOW$_t$ total outflows of direct investment to the world at time t

LAW$_{it}$: an index of rule of law of country i at time t

CLAW$_t$: an index of rule of law of China at time t

GDPUSD$_{it}$: GDP in US dollar in country i at time t

CGDPUSD$_t$: GDP in US dollar in China at time t

The independent variables examined in the analysis are believed to exert an influence on inward foreign direct investment in each country of East and Southeast Asia, Latin America and China by changing the investment environment through institutional and policy changes as well as the relevant economic conditions such as the market sizes.

The main variable that we shall examine in this paper is the proxy for the China Effect *CFDI*. There are *two* sets of arguments that we should consider here. First, in examining which low-wage export platform to locate, multinationals may choose between investing in China vs. investing in another country, say Thailand or Mexico. In this case, the multinationals will study the whole host of factors, including wage rates, political risks, infrastructure, etc. that would make a country desirable as a site for low-cost production. Investing in China will then reduce the FDI in another Asian or Latin American economy. The sign of CFDI, according to this argument is negative. We shall call this the "*investment-diversion effect*".

The second aspect is the production and resource linkages between a growing China and the rest of Asia and parts of Latin America. In manufacturing, this takes the form of further specialization and growing fragmentation of the production processes. An investor sets up factories in both China, Thailand and Mexico to take advantage of their respective competitiveness in distinct stages of productions. Components and parts

are then traded among China and other economies. An increase in China's FDI is then positively related to an increase in Thailand's or Mexican FDI. Lall and Weiss (2004) document some early signs of an electronics production network between China and Mexico.

A different but complementary argument is that as China grows, its market size increases and its appetite for minerals and resources also rises. Subsequently, foreign firms rush into China to produce in China and to sell in China. At the same time, other multinationals also invest in other parts of Asia and Latin America to extract minerals and resources to export to a fast-growing China in need of a whole spectrum of raw materials. These commodities include copper, steel, aluminum, petroleum, coal and soybeans. This line of reasoning leads one to predict that the sign of CFDI to be positive. We call this effect the "*investment-creation effect*". Theoretically we cannot determine a prior the net effect of investment-creation and investment-diversion for China. It is thus important to examine this issue empirically, as we attempt to do in this paper.

In light of the academic literature that we have surveyed, there are *five* sets of standard determinants that we will control to isolate the China Effect. They are *market size* variables, *labor market* conditions, *institutional* variables, *policy* variables and the *global supply* of FDI. These are variables that we identify as important from our literature survey. We will discuss these sets of determinants next.

A substantial literature has developed confirming empirically the importance of the size of the host market and its growth rate. These are measured by GDP, the growth rate of real GDP per capita or real GDP growth. The foreign investors that target the local market are assumed to be more attracted to the country with a higher growth rate of

GDP as it indicates a larger potential demand for their products. In the literature, researchers have used both nominal and real GDP measures. As the variables (GDP, the growth of real GDP and per capita real GDP) are used as indicators for the market size and the potential for the products of foreign investors, the expected signs for these variables are positive.

Labor market conditions include the wage rates and the quality of labor. Since the cost of labor is a major component of the cost function, various versions of the wage variables are frequently tested in the literature. A higher wage rate, other things being equal, deters inward foreign direct investment (FDI). This must be particularly so for the firms which engage in labor-intensive production activities. Therefore, conventionally, the expected sign for this variable is negative. However, there are no unanimous empirical results for the effect of labor cost on the investment incentives in the existing literature. While some studies have shown no significant role of labor costs, others have shown a positive relationship between labor costs and FDI. The latter result is often attributed to a level of labor productivity or quality of human capital that may be reflected in the wage variables.

The level of human capital is demonstrated to be an another important determinant of the marginal productivity of capital. It has been shown in various studies that skill-related variables are host-country specific. When a host country is more appealing to labor-intensive foreign investment that requires a relatively low level of skills, the importance of the human capital variable tends to be small. On the other hand, labor skills can be a more significant factor for a host country, in which more capital- and

technology intensive investment projects are concentrated. In this analysis, we utilize illiteracy rate as a proxy for the level of human capital.

