

Why Have East and South East Asian Countries Received More Foreign Direct Investment Than African Countries?

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ABSTRACT:

The relationship between foreign direct investment (FDI) and its determinants has recently received considerable attention in the development literature. However, little interest has been devoted to the role of the institutional quality of the host country in protecting property rights of foreign investors against expropriation and in ensuring that contracts are enforced. This paper tries to fill that gap, by using a simultaneous equation approach to empirically test the relationship between FDI and institutional quality in the context of 60 developing countries covering the period 1970-95. The results of cross-section analysis show that the variability in FDI/GDP(gross domestic product) between East, and South East Asia and African countries can be explained by the growth rate of real GDP per capita, institutional quality, the inflation rate and political instability. In contrast to the results of cross-sectional analysis, by using pooled cross-section and time-series data, we find that institutional variable has a positive effect on FDI/GDP rates.

Keywords: *foreign direct investment, gross domestic product, investment, transnational corporations, multinational enterprises*

INTRODUCTION

One striking feature of the world economy in recent decades has been the growth of foreign direct investment (FDI), or investment by transnational corporations or multinational enterprises in foreign countries in order to control assets and manage production activities in those countries. Since the early 1980s, world foreign direct investment flows have grown at a phenomenal rate. During 1980-97, global FDI outflows increased at an average rate of about 13p.100 a year. In 1998, global FDI inflows increased for the seventh consecutive year, and outflows increased for the third consecutive year, to reach some \$430-440 billion. As FDI flows have grown in volume, they also become more widely dispersed among host (recipient) countries.

Developing countries are becoming an increasingly attractive investment destination, in part because they can offer investors a range of 'created' assets. According to UNCTAD (1998), developing countries' share in total FDI inflows rose from 26 p.100 in 1980 to 37 p.100 in 1997, and their share in total outflows rose from 3 p.100 in 1980 to 14 p.100 in 1997.

Among developing countries, though, the distribution of world FDI inflows is uneven, in 1997, for example, developing Asia received 22 p.100; Latin America and the Caribbean, 14 p.100; and Africa, 1 p.100. The past decade has witnessed a dramatic increase in FDI to developing countries, with FDI increasing from \$ 24 billion (24 p.100 of total foreign investment) in 1990 to \$178 billion (61 p.100 of total foreign investment) in 2000 (cf. World Bank 2001). However, Africa the poorest region did not benefit from the FDI boom despite efforts to attract FDI. For example, over the period 1980-89 and 1990-98, FDI to Sub-Saharan Africa (SSA) grew by 59 p.100. This compares with an increase of 5,200 p.100 for Europe and Central Asia, 942 p.100 for East Asia and Pacific, 740 p.100 for South Asia, 455 p.100 for Latin America and Caribbean, and 672 p.100 for all developing countries (cf., World Bank 2000a).

Ito (1999) notes that FDI to Asia has increased steadily during the 1990s. The increases are most significant in China, where it was a 15-fold increase in six years (1990 to 1996 before the East Asian crisis). Other countries, Korea, Singapore, Indonesia, Thailand, and Vietnam saw from two-fold to four-fold increase in the first six years of the 1990s. Japan provided most FDI to the total of nine Asian countries (4 NIEs, ASEAN-4, and China). In some countries (Korea, Taiwan, Singapore, and Philippines), the US is the number one FDI source country, while for others, Japan is the number one. Europe collectively was investing into Asia in a similar magnitude to the US. However, for most countries, impacts of FDI in typical Asian countries are dictated by investors' behaviour of Japan and the United States.

As the largest investor in the region, the role of Japan in FDI is important. The largest recipient is Indonesia, closely followed by Hong Kong and China. In contrast, more than 60 p.100 of Japanese FDI to Thailand, Malaysia, and the Philippines were done in the 1990s, reflecting the rapid rise of these economies, and the sharp rise in Japanese investment in these economies. In the beginning of 1990s, Indonesia, Thailand, and Malaysia were the preferred destinations of Japanese FDI. East Asia has a remarkable record of high growth rate of FDI. FDI growth patterns have diverged dramatically between African and East and South East Asian countries (ESEA) in the last decades. While FDI in Asia has grown consistently well, Africa's FDI has averaged near zero. The key challenge for economists is to understand why FDI outcomes differ so much and, hopefully, to use this knowledge to recommend policy changes that would increase the chances of lagging countries to perform better. How did the enormous difference in FDI flows between SSA and Asia emerge, and can anything be done to reduce it? Why since the early 1980s, FDI have grown faster in East and South East Asian countries than in

Africa economies? Can the difference in institutional quality explain the variability in FDI between Asian and African countries?

OBJECTIVE OF THE PAPER

The purpose of this paper is to explore factors that explain the variability in FDI between Asian and African countries. We test empirically whether the institutional quality of the host country in protecting property rights of foreign investors against expropriation or nationalization risk and in ensuring that contracts are enforced is the vital determinant of FDI. Specifically, we employ cross-sectional analysis to a dataset of 60 developing countries spanning 1970-95 periods in order to investigate the effect of institutional quality on FDI. Second, to correct for possible simultaneity between FDI and some explanatory variables such as per capita GDP growth rates, we use a simultaneous equation approach, where the dependent variables are respectively the per capita GDP growth rates and the FDI/GDP ratio averaged over 1970-95 periods. Finally, because the estimates of cross-section studies can be biased, we also use a pooled cross-section and time-series data to examine the effects of institutional variables on FDI.

