

What matters where? On parameter stability in FDI regressions across groups of countries

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Abstract

Although several studies suggest that there are differences between groups of countries with respect to the importance of determinants there are few that empirically identify these differences. In our study we identify significant differences in the coefficients for FDI determinants across Sub Saharan African countries, transition countries and other developing countries, while paying special attention to a selection of institutional variables. We use FDI per capita as the dependent variable. We perform OLS estimation where the dependent variable is averaged over the 1997-2003 period and the independent variables are averaged over the 1989-1996 period. The sample varies between 135 and 95 developing countries depending on the availability of the institutional measure.

Key words – Foreign Direct Investments, Developing Countries, Parameter Stability, Institutions

Introduction

The past decades have brought a sharp increase in Foreign Direct Investment Inflows (FDI) both in absolute and per capita terms and the growth in multinational enterprise activity in the form of FDI has grown at a faster rate than most other international transactions. As we can see from table 1 on page 2, the major share of FDI flows takes place between high-income economies. Developing countries have only recently increased their share of world foreign direct investment. In 1980 85 percent of FDI went to developed countries. The share has held stable up until the 1990s. For the developing countries the picture has improved somewhat over the later years and their share in world FDI increased to 36 percent by 2004. However, the Chinese economy alone absorbed 9 percent and only 2.2 percent went to Sub-Saharan Africa. The fall of the Berlin wall in 1989 marked the beginning of the integration of the former communist economies in the world economy and by 2004 South Eastern Europe and the CIS (Commonwealth of Independent States) attracted more than 5 percent of world FDI inflows. Thus in terms of attracting FDI, SSA and the transition countries are at opposite ends of the scale. This is a rough division, and the differences within the two groups are also large. This is illustrated by the examples of Poland and Uzbekistan among transition countries. The differences are also visible among the SSA countries where Botswana is often mentioned as the success-story. A question that warrants closer investigation is thus whether the diverging experience of these two groups of countries is described by the same empirical relationships for FDI determinants.

There is important role for FDI as a source of capital in poor countries as income levels and domestic savings are low to spur investments and growth. FDI is important as its impact is believed to go beyond the mere supply of capital. Foreign direct investments imply that control of the resources transferred remains with the investor and thus represents a package that also includes transfer of technology and management skills, and provides access to markets and entrepreneurship. Given the potential of FDI to contribute in the development of poor countries, identifying what attracts FDI is of value to developing countries in particular.

There is an extensive literature addressing the country characteristics that determine FDI patterns.¹ Although several studies suggest that there are differences between groups of countries with respect to the importance of determinants there are few that specifically address these differences. Markusen and Maskus (2002) suggest that trade restrictions might be less important as an incentive for horizontal tariff jumping investments in developing countries. Also Globerman and Shapiro (2002) find that developing countries as a group, might benefit more from an improvement in governance infrastructure² than do developed countries. In their study Harms and Ursprung (2002) find that multinational enterprises are attracted by countries in which political rights and civil liberties are respected. However, results appear to be driven by the three transition countries Hungary, Poland and Romania. Wheeler and Mody (1992) conclude that market size is a more important determinant in developing countries than in high income economies. Bloningen and Wang (2004) address the pooling of developed and developing countries in studies of FDI. They conclude that there are systematic differences in the factors determining FDI localization across less developed and developed economies. Asiedu (2002) specifically addresses the difference between determinants for FDI for Sub-Saharan Africa and other developing countries. She concludes that a higher return on investments and better infrastructure have a positive impact on FDI to

¹ See Bloningen (2005) for an overview of the literature.

² They apply six governance indicators estimated by Kaufman et al (1999a,b) that include political instability, rule of law, graft, regulatory burden, voice and political freedom and government effectiveness.

other developing countries but not on FDI to SSA. Openness to trade promotes FDI in the other developing countries but not in SSA.

Table 1 The share of World FDI inflows³

	1989	1992	1995	1998	2001	2004
Developed economies	84.7	66.5	64.1	71.9	72.2	58.6
Developing economies	15.3	32.4	34.5	26.6	26.4	36.0
China	1.8	6.5	11.0	6.5	5.7	9.4
Sub-Saharan Africa	1.6	1.3	1.3	0.9	1.8	2.2
South-East Europe and CIS	0.0	1.1	1.4	1.5	1.4	5.4

In this paper we pursue further the issue of differences in determinants of FDI across groups of countries. Specifically we compare Sub-Saharan Africa to other developing countries and also address the group of transition countries. We also test for differences for countries that are rich in oil resources as determinants other than the natural resource it self may play a different role in these cases. We are particularly interested in the effect of institutional and socio-political aspects on FDI. There are troubles related both to applying broad measures and too narrow measures of the socio-political environment. Aggregate measures are made up of many sub-components. One reason why these might not turn up significant in regressions could be related to the many different aspects of the socio-political environment depicted. Improvement only in one arena might not rise the overall assessment enough to be manifested in the aggregate index, however if this aspect is of particular importance investors might indeed respond. By applying narrow indicators one only focuses on particular traits of the socio-political environment. On the other side, given the correlation and close relationship between many of the institutional measures assuming that one will be able to identify specific traits that influence FDI might not be very realistic. We take a practical approach and use both aggregate measures and test selected sub-components individually in our study.

We have a panel of 135 developing and transition countries covering the 1989-2003 period. The empirical literature on determinants of FDI is vast and varied in conclusions. As our review of some recent papers show, the FDI/GDP ratio, the absolute inflow of real FDI, the inflow of real FDI per capita, the share of FDI to total FDI to developing countries and the inward stock of real FDI have all been employed as dependent variables, as have real sales volume of affiliates. Most often, the empirical relationship is log-linearized to reduce skewness in the data and improve the fit of the model. We report results from OLS regression on period averages where the dependent variable averaged over 1997-2003 is regressed on explanatory variables averaged over the 1989-1996 period to account for causality.

The paper is organized as follows. First we give a short introduction to the theoretical foundations for studies of determinants of FDI and we offer a review of some of the more recent papers. The variation in empirical specification in the literature invites a closer look at how results are affected as specifications change although differences are small. Therefore we allow for two different specifications of the estimation equation for the same sample. We also specifically address the Asiedu (2002) article and see how applying other empirical specifications might affect results. Third, we look into how determinants of FDI might vary across groups of countries.