We also examine the significance of institutional factors in the determination of FDI by incorporating the level of corruption, an indicator of the rule of law and an indicator of the stability of each government. Corruption as well as a lack of the rule of law can discourage FDI by inducing a higher cost of doing business. Hines (1995) shows that FDI from the United States grew more rapidly in less corrupt countries than in more corrupt countries after 1977. Wei (1997) presents alternative explanation of the large negative and significant effect of corruption on FDI. Unlike taxes, corruption is not transparent and involves many factors that are more arbitrary in nature. The agreement between a briber and a corrupt official is hard to enforce and creates more uncertainty over the total questionable payments or the final outcome. Wei demonstrates that this type of uncertainty induced by corruption leads to a reduction in FDI. Political stability of a government and a lack of the rule of law can also be important factors to foster the inflow of FDI. Uncertain political environments and their related risks can impede FDI inflows in spite of favorable economic conditions. Since the indices of corruption, instability and the rule of law assign higher scores to less corrupt, better law enforcement or a more stable country, the expected signs of the variables, $CORRUPT$, GOV and LAW, are all positive.

Also included in the analysis are policy-related variables, tariff barriers proxied by import duty, corporate tax rates, openness to foreign trade and the quality of infrastructure. The effect of tariffs on the behavior of multinational enterprises (MNEs) is methodologically demonstrated by Horst (1971). He predicts that in the face of higher

tariffs imposed by the host countries, other things being equal, MNEs will increase its production abroad and decrease its exports. More recent models highlight the effect of tariffs on FDI within the context of vertical and horizontal specialization within MNEs. A typical vertical FDI can be characterized by individual affiliates specializing in different stages of production of the output. The semi-finished products in turn are exported to other affiliates for further processing. By fragmenting the production process, parents and affiliates take advantage of factor price differentials across countries. Horizontal specialization on the other hand, involves each affiliate' engagement in similar types of production. A typical horizontal FDI can be associated with market-seeking behavior and is motivated to avoid trade costs. Choosing between engaging in horizontal FDIs or exporting would involve calculating the trade-off between trade costs and economies of scale.

The MNEs, which set up vertical production networks may be encouraged to invest in a country with relatively low tariff barriers due to a lower cost of their imported intermediate products. Therefore, the expected sign of *DUTY* is negative. In contrast, high tariff barriers induce firms engaging in horizontal FDI to replace exports with production abroad by foreign affiliates (Brainard, 1997; Carr, Markusen, and Maskus, 2001). This "tariff jumping" theory implies a positive relationship between *DUTY* and FDI. Since the styled fact about East Asia and Latin America is that a business network is in place in Asia but not in Latin America, the expected sign of *DUTY* in the Asian regressions is negative, while for Latin America, it is positive (Fukao and Okubo 2003, Ando and Kimura 2003).

OPEN is included to examine the importance of openness of an economy to international trade. The variable measures the degree of general trade restrictions of each country. Following the same line of reasoning above, a negative relationship between openness and market-seeking FDI is expected, and a positive relationship is expected for export-oriented FDI. In addition, in some economies, openness can be an indicator of economic reforms, where domestic reforms and foreign trade reform go hand in hand. FDI can be attracted to a country with more economic reforms.

Another policy-related variable that can influence the host country's location advantage is the host country's corporate or other tax rates. The MNEs, as global profit maximizers, can be assumed to be sensitive to tax factors, since they have a direct effect on their profits. The evidence of significant negative influences of corporate tax rates are reported in previous studies by Wei (1997), Gastanaga, Nugent, and Pashamova (1998), and Hsiao (2001). Better developed regions with a superior quality of infrastructure can also be more attractive to foreign firms relative to others by including in our regressions the proxy, the number of telephone mainlines per 1000 people. Fung, Iizaka and Parker (2002), Fung, Iizaka and Siu (2003) as well as Fung, Garcia-Herrero, Iizaka and Siu (2005) show that at least in some instances, FDI is attracted to a Chinese province with a better infrastructure.

Finally, to control for the supply side of the direct investment, we include OUTFLOW, the total global outflows of FDI for each year. An increase in the global supply of FDI can raise FDI in all countries. This can create positive correlations among FDI inflows into various countries that are not related to the China Effect. We thus explicitly take this into account. All variables are transformed into logarithms. Data

sources and additional explanations of variables are given in Appendix A. The empirical relationship is modeled as a simultaneous equation system and is estimated by the two stage least squares.