Methodologically, we use two statistical techniques. We first use simple ordinary least squares (OLS) regressions with one observation per country averaged over the 1970-95 period. Second, we use the seemingly-unrelated regression (SUR) technique for the pooled cross-section and time-series data. The paper is divided into six sections. Section III presents a brief review of literature and the section IV provides an account of the data used in the empirical analysis; Section V describes the regression results, and Section VI presents some concluding remarks.

REVIEW OF LITERATURE

Over the last 15 years, there has been an enormous change in host country attitudes to, and policies toward, private foreign investment in general and FDI in particular. This has been accompanied by studies attempting to demonstrate the net benefits over costs of these flows. Not only does FDI add to gross capital formation and the balance of payment without risk associated with additional loan repayments, but also it is often said to increase competition and give rise to positive technological externalities and spill-overs, thereby raising dynamic efficiency (Gastanaga et al. 1998). FDI provides the needed capital for investment and brings with it employment, and access to effective managerial skills. Therefore FDI can accelerate growth and development. Early efforts to understand the investment climate – that is, the set of location-specific factors shaping the opportunities and incentives for firms to invest productively, create jobs and expand – focused on broad indicators of country risk, often based on surveys of international experts and usually resulting in a single score for each country. Many studies focused on the narrower questions of the constraints facing only foreign investors. Researchers looked at various aggregate indicators of a country's institutional and policy environment, such as the rule of law, corruption (Mauro, 1995), openness to trade, legal origins and financial sector depth (Laporta et al. 2002).

Many economists argue that malfunctioning government institutions constitute a severe obstacle to investment, entrepreneurship, and innovation. However, research on the effects of policy variables on FDI, especially with respect to developing countries where the institutional framework may be different from what is typically found in the west, is rather limited. While there has been much research on the general determinants of FDI in developing countries, with

surveys by Aggarwal (1980) and Schneider and Frey (1985), much of this literature focuses on very general factors like comparative labor costs, country size, the nature of the exchange rate regime and political factors including political instability. Several more recent empirical studies of FDI determinants mention the potential importance of policy-related variables such as tax rates, foreign investment incentives and openness as determinants of FDI. For example, Tsai (1994) notes the importance of qualitative factors such as political stability and incentive policies, but does not include them in the empirical analysis on the grounds that such variables are difficult to define and quantify. His study of FDI determinant, although using a more sophisticated simultaneous equation approach, includes only very conventional economic variables such as market size and growth factors (measured by GDP per capita and GDP growth per capita), the per capita trade balance and the hourly wage rate in manufacturing. Although data for two different periods are used in this study, the model is estimated as a pure cross-section for each of two periods, 1975-78 and 1983-86. Market size and growth have positive effects on FDI flows, although in the latter case only in the second period.

A distinctive approach is that of Lucas (1993) on the determinants of FDI flows in seven East and Southeast Asian economies. He develops an innovative theoretical model based on the derived demand for foreign capital of a profit-maximizing, multiple product monopolists. Two versions of the model are employed, a basic form containing only relative price and other endowment type variables, and an extended version which includes also location, market size, expectations formation, political risk and the regulatory framework. The basic model is estimated in logarithmic and non linear form separately for each country with time-series data for 1960-87. The results show that, for five of the seven countries studied, FDI flows have been responsive to the rental equivalent cost of capital and product price and to dummy variables representing

different regime types. The extended model is estimated by pooling the data for several countries of the sample, and allowing for country differences in both shift parameters and slope coefficient. Once again dummy variables for specific important events are provided. For three of the countries, the regime change dummy variables have little effect. In the other four countries, however, the dummies have significant effects, demonstrating that FDI rise with 'good' political events and falls with 'bad' events.

Among the more recent studies which have attempted to incorporate institutional factors such as host country risk and corruption in the determination of FDI are Wheeler and Mody (1992), Hines (1995), Wei (1997) and Gastanaga et al. (1998). Wheeler and Mody use a composite measure of risk based on 13 indicators, including corruption, but do not find the hypothesized negative effect of risk on FDI. Hines uses only a corruption index, along with GDP growth and other factors, to show that, after 1977, FDI from the United States grew more rapidly in less corrupt countries than in more corrupt ones. Using a sample covering bilateral investment from 14 OECD countries to 45 host countries during 1990-91 and focusing on the effects of corruption after controlling for the marginal tax rate on foreign corporation, GDP per capita, population, the wage rate, distance between source and host countries, linguistic ties and political instability, Wei (1997) find that an increase in either the tax rate on multinational firms or the corruption level in a host country reduces inward FDI. An increase in the corruption level from that of Singapore to that of Mexico was equivalent to raising the tax rate by over twenty percentage points. For each of several specifications of the model, two different measures of corruption and the marginal tax rate are shown to have significant negative effects on FDI. He also found that there was no support for hypothesis that corruption has a smaller effect on FDI into East Asian host countries. American investors were averse to corruption in host countries, but not

necessarily more so than average OECD investors, in spite of the U.S. Foreign Corrupt Practice Act of 1997. Wei (1997) emphasizes corruption discourages FDI and, Lee and Mansfield (1996) found that perceptions concerning the strength of intellectual property rights affected both the volume and the composition of U.S. FDI. Similarly, Mauro (1995) found that corruption lowers private investment, thereby reducing economic growth, even in sub samples of countries in which bureaucratic regulations are very cumbersome.