³ <http://www.unctad.org/Templates/Page.asp?intItemID=1923&lang=1> (26.05.06)

A review of the empirical literature on FDI determinants

The two main issues to be addressed with respect to multinational firm (MNE) activity and foreign direct investments (FDI) are why firms become multinational in the first place and why they chose to operate in some countries and not in others.⁴

The OLI paradigm provided by Dunning (1992) serves as the basis of most theoretical and empirical analysis of determinants of FDI and of MNE activity in general. Within this framework, three conditions have to be met in order for FDI to take place. First, there has to be some ownership advantage such as technology, managerial skills, etc., specific to the firm that makes it overcome the cost of operating in a foreign country. The second condition states that there has to be some country specific location advantage for the MNE to choose a particular location. These advantages are related to economic and socio-political factors. The final condition to be met is that of internalization. There has to be an advantage from the internalization of markets. The intangible assets specific to the firm are public goods within the firm, the use of these assets in one plant does not diminish use in other plants. These types of assets hold a potential for market failure as it is difficult to appropriate rents from such assets through arrangements with external parties. The O and I of the framework can be labelled firm and industry level determinants of FDI. The internalization advantage will also depend on country level characteristics as conditions in the operating environment affect the decision to internalize. The localization advantage is related to country level determinants of FDI. The interaction between determinants at all levels affects both the decision of whether and where to invest, such that the country characteristics that affect FDI inflows vary according to motivation for investment. This implies that the primer determinant for natural resource seeking MNEs is the presence of their resource of interest. Other factors such as infrastructure and political risk might not be that important at these are often large companies with high bargaining power in their dealings with local government and the capacity to create their own infrastructure and an internal support of technology and human resources.

In theoretical work, there is a basic distinction between vertical and horizontal firms. Vertical firms split production geographically on the basis of factor intensities. Horizontal MNEs are multiplant firms that replicate roughly the same activity in many locations. The major part of world FDI flows between similar developed economies suggesting that horizontal FDI is more important than vertical FDI motivated by factor endowment differences. In terms of the basic country determinants trade costs in terms of distance, trade barriers and so forth is assumed to encourage horizontal investments but discourage vertical investments. Market size has a positive effect on horizontal investment whereas the influence on vertical investments is unclear. Factor cost differentials encourage vertical investments whereas the effect on horizontal investments is uncertain. The knowledge-capital model by Markusen (1997; 2002) integrates the two models of vertical and horizontal FDI by allowing firms to produce at multiple plants or separate headquarters from a single plant. The three models are being explicitly tested against each other in Markusen and Maskus (2002). The empirical model is a gravity type specification where the dependent variable indicating foreign activity is real sales volume of non-bank manufacturing affiliates for each country. The estimations are performed on US inward and outbound FDI and results suggest that the horizontal and knowledge-capital models cannot be statistically distinguished and the horizontal model cannot be rejected as being fully descriptive of FDI determinants. The vertical model is rejected.

⁴ Navaretti, G. B. and A. J. Venables (2004). Multinational Firms in the World Economy. New Jersey, Princeton University Press.

In table 2 we have listed some of the more recent empirical studies on FDI determinants. In general, the gravity type empirical model such as the one applied in Markusen and Maskus (2002) fits the cross country data on FDI fairly well (Shatz, 2003). The gravity relationship links bilateral FDI between two countries primarily to the size of the economies (income) and the distance between the two. The gravity models include parent country variables and analyse bilateral investment flows, studies applying the gravity type models most often focus on the high income countries and on detailed data where the dependent variable might be affiliate sales within industries rather than aggregate FDI inflows pooling all sectors and all sources. However dyadic FDI figures are generally not available for developing countries and thus there are data constraints on the type of testing that is possible. Also, while most developed countries are both parent and host countries to FDI flows, the developing countries are mostly recipients of FDI. Thus, there is a large empirical literature on FDI determinants that is not directly related to the testing of specific models. Rather factors that theory predicts will matter for FDI flows are tested either on outflows from a specific source or the aggregate inflow of FDI to a number of host countries where host country characteristics rather than differences between host and parent country are the explanatory variables.

As can be seen in table 2, the absolute inflow of FDI, the inflow of FDI per capita, the real inward stock, and the ratio of FDI to GDP are all used as dependent variables in empirical studies of FDI determinants. Most often the empirical specification is tested in the log-linear form due to skewedness in the data and ease of interpretation. In our study we have chosen to employ both the natural logarithm of FDI per capita as the dependent variable.

In her study Asiedu (2002) uses the ratio of net FDI inflows to GDP as dependent variable. The explanatory variables include a measure of openness or trade, which is the ratio of imports and exports to GDP, a measure of infrastructure (telephone mainlines per 1000) and a measure of political risk (the number of assassinations and revolutions⁵). Her sample includes 71 developing countries and covers the period from 1988-1997. The analysis is performed on averages of the variables of interest for that period. She concludes that a higher return on investments and better infrastructure have a positive impact on FDI to other developing countries but not on FDI to SSA. Openness to trade promotes FDI in the other developing countries but not in SSA. Political instability, measured by the average number of assassinations and revolutions over the period, is not found to be significant.

Harms and Ursprung (2002) employ FDI per capita as their dependent variable. They also include the illiteracy rate, the inflation rate and the openness measure as control variables in their estimations while focusing on measures of political rights and civil liberties. Globerman and Shapiro (2002) and Neumayer and Spess (2005) both have the natural logarithm of aggregate FDI inflows as their dependent variable. Neumayer and Spess (2005) argue that using the FDI/GDP ratio as dependent variable may capture changes in the relative importance of FDI to the host economy rather than direct changes in flows. Also, the importance of institutional and political variables may not be adequately captured as both may be affected, whereas the ratio is independent of political factors. Globerman and Shapiro (2002) also tried using the FDI/GDP variable, dropping GDP per capita as control variable. However, the dependent variable was typically clustered within a narrow range, and the limited variation produced unreliable parameter estimates and low degrees of explanatory power.

⁵ Barro and Lee (1993)