6. Empirical Results: Is there a China Effect?

6.1 Results for East and Southeast Asia

6.1.1 Does China Reduce FDI inflows to the East and Southeast Asian Economies?

Table 3 shows the results from the first set of panel simultaneous regressions using the absolute level of FDI inflows as the dependent variables. To avoid multicollinearity problem, variables that are highly correlated are not included simultaneously. That generates various specifications of our regressions. For our Asian regressions, the years considered are from 1985 to 2002.

Table 3. Panel Regression Results with Levels of FDI in East and Southeast Asia

	(1)	(2)	(3)	(4)	(5)	(6)	
CFDI	0.1891***	0.2258***	0.0938*	0.3151***	0.1171**	0.3218***	0
	(0.0362)	(0.0390)	(0.0556)	(0.0366)	(0.0557)	(0.0375)	(0
OPEN	0.2969***	0.2787***	0.2257***				
	(0.0360)	(0.0517)	(0.0520)				
DUTY	-0.0726***	-0.0770***	-0.0854***	-0.0671***	-0.0865***	-0.0749***	-0
	(0.0170)	(0.0183)	(0.0175)	(0.0217)	(0.0200)	(0.0199)	(0
GDPUSD	0.0079	-0.0202	-0.0333	-0.2298***	-0.1943***	-0.2190***	-0
	(0.0394)	(0.0588)	(0.0559)	(0.0477)	(0.0435)	(0.0486)	(0
ILLIT		0.0754	0.1066**	0.1258**	0.1632***	0.1140**	0
		(0.0490)	(0.0475)	(0.0551)	(0.0502)	(0.0565)	(0
CPTAX		-0.2337*	-0.2455**	-0.4332***	-0.3781***	-0.4066***	-0
		(0.1204)	(0.1141)	(0.1154)	(0.1043)	(0.1208)	(0
GOVT		0.0726	0.0926	0.0551	0.0819	0.0490	0
		(0.0602)	(0.0573)	(0.0645)	(0.0582)	(0.0665)	(0
CORRUPT		0.0091	0.0655	-0.0528	0.0222	-0.0185	0
		(0.0843)	(0.0819)	(0.0970)	(0.0888)	(0.0977)	(0
LAW		-0.0941	-0.0671	0.0303	0.0310	-0.0179	0
		(0.0872)	(0.0829)	(0.0894)	(0.0803)	(0.0928)	(0
OUTFLOW			0.1816***		0.2426***		0
			(0.0587)		(0.0561)		(0
WAGE				0.1353***	0.1143***		
				(0.0320)	(0.0291)		
TEL						0.0837***	0
						(0.2393)	(0
R-sqr	0.6250	0.6505	0.6888	0.6088	0.6854	0.5885	0
Observations	136	136	136	135	135	136	

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

A constant is included in the model but not reported.

Our main variable of interest $CFDI$ is **positive** and significant in all specifications. A 10 percent increase in the FDI inflows to China would raise the level of FDI inflows to the East and Southeast Asian countries by about 1 to 3 percent, depending on the specifications. Despite considerable concerns in policy circles that an increase in FDI flow to China is at the expense of other regional economies, this study shows that those economies can actually benefit from it. This may be linked to the production-networking activities among Asian countries as well as the increased resource demand by a growing China. The evidence of production-networking among China and other Asian economies can be found in the substantial two-way trade of intermediate and final goods in the same industries among those countries.[5]

Many of the countries examined are heavily involved in vertical specialization, particularly in electric and electronics industries, which can be seen in the share of two-way trade in the same industry in the total volume of trade among the nations (Table 4). The economic ties of mutual dependence among them have been deepening rapidly since 1990s. The significance of the China Effect in the level of FDI inflows to our group of Asian countries may reflect such interdependence.   Thus our empirical study shows that an increase in China's FDI is positively and significantly related to FDI inflows in other Asian economies. Our central result here is then as follows: *up to now the investment-enhancing effect dominates the investment-diversion effect* so that overall China is a positive force for FDI inflows into other Asian economies.