The negative association between corruption and investment, as well as growth, was significant, both in a statistical and in an economic sense. Gastanaga and al. (1998) have studied the effects of various policies of FDI flows from the perspective of the 'electic theory' of international investment, and hence the advantages of foreign ownership, host country location, and internationalization. They use a pooled cross-section and times-series data for 49 less-developed countries over 1970-95 to examine the effects of several different types of policy/institutional variables, including corporate tax rates, tariff rates, the degree of openness to international capital flows, exchange rate distortions, contract enforcement, nationalization risk, bureaucratic delay and corruption. A multivariate analysis of the effects on FDI flows of each type of policy, with and without controls for other relevant determinants was conducted. Their results demonstrate the relevance and the importance for FDI flow of many of the policy/institutional variables. They also indicate that the results from panel methods yield results that differ rather significantly from those obtained from pure cross-section analysis. They found that for all three measures of investment-friendly institutions, i.e., the contract enforcement, the bureaucratic delay and the absence of corruption, all have positive and generally significant effects on FDI. FDI was lower in countries with greater bureaucratic delay and higher nationalization risk. In this paper, we argue that economies with better institutions would attract

more FDI and benefit more from it to promote their economic growth and therefore tend to grow more rapidly.

Good institutions have three key characteristics : enforcement of property rights for a broad cross section of society, so that a variety of individuals have incentives to invest and take part in economic life; constraints on the actions of elites, politicians, and other powerful groups, so that these people cannot expropriate the incomes and investments of others or create a highly uneven playing field; and some degree of equal opportunity for broad segments of society, so that individuals can make investments, especially in human capital, and participate in productive economic activities (Acemoglu, 2003). According to Saleh (2004), property rights determine investment by affecting its expected returns. Because property rights are complex and multidimensional, they affect expected returns through a number of distinct but interrelated channels. These include the following: first, security of property rights is the most often cited channel for promoting investment. More secure rights generally lead to lower expected expropriation and higher net returns. Investment may be expropriated through theft, fraud, confiscation or taxation. Insecure property rights also affect the expected variability of expropriation. For any given expected expropriation level, there may be higher or lower variability. Uncertainty of expropriation affects the uncertainty of returns and tends to discourage investment for risk-averse decision maker. When property rights are insecure, potentially less efficient investments may also be undertaken as a means to strengthen the security of property rights. A second factor affecting investment is the degree of transferability of property, through gift, bequest, rent or sale. The types of investments that can be undertaken depend on the ability of owners to borrow capital at relatively low cost. The ability to use property as collateral reduces the cost of borrowing and encourages investments. This ability depends on the degree to

which the legal system and social norms protect and enforce financial contracts. Formalization and registration of property rights generally reduce the costs of making and enforcing financial contracts by making it easier to transfer assets in case of default. In addition, formal titles to property lower the cost to lenders for determining the credit-worthiness of borrowers. The return to investment also depends on the degree to which property owners can obtain access to common property resources and public goods at reasonable cost. Laws, regulations and customs determining the conditions for access to common property affect the returns to investment by allowing fuller utilization of resource complementarities. Returns to investment also depend on the ability to make deals with other property owners such as customers, creditors, potential shareholders, workers and suppliers. Some scholars of *institutions hypothesis* have examined the effect of corruption on FDI and domestic investment. Although there is an extensive literature on the determinants of FDI to developing countries, most of the analysis are based on a relatively small number of countries. Furthermore, research on the determinants on FDI especially with respect to African and East and South East Asian countries is limited. Only a few African countries are included in the samples. For example, Gastanaga et al. (1998) consider 49 countries, 6 of which are in SSA while Schneider and Frey (1985) consider 51 countries of which 13 are in SSA. An exception is Edwards (1990), where 25 out of 51 countries are in SSA while Asiedu (2002) employs a more comprehensive dataset of 71 developing countries, 32 of which are in SSA. Her paper explores whether factors that affect FDI in developing countries affect countries in SSA differently and she find that a higher return on investment and better infrastructure have a positive impact of FDI to non-SSA countries, but have no significant impact on FDI to SSA. In addition, openness to trade promotes FDI to SSA and non-SSA countries; however, the marginal benefit from increased openness is less for SSA. Although her

study is more interesting, she failed to take in account the institutional quality as a main determinant of FDI in developing countries. In addition, her results are suspect econometrically because of the high probability of bias. Asiedu (2002) ignored the endogeneity problem when she included growth rate of GDP as a measure of the attractiveness of the host country's market. The causality between FDI and growth rate of GDP can run in either direction leading to simultaneity bias. This paper tries to fill that gap, by addressing the simultaneity problem and by using a sample of 60 developing countries (52 Africa countries and 8 East and South East Asian countries) covering the period 1970-95 to test whether the institutional quality can explain why during the last decades, East and South East Asian countries have received more FDI than African countries.

DATA AND EMPIRICAL ANALYSIS

In this section, we first describe the data used in the empirical analysis, and then discuss the expected sign of the explanatory variables and finally present the result.

A. Data

The data come from various sources. Most of the data come from the World Development Indicators CD-ROM (2005) and the databases from Barro and Lee (1994). I study in this section the empirical determinants of FDI. We use a sample of 60 countries, i.e., 8 East and South East Asia countries and 52 Sub-Saharan Africa economies, listed in the appendix A, which provide a wide array of experiences from developing countries. Countries that were included in the dataset were determined by the availability of data. We study the variability of FDI/GDP rates between Asian and African countries by using two different methods; Cross-section estimation and the

panel data method. Because the databases from Barro and Lee (1994) are limited over 1960-89 periods, the panel data set includes a limited amount of times-series variation over three periods: 1970-74; 1975-1979 and 1980-85. To explore the impact of the institutional quality on FDI, We control for other determinants of FDI.