Table 2 A Selection of Empirical Studies of Foreign Direct Investment Inflows

Publication	Methodology	Dependent Variable	Main Explanatory Variables	Significant variables
(Harms and Ursprung 2002) 62 developing and emerging-markets economies, 1989-1997	OLS on averages for 1989-97	FDI per capita		FDI per capita: REPRESS -
		The natural logarithm of FDI per capita	Political rights (PR) Civil liberties (CL) REPRESS (PR/CL) Illiteracy rate in 1990 Dummy Inflation rate Trade NORISK BUSCL	The log of FDI per capita: PR - CL - REPRESS - Illiteracy - oil dummy + Inflation + Trade +
	Panel data Fixed effects	FDI per capita 1989-1997		REPRESS - NORISK -
	1. Fixed effects 2. OLS averages 1989-97	1. FDI per capita 1989-1997	1. NORISK, INFLATION and TRADE	PR - CL -
		2. Country fixed effects	2. PR/CL/REPRESS Illiteracy (1990), Oil-dummy & BUSCL	REPRESS - Illiteracy -
(Globerman and Shapiro 2002) 144 developing and developed countries, 1995-97	OLS with robust standard errors	The natural logarithm of FDI inflows 1995-97 averages	Governance Infrastructure (GI) for 1997 Human Development Index (HDI), average 1995 & 1997 Education index (EI) Environmental Sustainability (ESI); 2000 Log of real GDP 1994-96 GI*lnGDP	All countries: lnGDP + GII + GII*lnGDP EI - Developing and transition countries: lnGDP + GII + EI +
Neumayer and Spess (2005) 120/91 developing countries, 1970-2001/1984-2001	Random and fixed effects panel estimation	The natural log of real aggregate FDI inflow _t	BIT _{t-1}	Log of real FDI: BIT _{t-1} +
			ln of GDP per capita _{t-1}	lnGDP per capita _{t-1} +
			ln of population _{t-1}	ln of population _{t-1} -
			GDP growth rate _{t-1}	GDP growth rate _{t-1} +
			Inflation _{t-1}	Inflation _{t-1} -
			Resource rent _{t-1}	Resource rent _{t-1} +
			BTA _{t-1}	CPR _{t-1} +
			WTO _{t-1}	IP _{t-1} +
			POLCON _{t-1}	GS _{t-1} +
			Composite Political Risk _{t-1}	LO _{t-1} +
			Investment Profile _{t-1}	BIT*CPR _{t-1} -
			Government Stability _{t-1}	BIT*GS _{t-1} -
			Law and Order _{t-1}	
			BIT*CPR/IP/GS/LO _{t-1}	
Egger and Winner (2005) 68 countries (developed and developing) 1995-1999	Fixed effects panel estimation	The natural logarithm of real inward stock of FDI	Log of real GNP _{t-1}	Fixed effects lnGNP _{t-1} +
			Log of Secondary school enrolment _{t-1}	C _t -
	Hausman-Taylor instrumental variable model		lnRGNP _{t-1} *lnSE _{t-1}	Hausman-Taylor lnGNP _{t-1}
			Legal quality _t	lnSE _{t-1} +
			Corruption _t	LQ _t +
			Long run Corruption (the country specific effects)	C _t +
				C (long run)

Egger and Winner (2005) has the natural logarithm of real inward FDI stock as their dependent variable. However, as Globerman and Shapiro (2002) argues FDI has been ongoing for a long time and recent and relatively large changes in FDI behaviour may not be apparent when stock is the dependent variable.

In our study we include a set of control variables that have generally been found to be significant in empirical studies of FDI and we also test a series of institutional variables. There is a wide range of explanatory variables that have been tested in these empirical studies.⁶ Chakrabarti (2001) applies an extreme bounds analysis to determine what potential determinants of FDI are robust and which are relatively fragile to small changes in the conditioning information set. The potential determinants are market size, labour costs, trade barriers, growth rate, openness, trade deficit, exchange rate and tax. The analysis employs a cross-section of 134 countries and the data is from 1994. The dependent variable is FDI per capita and he concludes that market size as measured by GDP per capita is the only robust determinant of FDI inflows. He also concludes that of the other fragile determinants trade is the one most likely to be correlated with FDI. The market size is of importance to horizontally organized multinationals, whereas it should not affect the decision of vertically organized multinationals. To the extent that GDP per capita reflects the wage level it might even be suggested to have a negative effect for vertical FDI. However, country size, when included is generally found to exert a positive effect on the volume of FDI.⁷

The control variables included in the studies listed in table 1 vary somewhat. Globerman and Shapiro (2002), Neumayer and Spess (2005) and Egger and Winner (2005) all three include a measure of market size. Harms and Ursprung (2002) do not include this measure, but have trade or openness as one of their control variables. Trade as a proxy for openness is also included in the Asiedu (2002) study. Many studies do also include measures of human capital, and Egger and Winner (2005) allow their secondary school enrolment variable to interact with real GNP to account for the importance of vertical FDI.⁸ As the main sources of FDI are the developed countries vertical FDI would be expected to take place in countries with a low high-skilled to low-skilled labor ratio. The small skilled labor abundant economies are expected to conduct outward FDI. Large skilled-labor scarce economies are expected to receive FDI. A negative coefficient estimate of the interaction term supports this hypothesis. Harms and Ursprung (2002) use the illiteracy rate at the beginning of their period of interest to reflect the level of human capital. However, the availability of school enrollment ratios is somewhat limited and in our case the number of observations would be limited. For this reason, the variable is more commonly used in OLS regressions for average values over periods than in panel estimations. The exception is Egger and Winner (2005) that do include the secondary school enrollment ratio in their panel analysis.

⁶ Blonigen, B. A. (2005). *A Review of the Empirical Literature on FDI Determinants*. Cambridge, National Bureau of Economic Research: 37. offers a review of a selection of empirical studies focusing on traditional economic FDI determinants.

⁷ Brainard, S. L. (1997). "An Empirical Assessment of the Proximity-Concentration Trade-off Between Multinational Sales and Trade FT." *The American Economic Review* 87(4): 520-544, Markusen, J., R and K. Maskus, E (2002). "Discriminating Among Alternative Theories of the Multinational Enterprise." *Review of International Economics* 10(4): 694-707..

⁸ Markusen, J., R and K. Maskus, E (2002). "Discriminating Among Alternative Theories of the Multinational Enterprise." *Review of International Economics* 10(4): 694-707. In bilateral studies of FDI the absolute difference between two countries school enrollment ratios are used. Egger, P. and H. Winner (2005). "Evidence on corruption as an incentive for foreign direct investment." *European Journal of Political Economy* 21(4): 932-952. suggest using the interaction term between GNP and secondary school enrollment ratio in the unilateral context.

Infrastructure is also considered an important factor for FDI. In the Asiedu (2002) study the number of telephones per 1000 is applied as a proxy for physical infrastructure. (Globerman and Shapiro (2002) include the World Bank Human Development Index (HDI) in their regressions. The index is composed of GDP per capita, educational literacy and life expectancy at birth. They consider the GDP per capita component in HDI a proxy of physical infrastructure as physical infrastructure and GDP is highly correlated. They also include an environmental infrastructure measure, ESI, which is composed of 22 factors contributing to environmental sustainability. Neumayer and Spess (2005) and Harms and Ursprung (2002) also include the inflation rate as a measure of macroeconomic stability.

When the FDI/GDP ratio is the dependent variable we will employ the same set of control variables as were included in the Asiedu (2002) study to make results more easily comparable. The empirical specification will then be the FDI/GDP ratio determined by the rate of return to capital (explain), a measure of infrastructure and trade to account for the openness of the economy. Thus in this specification market size which is generally found to be the more persistent determinant of FDI is not included, and the relationship will thus be more in accordance with vertical investments as return is the major explanatory variable.

It is common also to include measures of institutions and political risk. Often the effect of these variables is the subject of interest as in Globerman and Shapiro (2002), Harms and Ursprung (2002) and Egger and Winner (2005). In their study, Neumayer and Spess (2005) suggest that bilateral investment treaties can function as substitutes for low institutional quality in the host country.