Table 4. China's Two-Way Trade of Electric Equipment with its Neighbors, 2003

	Exports of Electrical Equipment to China (US$1,000)	Rank in Exports to China	Imports of Electrical Equipment from China (US$1,000)	Rank in Imports from China
Taiwan	17,075,435	1	2,470,679	1
Republic of Korea	13,224,831	1	4,122,382	1
Singapore	3,432,677	1	2,869,225	1
Thailand	1,984,551	2	888,914	2
Malaysia	7,179,539	1	1,587,136	2
Philippines	4,251,766	1	890,895	1
Indonesia	346,577	7	632,660	3

Source: Fung (2004), China's Custom Statistics Monthly, 2003, December.

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[5] See also Ando and Kimura (2003) and Fukao and Okubo (2003).

The effect of openness, denoted by the variable *OPEN*, has an expected positive sign and is always significant in its inclusion. Openness captures the degree of both tariff and non-tariff measures including various trade costs. In contrast to the effect of tariff barriers proxied by *DUTY,* which is another significant variable, the impact of openness to trade on the inflow of FDI is substantial. The results in Table 3 suggest that, all else being equal, the marginal effect of trade liberalization of the Asian countries on the inflow of FDI can be more than twice as large as that of the China Effect. Trade impediments can take various forms such as local content requirements, technology transfer requirements, domestic sales and export requirements, and so on. Our results imply that reductions in the various types of trade barriers can play a vital role in promoting FDI to those countries.

Corporate tax is another variable that is found to exert a large influence on the level of the inflows of FDI in this analysis. Although many countries offer various forms of tax incentives for foreign investors, corporate tax rates can be considered as one of the most influential tools to promote investment since it has a direct impact on the profitability of their investment projects. The effects of corporate tax rates are in most cases larger than the China Effect.

For the East and Southeast Asian economies, the GDP variable is significant but seems to have the wrong sign. However, its significance disappears once DUTY is added into the regressions. This seems to indicate that the GDP variable is not very robust. The degree of government stability, the index of corruption and the index for the rule of law, *GOV*, *CORRUPT* and LAW, are all insignificant. The OUTFLOW variables are positive

and significant. They signify the impact of an overall "supply" effect on the inflows of FDI to these Asian economies. The proxy for infrastructure is also significant, even though it has a very small coefficient.

Overall, factors that affect the FDI inflows into East and Southeast Asia are the positive China Effect, policy variables such as the degree of openness to trade and the quality of infrastructure and the world supply of the FDI.[6]

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[6] For related robust tests of these regression results, see B. Chantasasawat, K.C. Fung, H. Iizaka and A. Siu (2003a, 2003b).

6.1.2. Does China Reduce the East and Southeast Asian Economies' Shares of Total FDI inflows to Developing Economies?

In this empirical exercise, we change the dependent variable from the level of FDI to the country's share of the total FDI flowing into all developing countries (Table 5). The idea is to capture the notion that some government officials may be concerned about their shares and not just the levels of their FDI. Here we found that the China Effect is negative and significant. This means that China does reduce the shares of these economies out of the total FDI inflows to all developing countries. Furthermore, the China Effect is large.

OPEN and DUTY are as in the regressions with levels, significant. Corporate tax rates have the expected negative signs. The index of government stability has a small coefficient, but it is significant. Infrastructure is also positive and significant. But labor market variables including the wage rates and the degree of illiteracy seem to have the wrong signs.[7] Overall, the dominant determinants of the Asian economies' shares of FDI into all developing countries are the negative China Effect, policy variables such as openness to trade, corporate tax rates and infrastructure as well as the institutional factor of government stability.

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[7] As discussed earlier, wage rates are often found to be positively related to FDI in previous empirical studies of FDI.

Table 5. Panel Regression Results Using Shares of Total FDI Flowing into Developing Countries