Previous studies have identified many determinants of FDI. First, the return on investment in the host country: FDI will go to countries that pay a higher return on capital. However, finding an appropriate measure for return on investment is problematic, especially for developing countries, thereby making this hypothesis very difficult. To get around this problem, we assume as in Asiedu (2002) that the marginal product of capital is equal to the return on capital. This implies that investments in capital-scarce countries will yield a higher return. Since capital-scarce countries tend to be poor, we use the inverse of the real GDP per capita to measure the return on capital. This implies that all else equal, investments in countries with a higher per capita income should yield a lower return and therefore real GDP per capita should be inversely related to FDI.

Second, infrastructure development: Good infrastructure increases the productivity of investments and therefore stimulates FDI flows. As is standard in the literature, we use the number of telephone per 1000 population from World Bank (2005) to measure infrastructure development. Third, openness of the host country: In the literature, multinational firms engaged in export-oriented investments may prefer to locate in a more open economy since increased imperfections that accompany trade protection generally imply higher transaction costs associated with exporting. We use two different indicators as a measure of openness of an economy to capital flows in general: the ratio of trade (imports + exports) to GDP and the 'black market premium'. This last indicator taken from Barro and Lee (1994) measures the exchange distortions. Some economists like Gastanaga et al. (1998) have employed other variables to

measure the openness of the host country (corporate tax rates and tariff rates). We hypothesize a positive relationship between openness and FDI and a negative link between black market premium and FDI. Data for the other explanatory variables such as the foreign exchange parallel market premium, the ratio of FDI to GDP and the measures of political instability and financial depth are also taken from Barro and Lee (1994).

Fourth, political risk. The political instability is measured by two variables: the average number of successful and unsuccessful revolutions per year and the number of assassinations per million populations per year. We view these variables as representing the probability of revolution; in this sense, they influence property rights and thereby affect the incentive to invest in various activities. The empirical relationship between political instability and FDI flows is unclear. For example, Jaspersen et al. (2000) and, Hausmann and Fernandez-Arias (2000) find no relationship between FDI flows and political risk while Schneider and Fry (1985) find an inverse relationship between the two variables. Using data on U.S. FDI for two times periods, Loree and Guisinger (1995) found that political risk had a negative impact on FDI in 1982 but no effect in 1977. Edwards (1990) uses 2 indices to measure political risk – political instability (which measures the probability of a change of government) and political violence (the sum of the frequency of political assassination, violent riots and politically motivated strikes). The political instability variable was significant but the political violence variable was not. So that, the sign of the estimated coefficient is not determined *a priori*. We view an increase in political instability, represented, say, by the propensity to experience revolutions, as equivalent to a decline in the security of property right.

Fifth, institutional quality. Many recent studies have attempted to incorporate institutional factor such as host county risk and corruption in the determinants of FDI (see e.g., Wheeler and

Mody 1992; Hines 1995; Wei 1997 and Gastanaga et al. 1998). For example, Gastanaga et al. (1998) use the index of the absence of corruption, the indicators of contract enforcement, nationalization risk and bureaucratic delay. They find that all three measures of investment-friendly institutions (the absence of corruption, the indicators of contract enforcement and bureaucratic delay) all have positive and generally significant effects on FDI. In this paper, the institutional quality is measured by two indexes. First, the political rights index ranging from 1 (none freedom) to 7 (most freedom) and the civil liberties index from 1 (most freedom) to 7 (none freedom). The data come from Barro and Lee (1994). As Rogoff (2003) points out, no matter how much capital is poured into an economy, strong growth is impossible if individuals and companies don't enjoy meaningful property rights, reliable courts, and other basic market institutions. Better institutions and better protection of property rights increase investment and foster technological progress, thereby raising income levels. According to the institutions hypothesis (see e.g., Hall and Jones, 1996, 1999; North, 1989, 1990; Rodrick, Subramanian, and Trebbi, 2002), some societies have good institutions that encourage investment in machinery, human capital, and better technologies, and consequently, these countries achieve economic prosperity. North (1990) emphasizes the importance of an efficient judicial system to enforce contracts as a crucial determinant of economic performance. Low security of property rights over physical capital, profits, and patents may reduce incentives and opportunities to invest, innovate, and obtain foreign technology. Cumbersome and dishonest bureaucracies may delay the distribution of permits and licences, thereby slowing down the process by which technological advances become embodied in new equipment or new productive processes. We hypothesize that the relationship between the institutional quality and FDI is positive.

Sixth, other economic variables: we also test the significance of other variables that have been used in previous studies. These include the ratio of liquid liabilities to GDP as a measure of financial depth, the ratio of government consumption to GDP as a measure of the size of government, the inflation rate as a measure of the overall economic stability of the country and the growth rate of GDP as a measure of the attractiveness of the host country's market. The hypothesis is that financial depth, lower inflation, smaller government and higher growth rates foster FDI. FDI equals gross FDI inflows as a share of GDP. Government consumption is measured by the average share of real government consumption in real GDP. As Barro and Sala-i-Martin (1995) point out, the government consumption variable is intended to capture public expenditures that do not directly affect productivity but will entail distortions of private decisions. These distortions can reflect the governmental activities themselves, including effects from political corruption, and also involve the adverse effects from the associated public finance. The coefficient on that variable is thus expected to be negative. Data for the other explanatory variables such as the foreign exchange parallel market premium, the ratio of FDI to GDP and the measures of political instability and financial depth are also taken from Barro and Lee (1994).