Globerman and Shapiro (2002) focus specifically on the effect of the political, institutional and legal environment on the flow of foreign investments. Governance infrastructure is measured by six governance indicators estimated by Kaufmann et al (1999a, b). These include measures of political instability, rule of law, graft, regulatory burden, voice and political freedom and government effectiveness. As many as 31 different indicators from 13 different sources have been employed in the estimation of these aggregate idiocies.⁹ The authors argue that the advantages associated with applying such aggregated measures are that these will be more precise and they are available for a large sample of countries.¹⁰ The six indexes are highly correlated. Globerman and Shapiro (2002) employ an aggregated measure estimated as the first principal component of the six measures (GII).

In their article, Harms and Ursprung (2002) set out to test the validity of accusations made that multinational corporations have a preference for investing in countries that have little regard for civil and political rights. The political risk and civil liberties measure applied in the study are those of the Freedom House organization. These indexes are given the highest value 7 when political rights and civil liberties are not respected by government. The lowest value 0 identifies best performers. They also include an oil-exporters dummy that is unity whenever a country was a net exporter of oil throughout the 1990s and zero otherwise. In addition they include a variable (NORISK) measuring the absence of political risk. The NORISK is based on the ICRG assessment of the likelihood of expropriation, exchange controls and contract repudiation by a host country's government. They also include a measure of institutional

⁹ Sources include BERI, DRI/McGraw Hill, the Heritage Foundation, the World Bank, the World Economic Forum and the EIU.

¹⁰ However, as the indices used to construct the aggregated index vary in terms of sample, are they really comparable?

quality, BUSCL, which is the sum of three ICRG indexes measuring the quality of the bureaucracy, corruption in government and the obedience of law and order. These indexes take on values from zero to six, where higher values indicate better conditions. The main conclusion from their analysis is that MNE are attracted by countries in which political rights and civil liberties are respected, however results appear to be driven by the inclusion of three transition countries.

Egger and Winner (2005) suggest that a country's degree of perceived corruption is correlated to determinants of the institutional environment, and they find a positive relationship between corruption and FDI.¹¹ Their findings support the helping hand view of corruption as a lubricant speeding up the bureaucratic processes and increasing profits for the MNEs, thus exerting a positive effect on the FDI volume. The traditional grabbing hand view of corruption on the other hand suggests that it raises costs of investments as it involves extra tariffs and risks. Thus there should be a negative relationship between the level of corruption and the volume of FDI. The measure of corruption is collected from Transparency International (1995-2001) and varies from 0 to 10 where 0 implies a low level of corruption. Robustness is tested by the alternative measures of corruption from ICRG, and the World Bank 1997/1998 index (Kaufmann et al 1999, 2002). In the study, the legal system is accounted for as an additional determinant of contract risk. Legal quality is measured by an index collected by the Economic Freedom Network. Higher values indicate a better system.

Neumayer and Spess (2005) suggest that bilateral investment treaties (BITs) can serve as a substitute for low quality of domestic institutions and poor enforceability of laws for the foreign investor operating in developing countries in particular. Thus there should be a positive relationship between the number of signed BITs and the inflow of FDI for developing countries.¹² The variable BIT is the cumulative number of BITs that a developing country has signed with the OECD countries, weighted by the square of outward FDI flow the OECD country accounts for relative to total world outward FDI flow. The weighting accounts for differences in potential FDI by investor.

To account for the potential effect of free trade agreements Neumayer and Spess (2005) include a dummy indicating membership in the WTO. There is also a dummy indicating the number of bilateral trade agreements with the US, EC or Japan. A natural resource intensity measure is also included as all other things being equal, large natural resources are a major attractor to foreign investors. There are five measures of political stability and institutional quality that are interacted with the BIT variable. These are the political constraints index (POLCON) developed by Heinsz (2000), the investment profile, government stability, law and order and the composite political risk indexes from ICRG. The analysis reveals that the interaction term between BIT and government stability is significant and positive. Results prove stable across changes in sample as all Eastern European and former Soviet Union countries and countries with a population lower than one million are excluded. Also results remain stable to the exclusion of 385 outlier observations. Thus, BITs and government stability function as substitutes as the positive effect of BITs on FDI becomes smaller the more stable the governments are.

11 Earlier studies on corruption include Hines (1995) which concludes that US FDI locates in less corrupt countries, Wei (2000) identifies a negative relationship between the inflow of FDI and the level of corruption and Habib & Zurawicki (2002) which also find that corruption tends to impede FDI.

¹² Expropriations were common in the 1960s and 1970s but ceased in the 1980s and 1990s

There are a number of studies that suggest there is a difference in determinants of FDI across countries. When testing the vertical, horizontal and knowledge capital models Markusen and Maskus (2002) conclude that trade restrictions are less of an incentive for horizontal investments in developing countries than in high-income countries. Their estimations are performed on US inward and outbound FDI for 1986 to 1994 and include 36 countries in addition to the US resulting in 509 observations of local sales. The difference between developed and developing countries is also an issue in Globerman and Shapiro (2002). They focus specifically on the effect of the political, institutional and legal environment on the flow of foreign investments. Governance infrastructure is measured by six governance indicators estimated by Kaufmann et al. (1999a, b). They conclude that governance attracts FDI at a diminishing rate and the effect of improved governance infrastructure will be felt stronger by smaller economies. Their results suggest that governance is more important in terms of attracting FDI to developing and transition countries whereas wealth and human capital matter more for the developed countries. That the impact of political governance does not diminish with size among developing countries suggests that they stand to benefit more at the margin from such improvements than do richer countries. The main conclusion from Harms and Ursprung (2002) is that MNE are attracted by countries in which political rights and civil liberties are respected. However, results appear to be driven by the transition countries. Blonigen and Wang (2004) specifically address the tendency for pooling developed and less developed countries in empirical studies of FDI. They suggest that vertical rather than horizontal investments are more important in developing countries as US outbound FDI is less affected by the sum of GDP (US and host country GDP) for developing countries and the costs associated with investment (business environment risk) matters more for the FDI inflow than is the case for developed countries. This result is also in accordance with the finding from Globerman and Shapiro (2002) who find that governance matters more for developing countries. Neumayer and Spess (2005) also implicitly suggest that there is a difference between developing and developed countries. Their work also imply that the quality of institutions are of particular interest to investors operating in developing countries as they find that the number of bilateral investment treaties, functioning as substitute for low quality institutions, is positively related to FDI inflow in developing countries. In her article Asiedu (2002) specifically addresses potential differences in determinants for FDI between groups of developing countries. Her focus is on Sub-Saharan Africa, and she finds that a higher return on investments and better infrastructure have a positive impact on FDI to other developing countries but not on FDI to SSA. Openness to trade promote FDI in the other developing countries but not in SSA. Political instability is measured by the average number of assassinations and revolutions over the period. It is a rough measure and is not found to be significant. There is also some evidence with respect to differences within the group of transition countries where in the 1990's when the economies first opened up for foreign participation investments in the Central European are were of a vertical human resource seeking type whereas activity into the former soviet Union SUS were either market or resource seeking. Institutions, wages and human capital mattered in the European region whereas it did not have an impact on FDI into the SUS countries. Thus, focusing on sub-samples of countries might provide additional insights into what matters under which circumstances, rather than a rougher measure of the average effect of all determinants under all circumstances. Also there has been a rapid development within this group of countries since the fall of the Berlin wall. Their status as developing countries is somewhat questionable as they are treated as a separate group in most connections.