	(1)	(2)	(3)	(4)	(5)	(6)	
CFDI	-0.8683***	-0.8249***	-0.5849***	-0.7597***	-0.7692***	-0.5749***	-0
	(0.0485)	(0.0446)	(0.0569)	(0.0397)	(0.0374)	(0.0561)	(0
OPEN	0.2678***	0.1902***	0.2170***				
	(0.0455)	(0.0475)	(0.0402)				
DUTY	-0.0922***	-0.0934***	-0.0740***	-0.0865***	-0.1040***	-0.0886***	-0
	(0.0210)	(0.0198)	(0.0170)	(0.0209)	(0.0217)	(0.0196)	(0
GDPUSD	-0.0029	-0.0620	-0.0711	-0.1918***	-0.1916***	-0.2164***	-0
	(0.0525)	(0.0650)	(0.0544)	(0.0513)	(0.0470)	(0.0419)	(0
GPCGDPR00	-0.0698						
	(0.1092)						
ILLIT		0.1241**	0.0756*	0.1151**	0.1688***	0.1388***	0
		(0.0528)	(0.0452)	(0.0559)	(0.0558)	(0.0498)	(0
CPTAX		-0.2915**	-0.3142***	-0.4872***	-0.3684***	-0.4228***	-0
		(0.1376)	(0.1153)	(0.1201)	(0.1181)	(0.1052)	(0
GOVT		0.1374**	0.0920*	0.1348*	0.1077*	0.0960*	0
		(0.0637)	(0.0540)	(0.0689)	(0.0631)	(0.0558)	(0
OUTFLOW			-0.3088***			-0.2347***	
			(0.0569)			(0.0556)	
CORRUPT				0.1410			
				(0.0930)			
LAW				0.0967	0.1004	0.0558	
				(0.0963)	(0.0692)	(0.0620)	
WAGE					0.0970***	0.1065***	
					(0.0292)	(0.0259)	
TEL							0
							(0
R-Sqr	0.8740	0.8931	0.9244	0.8950	0.9054	0.9261	0
Observations	136	136	136	136	135	135	

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

A constant is included in the model but not reported.

6.2 Empirical Results for Latin America: Is There a China Effect?

6.2.1 Does China Reduce FDI inflows into Latin America?

In the next table we present results for the levels of FDI inflows into various Latin American economies (Table 6). For the Latin American regressions, the years we examine are from 1990-2002. In contrast to the corresponding regressions for East and Southeast Asia, the China Effect variable is in most cases *insignificant*. Even when they are significant (columns (3), (5) and (8)), the magnitudes of the coefficients are quite small, generally smaller than those in the regressions for Asia. This is consistent with the fact that the similarity of exports between China and the Latin American economies is still rather modest (Lall and Weiss 2004). Except for Mexico, multinational firms in general do not view China and most of the Latin American countries as competing sites for processing their products. We thus do not find a systematic negative China Effect.

On the other hand, unlike China and the rest of Asia, there is no comparable network of production-sharing in place between China and Latin America. There are indications that in electronics, a production fragmentation network may be forming between China and Mexico (Lall and Weiss 2004). At the same time, China's appetite for commodities may also spur FDI in the primary sectors of selective Latin American economies. This may explain the occasional positive signs of the China Effect. In sum, for Latin America, the China Effect is either insignificant or very mildly positive.

Levels of FDI in Latin America are mostly explained by their market sizes and their growth rates, the global supply of FDI and import barriers. In the Latin American

regressions, higher trade barriers are correlated with more FDI, indicating the motive for

tariff-jumping FDI. The positive sign of DUTY also indicates the lack of a production

network, since with production and trade of intermediate goods, FDI will be correlated

with lower trade barriers in general. This is in contrast with the results from the Asian

regressions, where DUTY is negative and significant, which tends to be consistent with

the existence of an East and Southeast Asian production network. A thriving business

and production network in East and Southeast Asia (including China) in contrast to the

relative lack of such clusters of production in Latin America may explain the different

estimated results for Asia and Latin America.[8]

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[8] Ando and Kimura (2003) found that at least for machinery (including general machinery, electric machinery, transport equipment and precision machinery), there is a deep production network in East Asia (with China). But Latin American economies are not forming production networks.