Finally, we investigate the impact of the level of human capital in the host country on FDI. Many growth theories have stressed the positive influences of human capital on the ability to absorb new technologies. Consequently the ratio of FDI to GDP is expected to rise with the increase of the stock of human capital. Borensztein, De Gregorio, and Lee (1998) using data on FDI flows from industrial countries to 69 developing countries over the last two decades, argue that FDI has a positive growth-effect when the country has a highly educated workforce that allows it to exploit FDI spill-overs. Their results suggest that FDI is an important vehicle for the transfer of technology, contributing relatively more to growth than domestic investment.

Borensztein, De Gregorio, and Lee (1998) find that in countries with low levels of human capital the direct effect of FDI on growth is negative, though sometimes insignificant. But once human capital passes a threshold, they find that FDI has a positive growth-effect. The rationale is that only countries with sufficiently high levels of human capital can exploit the technological spillovers associated with FDI. I anticipate that a higher level of human capital in the host country will attract more FDI and therefore increase the ratio of FDI to GDP. Human capital is measured by the average schooling years in the total population over age 25 from Barro and Lee (1994).

B. Empirical Analysis

Tables (1) - (3) present summary statistics and correlation using data averaged over 1970-95 period, one observation per country. There is considerable variation in the ratio of FDI to GDP across countries. For example, the mean of FDI/GDI for the sample is 1.42 p.100 per annum, with a standard deviation of 2.33 p.100. Table 2 shows that on the average, FDI/GDP is higher in East and South East Asian than in African countries. The maximum ratio of FDI to GDP was enjoyed by South Korea (15.7 p.100), while Sierra Leone suffered with a FDI/GDP rate of worse than 2 p.100 per annum during the 1970-95 period.

Table 1: Descriptive statistics for the full sample (60 countries)

Variables	Time period	Mean	Std Dev.	Min	MAX
100* (FDI/GDP)	1970-95	1.42	2.33	-2.069	15.71
Real per capita GDP rate	1970-95	3.92	2.31	-0.99	13.00
Openness to trade	1970-95	0.699	0.247	0.345	1.635
Black market premium	1970-84	0.21	0.28	0.00	1.23
100*Government consumption/GDP	1970-95	0.20	0.17	0.00	0.90
Inflation rate	1970-95	2.40	3.26	3.19	9.76
Civil liberties index	1970-95	5.41	1.168	2.00	7.00
Political rights index	1970-84	5.32	1.08	2.00	7.00
Log (1/GDP per capita)	1970-95	0.263	1.41	0.00	7.98

Number of assassinations	1970-84	0.025	0.08	0.00	0.50
Average schooling years	1970-95	2.49	2.03	0.15	7.88
Liquid liabilities /GPD	1970-95	0.35	0.30	0.084	1.86
Log (phones per 1000 population)	1970-95	1.00	0.67	-0.13	2.61

Table 2: Summary statistics for African and South East Asian countries (mean of selected variables)

Variables	African Countries	East and Southeast Asian Countries
100*FDI/GDP	4.88	6.67
Real per capita GDP rate	3.58	6.30
Openness to trade	69.92	84.8
Black market premium	0.23	0.072
100*Government consumption/GDP	7.0	19.00
Inflation rate	7.79	84.67
Civil liberties index	5.59	4.25
Political rights index	5.49	4.27
Number of revolutions	0.24	0.22
Average schooling years	1.97	5.89
Liquid liabilities /GPD	0.30	0.66
Log (phones per 1000 population)	0.85	1.95

Table 3: Correlation Matrix

	1	2	3	4	5	6	7	8
1. 100*(FDI/GDP)	1							
2. Log (phones per 1000 population)	0.20	1						
3. Average schooling	0.24	0.62	1					
4. Real per capita GDP rate	0.56	0.49	0.36	1				
5. Civil freedom index	-0.02	-0.55	-0.46	-0.41	1			
6. Political rights index	0.05	-0.47	-0.38	-0.34	0.85	1		
7. Log (1/(GDP per capita))	-0.09	0.43	0.35	0.25	-0.21	-0.30	1	
8. Openness to trade	0.07	0.24	0.20	-0.06	-0.16	-0.15	-0.068	1

The data also suggest large variation in the real per capital GDP. The average was 3.92 %. Countries such as Hong Kong, South Korea, Malaysia, Singapore had the real per capita GDP rate many times higher than those of all the African countries during 1970-95. The average rate of GDP per capita was 6.30 p.100 in East and South East Asian Countries compared with 3.58 p.100 in African Countries (see table 2). Note that the institutional quality measured by the civil freedom index and the political rights index, and the average schooling are better in East and South East Asian than in Africa Countries. In contrast, the inflation rate was very higher in East and South Asian than in Africa Countries. Table 3 also suggests a strong positive correlation between the ratio of FDI to GDP and the development infrastructure, the average schooling and the real per capita GDP rate. The ratio of FDI to GDP rate is also positively associated with the political rights index and the openness to trade and the negative

correlation is observed between FDI/GDP rate and the return on investment in the host country and the civil freedom index.