Add the Blonigen spatial FDI article to add the FDI-spatial and market potential variables. (Blonigen, Davies et al. 2005)

Specification and methodology

The regressions in Asiedu (2002) are performed on average values for the dependent and independent variables over the entire period. This is also true for the Globerman and Shapiro (2002) study when it comes to the dependent variable. The explanatory variables however are collected based on availability and thus varies with respect to time period. Harms and Ursprung (2002) apply both regressions by OLS on the average values for the period, and a panel regressions analysis. Thus, they capture both the cross country and time variation dimensions. For our OLS regressions, the dependent variable is averaged over the 1997-2003 period, whereas independent variables are averaged over the 1989-1996 period to ensure causality. The empirical model that we will be testing is

$$\ln FDIpc_{it} = \alpha + \beta_1 \ln GDPpc_{it-1} + \beta_2 Trade_{it-1} + \beta_3 PV_{it-1} + \varepsilon_i$$

That is, FDI per capita averaged over the 1989-1996 period is regressed on explanatory variables averaged over the 1997-2003 period. *PV* refer to the political and institutional variables that will be included.

Earlier studies have in fact suggested that market size and thus horizontal MNE activity is more important to developing countries. Thus we choose a specification that allows for the inclusion of market size as an explanatory variable. Our preferred empirical specification is the natural log of FDI per capita explained by as the dependent variable. The natural log of GDP per capita and trade are control variables, and we also include a selection of institutional and political variables. We also explore the FDI determinants when FDI per capita is the dependent variable and address the fit of the two models for each group of countries. The fit of the model improves substantially when the log-linear functional form is applied as compared to the normal form and also the residuals appear to be more well-behaved as the linear relationships produce residuals with a downward trend in the residuals versus fitted values plots. We also include the Ramsey test for functional misspecification and omitted variables.

When the natural log is employed all negative observations of FDI go missing. This could cause a potential problem with selection bias. However, when the empirical specification is linear, neither the size nor the significance level of variables is affected once negative observations are excluded from the analysis. Neumayer and Spess (2005) set all negative values of FDI equal to 0.1 US \$ so as not to lose observations in their study but also states that results did not appear to be affected whether these observations were included in the analysis or not.

We test the political rights and civil liberties indexes applied in Harms and Ursprung (2002) to see whether there will be significant differences in the effect of these variables in transition countries as opposed to others in addition to the commonly used indexes of the ICRG composite political risk index.

The Asiedu (2002) article, is the only study that has specifically addressed the potential differences between countries in FDI determinants. Her empirical specification however does not take account of the market size as a possible determinant of FDI. There has been some

revisions in the data since the time of her study in particular, the trade variable has gone missing for Singapore. Also, both Singapore and South Korea are no longer in the developing countries category. The transition countries were not included in the study and little attention was paid to the political and institutional variables. The role of institutions has become more recognised in terms of determining the investment rate and economic growth. Thus a closer look at institutional factors might be helpful in pinpointing what separates SSA from other developing countries. Also, the study did not account for oil-rich economies. This could be important in particular with respect to the institutional variables.

When testing parameter stability we control for statistically significant structural changes in parameters between the transition countries, Sub Saharan Africa and other developing countries.¹³ The empirical model is

$$\ln FDIpc_{it} = \alpha + \beta_1 \ln GDPpc_{it-1} + \beta_2 Trade_{it-1} + \beta_3 PV_{it-1} + REG_i + \gamma_1 [\ln GDPpc_{it-1} \times REG_i] + \gamma_2 [Trade_{it-1} \times REG_i] + \gamma_3 [PV_{it-1} \times REG_i] + \varepsilon_i$$

Where REG is a regional dummy identifying either the transition countries or the Sub Saharan African countries. After regression we test the null hypothesis $H_0: \gamma = 0$ by applying an ordinary F-test. If the hypothesis is rejected there is evidence of differences in parameters across the regions in question.

Descriptive statistics

The summary statistics for the dependent variable and the control variables included in the empirical specification are reported in table 3. The data on FDI inflows are collected from the UNCTAD.¹⁴ The FDI inflow includes equity capital, reinvested earnings and intra-company loans and is presented on net basis. That is all capital transactions' credits less debits between direct investors and their foreign affiliates. Net decreases in assets or net increases in liabilities are recorded as credits, while net increases in assets or net decreases in liabilities are recorded as debits. Hence, the recorded FDI flows might have a negative sign when at least one of the three components of FDI is negative and not offset by positive amounts of the remaining components. The FDI inflows are deflated by the US GDP deflator to obtain the real FDI inflow. The control variables applied are collected from the World Development Indicators (2005) which is published by the World Bank. The educational data are collected from the Barro and Lee (2000) international data on educational attainment. The education variable reflects the average years of schooling for those over 25.¹⁵ The educational variable is only available for 70 countries only three of which are transition countries. This makes an assessment of possible structural breaks difficult for this group. However, we can assess whether the inclusion or exclusion of these three countries, China, Hungary and Poland has an effect on results.

As can be seen from table 3, there are differences between the groups of countries with respect to the variables of interest. FDI per capita and in absolute terms is on average markedly higher for the group of transition countries. The log values are 3.8 and 19.8 respectively compared to 1.9 and 17.5 in Sub Saharan Africa, and 3.4 and 18.9 for the other developing countries. To the extent that the educational variable is available for the transition countries we see that the average value is markedly higher for this group where the average

¹³ Chow tests.

¹⁴ <http://www.unctad.org/Templates/Page.asp?intItemID=1888&lang=1>

¹⁵ The data can be obtained from <http://www.cid.harvard.edu/ciddata/ciddata.html>

years of schooling being 7.9. we also see that the standard deviation for these variables are smaller for the transition countries than for the other groups. The Sub Saharan countries perform worst at an average of 2.8 years. The differences in the other variables are not as pronounced.