Table 6. Panel Regression Results with Levels of FDI inflows into Latin America

	(1)	(2)	(3)	(4)	(5)	(6)	
CFDI	0.0914	0.0887	0.1796**	0.1089	0.1520*	0.1075	0
	(0.0968)	(0.0950)	(0.0810)	(0.0854)	(0.0886)	(0.1078)	(0
GDPUSD	0.9523***	0.9199***	0.9638***	1.0225***	0.9473***	0.9341***	0
	(0.0884)	(0.0880)	(0.0971)	(0.1358)	(0.0977)	(0.1222)	(0
OUTFLOW	0.5759***	0.6397***	0.5796***	0.5289***	0.4413***	0.6128***	0
	(0.1268)	(0.1267)	(0.1159)	(0.1300)	(0.1629)	(0.1740)	(0
GPCGDPR00		0.5338***	0.6837**	0.6212**	0.5133*	1.2165***	0
		(0.1823)	(0.2766)	(0.2836)	(0.2900)	(0.4304)	(0
DUTY			0.4185***	0.4276***	0.3713**	0.4122*	0
			(0.1562)	(0.1566)	(0.1815)	(0.2300)	(0
OPEN				0.3463			0
				(0.3112)			(0
ILLIT				-0.0011			-0
				(0.2817)			(0
TEL				0.1620			0
				(0.2748)			(0
GOVT					0.2938		0
					(0.2794)		(0
CORRUPT					-0.3595		-0
					(0.2798)		(0
CPTAX					-0.1027		-0
					(0.1552)		(0
LAW					0.2649		0
					(0.2010)		(0
WAGE						0.0583	
						(0.0709)	
GGDPR							
R-sqr	0.7544	0.7629	0.7880	0.7939	0.8019	0.7371	0
Observations	208	208	181	181	169	118	

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

A constant is included in the model but not reported.

6.2.2. Does China Reduce Latin American Economies' Shares of Total FDI inflows into Developing Countries?

In the next table, we present our panel regression results using the Latin American economies' shares of FDI flows going to all developing countries as the dependent variable (Table 7). The China Effect in this case is negative and significant. As in the regressions with levels, other variables that are significant include the sizes of the markets, growth of per capita income and the extent of trade restrictions. Even though the China Effect is negative and significant here, its effect is much smaller compared to the market size variables. DUTY as an explanatory variable also has a larger coefficient. Thus, even if policymakers are concerned with his/her countries' FDI shares, the dominant influence here does not seem to be due to the emergence of China.

Table 7. Panel Regression Results Using Shares of Developing Countries

	(1)	(2)	(3)	(4)	(5)	(6)	
CFDI	-0.2187***	-0.2575***	-0.3115***	-0.2976***	-0.3112***	-0.3318***	-0
	(0.0588)	(0.0696)	(0.0743)	(0.0765)	(0.0767)	(0.0845)	(0
GDPUSD	0.9514***	0.9377***	0.9303***	0.9995***	1.0000***	0.9843***	1
	(0.0974)	(0.0946)	(0.0948)	(0.1137)	(0.1169)	(0.1245)	(0
GPCGDPR00	0.5295**	0.4992*	0.4952*	0.4591*	0.4716*	0.4656*	1
	(0.2648)	(0.2657)	(0.2656)	(0.2692)	(0.2710)	(0.2739)	(0
DUTY	0.3979***	0.3577**	0.3367**	0.3441**	0.3480**	0.3480**	0
	(0.1510)	(0.1542)	(0.1560)	(0.1557)	(0.1567)	(0.1572)	(0
LAW		0.2190	0.2892	0.2618	0.2614	0.2827	0
		(0.1815)	(0.1890)	(0.1905)	(0.1922)	(0.1898)	(0
CORRUPT			-0.2634	-0.2028	-0.1894	-0.2139	-0
			(0.2636)	(0.2643)	(0.2659)	(0.2656)	(0
GOVT			0.1876				
			(0.1974)				
OPEN				0.2862	0.3110	0.2650	0
				(0.2861)	(0.2855)	(0.2962)	(0
ILLIT					-0.0697		-0
					(0.1947)		(0
TEL						0.0843	
						(0.1835)	
WAGE							0
							(0
OUTFLOW							
R-sqr	0.7559	0.7637	0.7639	0.7705	0.7706	0.7687	0
Observations	181	181	181	181	181	181	

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

A constant is included in the model but not reported.

7. Conclusion

China's development strategy to attract foreign firms has been a huge success. Its external "open door" reforms are complementary to its internal policies to privatize its economy. But is China's FDI policy *detrimental or complementary* to attempts by other economies in Asia and Latin America to attract more foreign direct investment? In other words, is China diverting foreign direct investment away from other Asian and Latin American economies? This is the paramount question on the minds of many academic researchers as well as policymakers in Latin America and Asia.