EMPIRICAL RESULTS

A. Regression results for the ratio of FDI to GDP: cross-section analysis results

This paper tests whether the institutional quality can explain the variability in FDI/GDP between East, and South East and African Countries after controlling for other determinants of FDI. I begin my analysis by determining the variables that are relevant in explaining the variation in FDI/GDP for my sample. While several previous studies have examined the effects of some (but not all of variables), they have largely been estimated with pure cross-section data, i.e., based on comparisons across countries rather than over time.

As in Gastanaga et al. (1998), my analysis begins by replicating the application of the cross-section method to estimating the effects of the institutional quality under study here. We first use ordinary least square (OLS) for all the estimations. The results are reported in table A2. Columns (1)-(6) of Table A2 are results from cross-section regressions, where the variables are averaged over the 1970-95 periods. As indicated, the dependant variable is the average FDI/GDP ratios based on aggregate FDI data from World Bank CD-ROM (2005) but note that different sets of explanatory variables are used.

Results reported in column 1 of table A2 indicate that a large share of the variation in FDI rate can be explained by a small number of factors, namely, GDP growth rate, infrastructure development and the return on investment. As a group, these factors, account for about 38 p.100 of the variability in FDI/GDP. The results show that FDI/GDP increase with the GDP growth rate, infrastructure development and decrease with the return on investment. Several aspects of these results deserve comment. First, the inverse of the real GDP per capita seems to have a highly linear effect on FDI/GDP rate. The estimated coefficient of the inverse of the real GDP per capita is negative and statistically significant. In the literature, the relationship between real GDP and FDI is far from unanimous. Edwards (1990) and Jaspersen et al. (2000), use the inverse of income per capita as proxy for the return on capital and

conclude that real GDP is inversely related to FDI/GDP. In contrast, Schneider and Fry (1985), Tsai (1994) and Asiedu (2002) find a positive relationship between the two variables. Second, the effect of rate of real GDP per capital on FDI/DGP is positive, though not significant. The argument here is that a higher GDP per capital implies better prospects for FDI in the host country. Gastanaga et al. (1998) found that the effect of the rates of growth of real GDP is positive and significant, indicating its relevance as a control variable in assessing the effects of the policy variable.

In column 2, we include three more variables, the political right index, the number of assassinations and the human capital. The results in column 2 show that the estimated coefficients of the political rights index and the GDP growth rate are statistically significant indicating that those variables are more important in explaining the variation in FDI/GDP between East, Southeast Asian and African Countries. Gastanaga et al. (1998) also found that all three measures of investment-friendly institutions, i.e., the contract enforcement, the bureaucratic delay and the index of the absence of corruption, have positive and generally significant effects on FDI. The values of R^2 are reasonably high for cross-section analysis, and the relation is highly significant. Using the specification in Column 2 as my basic model, I test for robustness by including economic variables (government consumption, the inflation rate, financial depth). The results reported in Column 3 show that the basic model is robust to changes in specifications. Furthermore, the estimated coefficients of political rights index and the GDP growth rate are always significant. The estimated coefficient of the inflation rate is negative and statistically significant.

In column 4, we replace the political rights index by another institutional quality, i.e., the civil liberties index, and this last variable is also significant. Columns (5)-(6) of table A2 contain the results with fixed effects. We include an African dummy and test whether countries in Africa on the average receive less FDI relative to East and South East Asian countries. Africa

dummy equals one if a country is located in Africa and zero else. The results reported in column 5 indicate that the Africa dummy is negative and statistically significant. These results are consistent with previous studies (see, e.g., Asiedu 2002). Furthermore, the adjusted R^2 increases noticeably, indicating the importance of regional effects. The coefficient of the Africa dummy is interesting because it measures the average difference in FDI/GDP between East and South East Asian countries and African countries with the level of other variables included in column 5. The results indicate that all else equal, on the average FDI/GDP for a country in Africa is about 7.3 p.100 less than that of a comparative country in East and South East Asian Countries. The results in column 5 include the civil liberties index and a measure of political instability, i.e., the number of revolutions and coups per year. Note that the civil liberties index is always positive and statistically significant at 1 p.100 level. The estimated coefficient of the number of political revolution is positive and significant, indicating that all else equal, the absence of revolutions and coups increase FDI by 3.5 p.100. Gastanaga et al. (1998) also find that the effect of nationalization risks is positive and significant, clearly showing that the absence of nationalisation risk has a significant positive influence on FDI-GDP ratios. As noted above, the empirical relationship between political instability and FDI flows is unclear. In column 6, I test again whether countries in Africa on the average receive less FDI relative to East and South East Asian countries. In column 6, we replace the civil liberties index by the political rights index and the results remain the same as in column 5. The results of cross-section analysis in columns (5)-(6) show that the variability in FDI/GDP between East, and South East and African Countries can be explained by the growth rate of real GDP per capita, the institutional quality (measured by the political rights index or the civil liberties index), the inflation rate and the political instability (measured by the number of revolutions or coups per year) after controlling for other

determinants of FDI. Because the OLS's estimated coefficients are biased and do not converge due to possible omission of some explanatory variables, measurement error and endogeneity, we re-ran other regressions techniques.