Table 3 Summary Statistics for the Dependent and Control Variables¹⁶

VARIABLE	Obs	Mean	Standard Deviation	Min	Max
Transition Countries					
Ln(Host FDI inflow per capita)	28	3.816	1.307	1.265	5.982
Ln(Host GDP per capita)	28	7.075	0.833	5.641	8.492
Ln(Host FDI inflow)	28	19.810	1.790	16.902	24.553
Ln(Host GDP)	28	23.059	1.625	20.776	27.035
Ln(Host Population)	28	15.995	1.417	14.224	20.880
Ln(Host Trade Costs)	27	-4.407	0.324	-4.916	-3.611
Ln(Host Education)	3	2.0335	0.313	1.679	2.268
Ln(Host Education)xLn(Host GDP)	3	51.922	6.258	45.385	57.857
Sub Saharan Africa					
Ln(Host FDI inflow per capita)	44	1.854	1.987	-5.444	6.548
Ln(Host GDP per capita)	44	6.019	0.992	4.486	8.690
Ln(Host FDI inflow)	44	17.446	2.057	10.289	21.066
Ln(Host GDP)	44	21.424	1.398	17.509	25.412
Ln(Host Population)	44	15.405	1.559	11.191	18.454
Ln(Host Trade Costs)	44	-4.109	0.478	-5.127	-3.216
Ln(Host Education)	27	0.851	0.635	-0.476	1.888
Ln(Host Education)xLn(Host GDP)	27	18.681	14.300	-10.074	47.972
Other Developing Countries					
Ln(Host FDI inflow per capita)	63	3.423	1.716	-1.122	6.359
Ln(Host GDP per capita)	63	7.291	0.937	5.294	9.021
Ln(Host FDI inflow)	63	18.884	2.353	12.492	23.776
Ln(Host GDP)	63	22.619	2.273	17.349	26.929
Ln(Host Population)	63	15.326	2.353	11.078	20.607
Ln(Host Trade Costs)	63	-4.216	0.569	-5.345	-2.826
Ln(Host Education)	40	1.520	0.427	0.247	2.135
Ln(Host Education)xLn(Host GDP)	40	36.050	10.344	5.439	54.172

The indicators addressing institutional quality and political stability are collected from the International Country Risk Guide. The ICRG have the widest country coverage of all sources for country risk rating. Earlier, the composite indicator was more commonly used. However, it is composed of 12 sub-indexes, some of which are strictly speaking not measures of institutional quality. Also, elements of the composed index might move in opposite directions. There are 6 of these sub indexes that are more directly related to what is perceived as political risk in terms of conflicts and tensions in society. These are indexes of internal conflict (IC), external conflict (EC), ethnic tensions (ET), religious tension (RT), military in politics (MP) and the index of socioeconomic conditions (SC). One of the sub indexes addresses the investments climate directly. This is the investment profile (IP) index that measures the risk of investment in terms of risk of expropriation, profits repatriation and payment delays. The index of bureaucracy quality (BQ), government stability (GS), law and order (LO) and corruption (C) are more direct measures of institutional quality. BQ reflects the institutional

¹⁶ The statistics for the whole sample is reported in the annex, table 2A.

strength and quality of the bureaucracy. GS is not only determined by the length in office, but by the ability to carry out policies. The strength and impartiality of the legal system is reflected by the LO index. The ICRG indicators also include a measure of democratic accountability (DA), that captures the responsiveness of the government to its citizens and in many ways reflect the same liberties and rights as the civil liberties (CL) and political rights (PR) indicators from Freedom House that were employed by (Harms and Ursprung 2002). The ICRG indexes has a range of 0-12, 0-6 and 0-4 (BQ) where higher values indicate better conditions. The PR and CL indexes from Freedom House range from 1 to 7 where a higher value indicates worse conditions.

The conflict variable is the sum of the following variables; internal conflict, external conflict, ethnic tensions, religion in politics and military in politics. The institutions variable is the sum of the measure for bureaucracy quality, government stability, law and order, democratic accountability and corruption. The Conflict measure is on average higher for the group of transition countries indicating that conditions are more favourable within this group. As we see however there are only observations for 11 of the 28 transition countries for the period we are considering. There could be a selection bias involved where the countries with more favourable conditions or attractive assets were included in the ICRG indexes first. Also we see that with respect to the individual sub-indexes of investment profile and socioeconomic conditions the average values are quite similar for the three groups of countries. The freedom house measure suggests that Sub Saharan countries and transition countries are worse performers with respect to political rights than are the other developing countries. However, the average value for the transition countries are also influenced by the assessment made prior to and at the very start of the great political changes that occurred during the 1990s. The freedom house measure is also available for a larger sub-set of countries.

Table 4 Summary Statistics for the Institutional and Political Variables

VARIABLE	Obs	Mean	Standard Deviation	Min	Max
Transition Countries					
Political Rights	28	4.029	1.719	1.000	7.000
Conflict	11	35.253	5.706	20.927	41.313
Institutions	11	19.652	3.505	14.760	25.396
Socioeconomic Conditions	11	5.128	0.823	3.667	6.292
Investment Profile	11	4.774	0.807	3.510	5.917
Sub Saharan Africa					
Political Rights	44	4.901	1.473	1.375	7.000
Conflict	30	25.819	5.755	9.479	35.031
Institutions	30	15.408	3.956	6.729	23.861
Socioeconomic Conditions	30	5.126	1.179	2.573	7.156
Investment Profile	30	5.141	1.081	2.219	6.938
Other Developing Countries					
Political Rights	63	3.499	1.818	1.000	7.000
Conflict	44	29.121	4.810	18.438	37.698
Institutions	44	16.982	3.208	7.740	22.510
Socioeconomic Conditions	44	5.738	1.118	1.781	8.427
Investment Profile	44	5.498	1.109	1.594	7.500

There are 137 developing and transition countries for which we have records of the FDI inflow and for which we have the control variables. The Freedom House indexes are available for all these countries, the ICRG indexes however are available for at least part of the period in question for 98 developing and emerging market economies. Equatorial Guinea and Saint

Kitts and Nevis are excluded from the sample due to their status as special cases.¹⁷ Thus our remaining sample consists of 135 developing and emerging market economies. The PR and CL indexes are available for all countries. The ICRG indexes however are only available for a sub-sample of 96 countries. There are 44 Sub Saharan countries, 28 transition countries and 63 other developing countries included in the study. The ICRG indexes are available at least for some years for 30 of the SSA countries, 21 of the transition countries and 45 of the other developing countries.¹⁸

The cross country regressions on period averages

The results for the empirical specification where the natural log of FDI per capita is determined by market size and the openness of the economy in addition to the institutional variables political rights, corruption and religion in politics are significant are reported in table 5. The last two remain significant also when oil-exporting countries are excluded from the sample, political rights however is no longer significant. Once the oil-exporting countries are excluded also government stability proves a significant determinant at the five percent level. There is a positive relationship between more political freedom and a larger volume of FDI per capita. Also, FDI increases with improved condition in terms of less corruption and religion in politics. We now turn to look at whether there is a rationale to treat the transition countries and the Sub-Saharan Africa region separate from other developing countries in terms of describing what drives foreign direct investments. Once the dummies for SSA and the transition countries were added to the control variable regression, only the transition countries dummy proved significant at 0.560 at the one percent level. The coefficient for market size was affected by the inclusion of these dummies and became larger in size (from 1.165 to 1.239) whereas there was little effect in the trade variable.