Theoretically, the emergence of China can have both *investment-creating* effects as well as *investment-diverting* effects. In this paper, we examine this issue empirically. We use data for eight Asian economies (Hong Kong, Taiwan, Republic of Korea, Singapore, Malaysia, Philippines, Indonesia and Thailand) and data from sixteen Latin American economies (Argentina, Bolivia, Brazil, Chile, Columbia, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela) and estimate the determinants of foreign direct investment inflows in these economies. The standard determinants we consider include market size variables (real GDP growth rates, growth rates of real per capita income and GDP), policy variables (the degree of openness, corporate tax rates, import duties, quality of infrastructure) institutional characteristics (indices of corruption, degrees of government stability, indices of the rule of law), labor market conditions (illiteracy rates and wage rates) as well as the global supply of FDI. To estimate the **China Effect**, we include in the empirical equations the levels of China's inward foreign direct investment. As China's foreign direct investment should also be dependent on foreign direct investment in other

Asian and Latin American economies and other similar policy and institutional factors, we use a panel regression simultaneous equation model to estimate our coefficients, paying particular attention to the estimated coefficient of the China Effect.

The main results of our paper are as follows. *First*, in terms of the levels of foreign direct investment flows, the China Effect is **positive** for the East and Southeast Asian economies. For the Latin American economies, the China Effect is mostly **insignificant** and occasionally mildly positive. In other words, foreign direct investments to our Asian economies are positively related to direct investment into China, while foreign direct investments to the Latin American economies have little systematic relationship with direct investment going into China.

These results are consistent with the view that there is a thick and growing *production network* within these Asian economies and China, but except for Mexico, there is relatively little vertical production-sharing among the Latin American countries. Thus multinationals may want to set up factories and distribution network in both China and other parts of Asia to accommodate their increasingly sophisticated global supply chains, but they do not seem to view China and Latin America systematically as rival, alternative sites of business networks. *Second*, in terms of the shares of developing countries' foreign direct investments, the China effect is **negative** for both the East and Southeast Asian economies as well as for the Latin American economies. Thus while both the level of China's foreign direct investment and the levels of foreign direct investments of our Asian economies are increasing together and that there is no strong relationship between foreign direct investment into China and into Latin America, an increase in China's investment is associated with a decline in the Asian and Latin

American shares of foreign direct investment of the developing economies. *Third*, the

China effect is in general *not* the most important factor determining the inflows of foreign

direct investments into these economies. Specifically, market size variables and policy

variables such as the lower corporate taxes and higher degrees of openness play larger

roles in attracting investment.

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Appendix A: Definitions and Sources of Variables.

FDI: Aggregate foreign direction investment inflows from the UNCTAD.

GDPUSD: GDP in US dollars from EconStats.

GPCGDPR00: Growth of per capita GDP based year 2000. Per capita GDP data are from EconStats.

GGDPR: Growth of real GDP. Real GDP data are from EconStats.

DUTY: Import duties data are from IMF's *Government Finance Statistic Yearbook* with supplements from individual countries' statistical yearbooks and national statistical agency websites.

OPEN: Openness = (Export + Import)/ GDP. Export and Import as a percentage of GDP are from *World Development Indicators*.

ILLIT: Illiteracy rate is the percentage of people ages 15 and above who cannot, with understanding, read and write a short, simple statement on their everyday life; from *World Development Indicators*.

TEL: Telephone mainlines (per 1,000 people). *World Development Indicators* provide data, which are from International Telecommunication Union.

GOVT: An index of government stability from *International Country Risk Guide (ICRG)* from the PRS Group. The range is from 0 to 12. A higher score means higher stability of a government.

CORRUPT: An index of corruption from *International Country Risk Guide (ICRG)* from the PRS Group. It ranges from 0 to 6, where a higher number indicates a lower level of corruption.

LAW: An index of Law and Order from *International Country Risk Guide (ICRG)* from the PRS Group. It ranges from 0 to 6, where a higher number indicates a better system of law and order.

CPTAX: Corporate income tax rate, measured in percentage points, from Price Waterhouse's "*Worldwide Summary*" book.

WAGE : Average wage in manufacturing are from International Labor Organization (ILO)'s LABORSTA and countries' statistical yearbooks and national statistical agency website.

OUTFLOW: Total world outflows of foreign direct investment from the UNCTAD.

Taiwan's data are mostly from *Statistical Yearbook of Republic of China* and its official website