B. Sensitivity analysis for FDI/GDP: pooled cross-section and times-series data.

As Gastanaga et al. (1998) point out, the vast majority of existing studies on the influence of policy-related variables on FDI flows have consisted of international cross-section studies. Such studies have been used to show the effects of such policy-related variables as tax rates, tariff rates, corruption and various other institutional variables on FDI. Yet, despite attempts to separate out other influences, as with all cross-section studies, the results may well reflect other non-measured influences which vary across countries but not over time. For this reason, the results of such studies may not apply to the more relevant policy reform context of changes over time. While, in principle, the bias in the estimates of such effects could be in either direction, in practice it would seem highly likely that countries with low tax rates or other favourable policy variables also have a number of other favourable but not unmeasured characteristics, implying that the estimates of such effects are likely to be biased upward. For this reason, it would seem important at least to supplement the cross-section studies with time-series estimates.

We conduct a number of sensitivity analyses to assess the robustness of the results. First, we ran a system of 2 equations, where the dependent variables are the FDI/GDP rates and the per capita GDP growth rates averaged over 1970-95 periods. The results are reported in columns (1)-(2) of table A3. Table A3 reveals several interesting results for the determinants of FDI. Regression 1 shows that the growth rate of GDP per capita has a positive impact on FDI/GDP, after controlling for infrastructure development, political rights index, government consumption, financial sector depth, inflation rate, black market premium and the regional effect. It is

important to note that the estimated coefficient of the political rights index is always positive and statically significant at 1 p.100 level, indicating that all else equal, the increase of the political rights index from one level would increase the FDI/GDP rate by 1.27 p.100. The estimate coefficient of Africa dummy remains negative and significant at 1 p.100. In column 2 of Table A3, I replace the political rights index by the civil liberties index and the impact of this last institutional variable is positive and highly significant. The results of column 2 of Table A3 is the same as that in column 1. Columns (3)-(4) of Table A3 contain the regression results of FDI/GDP rate over each sub-period. The system has three equations where the dependent variables are the FDI/GDP rates over each sub-period. For the basic formulation, 60 countries are included for 1970-74, 1975-1979 and 1980-84 periods. We use a panel procedure with data averaged over five-year periods which involves three possible observations per countries over the 1970-84 periods. I limit my analysis on the short period because of the availability of the data of some institutional variables from Barro and Lee (1994) databases. Estimates with country-specific fixed effects are obtained. The panel data with a fixed-effects approach allows me to distinguish more systematically between the effects of policy changes and other less variable elements of the investment climate on FDI over time as well as across countries. To ensure the stability of coefficient estimates over time, the Chow's test has been done. With F-statistic = 1.020 (p-value: 0.42), we cannot reject the null hypothesis of none structural changes over time. We also tested the autocorrelation of error terms over sample by using the Serial Correlation LM (or Correlogram Q-statistic) and the null hypothesis of none autocorrelation was not rejected. Finally, the null hypothesis of homokedasticity of error terms cannot be rejected by doing the White's test (F = 0.60 and p-value: 0.82). Columns (3)-(4) of Table A3 contain the results of the pooled cross-section and time-series data for 60 developing countries over 1970-84. Regression

in column 3 estimated by using the SUR technique shows that the political rights index has a positive and significant impact in explaining the variability in FDI/GDP rates between East and South East Asian and African countries during 1970-84. The inverse of GDP per capita that captures the infrastructure development has a negative and significant impact in explaining the variability in FDI/GDP rates. In column 4 of Table A3, we replace the political rights index by the civil liberty index and the results remain the same as those in column 3.

CONCLUSION

The purpose of this paper was to explore factors that explain the variability in FDI between Asian and African countries. We tested empirically whether the institutional quality of the host country in protecting property rights of foreign investors against expropriation and in ensuring that contracts are enforced is the relevant determinant of FDI. The results of cross-section analysis in columns (5)-(6) of Table A2 show that the variability in FDI/GDP between East, and South East and African Countries can be explained by the growth rate of real GDP per capita, the institutional quality, the inflation rate and the political instability after controlling for other determinants of FDI. In addition, we find that the estimated coefficient of Africa dummy is always negative and significant. For example, in column 2 of Table A3, the estimated coefficient of Africa dummy is -5.04 (p-value : 0.0004), indicating that on the average FDI/GDP for a country in Africa is about 5 p.100 less than that of a comparable country located in Asian countries. Previous studies found similar results. For example, Asiedu (2002) find that on the average FDI/GDP for a country in Sub-Saharan African is about 1.3 p.100 less than that of a comparable country outside the region. For all my regressions, I find that the institutional variable is positive and statistically significant indicating that to attract the FDI, African

countries must undertake policy that focus on the rule of law. This implies that to reach the current level of FDI in East and South East Asian, African countries must improve the quality of their legal system. SSA has been relatively unsuccessful in attracting FDI despite policy reform because of the lack of institutions that protect the property rights of foreign investors against expropriation or nationalization risk and ensure that contracts are enforced.