When the transition countries are in the alternative sample there appears to be a difference between the two samples with respect to several institutional variables (internal conflict, external conflict, corruption, religion in politics, law and order, ethnic tensions and bureaucracy quality). However, the difference in the external conflict index is the only one to remain significant after the transition countries are excluded from the alternative sample. When fuel exporters are not included in the regressions there is no longer any significant differences between SSA and the other developing countries.

From table 5 we see that when we only consider the control variables results suggest that the SSA countries will experience a slightly smaller effect from increasing market size and slightly larger effect from the opening of the economy in terms of attracting FDI than the other developing countries. However, the F-test that all interaction coefficients, including the region dummy, are in fact zero cannot be rejected. Burundi is the Hadi outlier and is thus excluded from the regression, when it was included only the trade interaction was significant at the ten percent level.

¹⁷ Equatorial Guinea is one of the smallest countries on the African Continent. In recent years, the discovery and exploitation of large oil reserves have contributed to dramatic economic growth. By 2005 Equatorial Guinea had the second highest per capita income in the world, after Luxembourg. The population is less than 500 000 for the period in question. Given the size and thus the impact of investments in per capita terms the country turns up a special case in all regressions and is therefore taken out of the sample. Saint Kitts and Nevis is the smallest country in the sample in terms of population, never exceeding 50 000 throughout the period in question. Tourism is an important part of the economy, and a large resort was opened in February 2003. Investments associated with the construction of the resort affect FDI greatly. Other than tourism, the country is known for both drug trafficking and money laundering. As it appears to be an influential observation the country is also taken out of the sample.

¹⁸ An overview of the countries that are included is provided in the appendix.

Table 5 Results for the OLS regression on period averages

	<i>Sub Saharan Africa</i>		<i>Transition Countries</i>	
	Control variables	External Conflict	Control variables	Internal Conflict
lnGDP per capita	1.282*** (0.177)	1.117*** (0.239)	1.282*** (0.177)	1.229*** (0.236)
Trade	0.009*** (0.002)	0.011*** (0.003)	0.009*** (0.002)	0.010*** (0.002)
External Conflict		0.151 (0.109)		
Internal Conflict				0.003 (0.082)
Sub Saharan Africa SSA	0.061 (0.241)	3.266* (1.797)		
SSA_lnGDP per capita	-0.372* (0.218)	-0.196 (0.280)		
SSA_trade	0.008* (0.004)	0.013** (0.006)		
SSA_External Conflict		-0.341* (0.189)		
Transition Countries TC			0.583** (0.254)	-8.159*** (0.680)
TC_lnGDP per capita			0.029 (0.224)	-0.379 (0.243)
TC_trade			-0.000 (0.007)	0.021*** (0.003)
				0.823*** (0.087)
R ² robust	0.6806	0.7021	0.6494	0.6389
R ² adjusted	0.6646	0.6705	0.6286	0.5840
F-test all coeff=0	F(5,100)= 44.50	F(7,66)= 28.29	F(5,84)= 36.13	F(7,46)= 166.35
F-test joint significance of interaction terms	F(3,100)= 1.76	F(4,66)= 3.44	F(3,84)= 4.37	F(4,46)= 68.63
Observations	106	74	90	54

Regressions are reported with robust standard errors.

*implies significance at the 10% level

**implies significance at the 5% level

***implies significance at the 10% level

When we consider the model including external conflict we see that the number of observations is reduced from 106 to 74 as the institutional variables are only available for a smaller sub-set. External conflict is not significant in either sub-set when tested individually. However, the coefficients are suggested to have opposite sign for each sub-sample such that a lower level of conflict is associated with higher volumes of FDI for the other developing countries whereas the opposite is true for SSA. The results reflect the fact that in the SSA region the resource rich countries attracts FDI and the existence of resources are generally associated with higher levels of conflict.

We now turn to the transition countries and find that there are no significant differences with respect to the control variables. This is true also when SSA is in the alternative sample. With respect to the institutional variables we see that there are in fact significant differences in the coefficients for many of these irrespective of whether SSA is in the alternative sample or not.

However, once the fuel exporters are excluded differences remain significant between the transition countries and the other developing countries only with respect to internal conflict and military in politics. When we consider the institutional variables there are only 10 transition countries in the sample for the OLS on period averages and Russia is the only fuel exporter. In the other developing countries sample there are 10 fuel exporters (Algeria, Ecuador, Egypt, Indonesia, Iran, Oman, Syria, Trinidad and Tobago, Venezuela and Yemen). Thus the change in results is mostly due to the exclusion of Russia which drives the results for the transition countries in this case. After Russia is excluded only political rights, civil liberties, internal conflict and law and order seems to have significant differences in coefficients for the transition countries when compared to the other developing countries.

When the distribution of income is very uneven the GDP per capita is hardly a correct picture of the market size: Russia where St Petersburg and Moscow with millions of people represents a great market as there is a filthy rich minority in these cities spending a lot of money. The rest of the country is not that important. These cities are enough with 10 million people and more than their share of GDP. The country side lags behind...

We also look at what results would be generated when applying the empirical specification from the Asiedu (2002) article on the dataset at hand.¹⁹ Thus, the FDI to GDP ratio is the dependent variable and is regressed on trade/openness, the natural log of return (1/GDP) and the natural log of infrastructure (the number of telephones per 1000 people). The only significant variable from the regressions is the openness measure. It remains quite stable and significant irrespective of what other explanatory variables are included in the equation. The adjusted R^2 is low at around 0.2. However, all specifications passed the RESET test for omitted variables bias. The number of observations varies from 131 to 82 as outlier observations (Angola, Azerbaijan, Chad and Guyana) have been excluded. When the institutional variables were included some did turn up as significant. These were the political rights and corruption at the 5 percent level and civil liberties, religious tensions and law and order at the 10 percent level. Less political rights and civil liberties was associated with less FDI, and there was a positive relationship between FDI and the ICRG indexes suggesting that less corruption and religious tensions and improved law and order attracts FDI.

There were, however no evidence of structural breaks between the SSA countries and other developing countries with respect to either of the control variables. There were however significant differences in the political rights measure and religion in politics measure. Results actually suggest that the FDI/GDP ratio would be positively influenced by worsened conditions in terms of political rights and religion in politics. In both cases the zero hypothesis that the coefficients for the interaction terms were zero was rejected. However, the evidence was weakened when the fuel exporters were excluded from the sample. Thus the positive relationship between non-secular regimes and worsened political rights is mostly due to the resource rich oil economies.