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APPENDIX A

Table A1: List of developing countries included in the growth rate regressions

Algeria	Madagascar
Angola	Malawi
Benin	Mauritania
Burkina Faso	Morocco
Botswana	Mali
Burundi	Malaysia
Cameroon Republic of the	Mauritius
Cape Verde	Mauritania
Chad	Mozambique
Central African Republic	Namibia
Comoros	Niger
Congo	Nigeria
Côte d'Ivoire	Philippines
Democratic Republic of the Congo	Rwanda
Djibouti	Sao Tome and Principe
Egypt, Arab Rep	Senegal
Equatorial Guinea	Seychelles
Eritrea	Sierra Leone
Ethiopia	Singapore
Gambia	South Africa
Gabon	South Korea
Ghana	Swaziland
Guinea	Taiwan
Guinea Bissau	Tanzania
Hong Kong	Thailand
Indonesia	Togo
Kenya	Tunisia
Lesotho	Libya
Liberia	Uganda
Zimbabwe	Zambia

Table A2: Regression for the ratios of FDI to GDP

Dependent variables: FDI/ GDP ratios over 1970-95 period						
	(1)	(2)	(3)	(4)	(5)	(6)
Est. Method	OLS	OLS	OLS	OLS	OLS	OLS
Intercept	0.020823 (0.0099)*	-5.1352 (0.056)**	-3.6065 (0.2168)	-4.41492 (0.1360)	-	-
Growth rate of GDP	0.001324 (0.1668)	0.9347 (0,000)*	0.8964 (0.000)*	0.9293 (0,000)*	1.1143 (0,000)*	1.083677 (0,000)*
Phones per 1000 population	-0.00428 (0.3749)	-0.16328 (0.8235)	-0.3144 (0.6992)	-0.4299 (0.5860)	-0.11289 (0.8827)	0.029675 (0.9701)
1/GDP per capita	-3.66408 (0.0126)*	-0.9306 (0.5932)	-1.470 (0.4181)	-1.2321 (0.4907)	-1.5378 (0.3697)	-1.8011 (0.3020)
Political rights index	-	0.785218 (0.0248)*	0.9210 (0.0101)*	-	-	1.019442 (0.0035)*
Number of assassinations	-	-2.2614 (0.05912)	-1.3069 (0.7696)	-0.84821 (0.8469)	1.13267 (0.7915)	0.677246 (0.8763)
Human capital	-	-0.00117 (0.9605)	-0.2234 (0.3855)	-0.29467 (0.2455)	-0.30971 (0.2017)	-0.23169 (0.3461)
Liquid liabilities /GDP	-	-	0.4358 (0.8111)	0.68156 (0.7038)	1.209035 (0.4846)	0.946041 (0.5905)
Government consumption/GDP	-	-	-1.4700 (0.9285)	5.2500 (0.7457)	1.2200 (0.4409)	4.9400 (0.7567)
Openness to trade indicator	-	-	-0.77789 (0.6126)	-0.62263 (0.6810)	0.14445 (0.9224)	-0.00068 (0.9996)
Inflation rate	-	-	-2.5600 (0.036)**	-2.35000 (0.047)**	-2.2700 (0.045)**	-2.5100 (0.031)*
Black market premium	-	-	-1.41307 (0.2778)	-1.5071 (0.2406)	-1.67681 (0.1733)	-1.58629 (0.2038)
Civil liberties index	-	-	-	1.04377 (0.0048)*	1.130298 (0.0017)*	-
Number of revolutions and coups per year	-	-	-	-	3.56850 (0.031)**	3.6286 (0.0317)*
Africa dummy	-	-	-	-	-7.3480 (0.021)**	-6.65572 (0.036)*
R-squared	0.24	0.47	0.55	0.56	0.61	0.60
Adjusted R-squared	0.19	0.40	0.42	0.44	0.49	0.47
Number of observation	47	60	60	60	60	60
Prob(F-statistic)	0.005997	0.000004	0.000225	0.000128	0.000041	0.000072

p-value are in parentheses; ** significance at the 0.05 level; * significance at the 0.01 level

Table A3: Regression for the ratios of FDI to GDP

Dependent variables : FDI/ GDP ratios				
	(1)	(2)	(3)	(4)
Est. Method	OLS	OLS	SUR	SUR
Intercept	-2.42937 (0.4216)	-2.45289 (0.4184)	-	-
Growth rate of GDP	1.039599 (0.000)*	1.046715 (0.000)*	0.000789 (0.1903)	0.000804 (0.1742)
Phones per 1000 population	-0.26282 (0.7555)	-0.60616 (0.4580)	0.000825 (0.8569)	0.000515 (0.9088)
1/GDP per capita	-1.08454 (0.0018)*	-1.00379 (0.0037)*	-3.10785 (0.0142)*	-3.37379 (0.0084)*
Political rights index	1.270975 (0.0015)*	-	0.002605 (0.035)**	-
Number of assassinations	-	-	-	-
Liquid liabilities /GDP	-0.18894 (0.9133)	0.456707 (0.7938)	-	-
Government consumption/GDP	-4.68000 (0.8009)	4.58000 (0.8054)	0.000284 (0.4113)	0.000203 (0.5609)
Openness to trade indicator	-	-	-4.3900 (0.5545)	-6.23000 (0.4076)
Inflation rate	-2.51000 (0.0610)	-1.98000 (0.1303)	-0.00011 (0.6785)	-0.00012 (0.6399)
Black market premium	-1.32235 (0.3455)	-1.18780 (0.3955)	-	-
Civil liberties index	-	1.278338 (0.015)*	-	0.003378 (0.0156)*
Number of revolutions and coups per year	-	-	-	-
Africa dummy	-4.98916 (0.0004)*	-5.04090 (0.0004)*	-	-
R-squared	0.590	0.59	0.12	0.13
Adjusted R-squared	0.52	0.52	0.026	0.046
Number of observation	60	60	168	168
Prob(F-statistic)	-	-	-	-

p-value are in parentheses; ** significance at the 0.05 level; * significance at the 0.01 level