¹⁹ The results are reported in table 5A in the appendix.

To be added:

Results when skills are included for a sub-set of 70 countries.

Results when I include a measure of market potential and spatial FDI.

Results from panel estimations

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Table 1.A The countries included in the study by group

Sub Saharan Africa	Transition Countries	Other Developing Countries	
Angola ^F	Albania	Algeria ^F	Peru
Benin [*]	Armenia	Antigua and Barbuda [*]	Philippines
Botswana	Azerbaijan ^F	Argentina	Saint Lucia [*]
Burkina Faso	Belarus	Bangladesh	Saint Vincent and the
Burundi [*]	Bosnia and	Barbados [*]	Grenadines [*]
Cameroon ^F	Herzegovina [*]	Belize [*]	Samoa [*]
Cape Verde [*]	Bulgaria	Bhutan [*]	Solomon Islands [*]
Central African Rep [*]	China	Bolivia	Sri Lanka
Chad [*]	Croatia	Brazil	Suriname
Comoros [*]	Czech Republic	Cambodia [*]	Syria ^F
Congo ^F	Estonia	Chile	Thailand
Congo, D.R.	Georgia [*]	Colombia	Tonga ^{F*}
Cote d'Ivoire	Hungary	Costa Rica	Trinidad & Tobago ^F
Eritrea [*]	Kazakhstan ^F	Djibouti [*]	Tunisia
Ethiopia	Kyrgyz Rep [*]	Dominica [*]	Turkey
Gabon	Latvia	Dominican Republic	Uruguay
Gambia	Lithuania	Ecuador ^F	Vanuatu
Ghana	Macedonia [*]	Egypt ^F	Venezuela ^F
Guinea	Moldova	El Salvador	Vietnam
Guinea-Bissau	Mongolia	Fiji [*]	Yemen ^F
Kenya	Poland	Grenada [*]	
Lesotho [*]	Romania	Guatemala	
Madagascar	Russia ^F	Guyana	
Malawi	Serbia and Montenegro	Haiti	
Mali	Slovak Republic	Honduras	
Mauritania [*]	Tajikistan [*]	India	
Mauritius [*]	Turkmenistan ^{F*}	Indonesia ^F	
Mozambique	Ukraine	Iran ^F	
Namibia	Uzbekistan [*]	Jamaica	
Niger		Jordan	
Nigeria ^F		Kiribati ^{F*}	
Rwanda [*]		Lao	
Sao Tome and Principe [*]		Lebanon	
Senegal		Malaysia	
Seychelles [*]		Maldives [*]	
Sierra Leone		Mexico	
South Africa		Morocco	
Sudan		Nepal [*]	
Swaziland [*]		Nicaragua	
Tanzania		Oman ^F	
Togo		Pakistan	
Uganda		Panama	
Zambia		Papua New Guinea	
Zimbabwe		Paraguay	

^{*} indicates that there are no observations for the ICRG indexes

^F indicates that the country is categorized as oil-rich

Table 2 A Descriptive statistics for the whole sample

VARIABLE	Obs	Mean	Standard Deviation	Min	Max
All countries					
Ln(Host FDI inflow per capita)	135	2.993	1.905	-5.444	6.548
Ln(Host GDP per capita)	135	6.832	1.091	4.486	9.021
Ln(Host FDI inflow)	135	18.608	2.312	10.290	24.553
Ln(Host GDP)	135	22.321	1.993	17.349	27.035
Ln(Host Population)	135	15.490	1.953	11.078	20.880
Ln(Host Trade Costs)	134	-4.219	0.506	-5.345	-2.826
Ln(Host Education)	70	1.284	0.623	-0.476	2.268
Ln(Host Education)xLn(Host GDP)	70	30.031	15.196	-10.074	57.857
Political Rights	135	4.066	1.789	1.000	7.000
Conflict	85	28.749	5.986	9.479	41.313
Institutions	85	16.772	3.729	6.729	25.396
Socioeconomic Conditions	85	5.443	1.138	1.781	8.427
Investment Profile	85	5.279	1.085	1.594	7.500

Table 3.A Results for the pooled sample with lnFDI per capita as dependent variable for OLS on average values

The dependent variable is the ratio of FDI to GDP	Control variables	Political Rights	Corruption	Religion in Politics
lnGDPpc	1.165*** (0.086)	1.058*** (0.105)	1.073*** (0.103)	1.065*** (0.101)
Trade	0.012*** (0.002)	0.011*** (0.002)	0.011*** (0.003)	0.012*** (0.003)
Political Rights		-0.126* (0.067)		
Corruption			0.271*** (0.097)	
Religion in politics				0.296*** (0.103)
RESET H_0 : there are no omitted variables	F(3,127)= 1.28	F(3,126)= 1.30	F(3,76)= 1.17	F(3,76)= 2.29
BP/CW test for heteroskedasticity	$\chi^2(1)=$ 19.16	$\chi^2(1)=$ 9.02	$\chi^2(1)=$ 0.21	$\chi^2(1)=$ 2.22
H_0 : cons variance				
R ²	0.6826	0.6940	0.7001	0.7219
R ² adjusted	0.6777	0.6869	0.6887	0.7113
F-test all coeff=0	F(2,130)= 131.83	F(3,129)= 88.91	F(3,79)= 61.47	F(3,79)= 68.34
Observations	133	133	83	83

Table 4A Structural breaks in determinants for Sub Saharan Africa FDI/GDP as dependent variable

Transition countries are not included	Control variables	Political Rights	Religion in Politics
Trade	0.022** (0.008)	0.023*** (0.008)	0.016*** (0.006)
ln(infrastructure)	0.986 (1.006)	-0.092 (0.843)	1.495 (0.773)
ln(return)	0.325 (1.158)	-0.363 (1.010)	1.527 (1.125)
Political Rights		-0.651*** (0.224)	
Religion in Politics			1.039*** (0.323)
Sub Saharan Africa dummy SSA	0.530 (0.752)	-2.578* (1.495)	4.626* (2.262)
SSA_trade	0.026 (0.016)	0.024 (0.016)	0.065*** (0.024)
SSA_ln(infrastructure)	-0.047 (1.127)	1.213 (1.017)	-1.355 (1.041)
SSA_ln(return)	1.153 (1.341)	1.905 (1.217)	-0.013 (1.302)
SSA_Political Rights		0.827** (0.345)	
SSA_Religion in Politics			-1.249** (0.492)
R ² robust		0.3211	0.4238
R ² adjusted	0.2163	0.2568	0.3388
F-test all coeff=0	F(7,96) ***	F(9,95) ***	F(9,61) ***
F-test joint significance of interaction terms	F(4, 96)= 1.81	F(5,95)=2.97	F(5,61)=4.78
Observations	104	105	71