Climbing to the top? Foreign Direct Investment and Property Rights

Fathi Ali[*], Norbert Fiess[**] and Ronald MacDonald[***]

University of Glasgow

Abstract:

This paper operates at the interface of the literature on the impact of foreign direct investment (FDI) on host countries, and the literature on the determinants of institutional quality. We argue that FDI contributes to economic development by improving institutional quality in the host country and we attempt to test this proposition using a large panel data set of 70 developing countries during the period 1981 and 2005, and we show that FDI inflows have a positive and highly significant impact on property rights. The result appears to be very robust and is and not affected by model specification, different control variables, or a particular estimation technique. As far as we are aware this is the first paper to empirically test the FDI – property rights linkage.

Keywords: FDI, property rights, institutional quality, institutional change

JEL: F23, O43, P48

[*] Department of Economics, Adam Smith Building, room 209A, University of Glasgow, Glasgow, G12 8RT, United Kingdom, Tel.+44-141-3305964, e-mail: *f.ali.1@research.gla.ac.uk*

[**] Department of Economics, Adam Smith Building, room S108, University of Glasgow, Glasgow, G12 8RT, United Kingdom, Tel.+44-141-3305683, e-mail: *N.Fiess@lbss.gla.ac.uk*

[***] Department of Economics, Adam Smith Building, room S102, University of Glasgow, Glasgow, G12 8RT, United Kingdom, Tel.+44-141-3301988, e-mail: *R.Macdonald@lbss.gla.ac.uk*

1. Introduction

The impact of foreign direct investment (FDI) on host countries is a well researched topic and the bulk of the literature focuses on the impact of FDI on economic growth. However, with the rapid growth of FDI inflows during the 1990's and the growing competition among countries to attract FDI flows, researchers have recently shown a resurgence of interest in studying new aspects of the impact of FDI flows on host countries. Most of the work in this area argues that the increase of FDI inflows in the 1990's and the competition among governments to attract FDI have led to "bidding wars" in which governments were forced to adopt policies with a negative impact on host countries' economies such as a reduction in tax rates, deterioration in standards of the environment, and workers' rights (see, for example, Oman, 2000). Some of these negative aspects, known as the "race to the bottom" effects, are supported by empirical evidence. For example, Garretsen and Peeters (2007) find that FDI inflows lead to lower corporate tax rates. However, foreign investors do not only search for lower tax rates, they also demand better institutional quality, and governments competing to attract FDI may be induced to supply them with an efficient institutional framework. FDI may therefore contribute to economic development through improving institutional quality in the host country. This aspect of FDI effects has to our knowledge not been studied previously.

Institutional quality has been identified as one of the most important, if not *the* most important, determinant of economic growth. Hall and Jones (1999) find that differences in income growth are largely explained by differences in institutional quality. Knack and Keefer (1995) identify property rights as crucial for growth and investment. While there is considerable consensus that institutions matter for growth, how efficient institutions come about and what explains differences in institutional quality between and within countries still

remains an open question. The empirical evidence on the determinants of property rights links institutions to cultural, historical, and geographic factors (see, for example, Levine (2005)). If property rights are mainly determined by factors like culture or geography, then what explains changes in institutions over time and if property rights are only determined by unchangeable factors like history and geography, then there is not much prospect for developing countries to achieve high quality institutions. There is a clear need to link institutions to changeable, if not controllable, variables. Such evidence would provide a basis for institutional reform that enables developing countries to build high quality institutions.

The hypothesis that this study introduces and empirically investigates is whether FDI inflows have a positive impact on property rights in the host country. Testing this hypothesis has, we believe, both academic and practical significance. First, it explores a new dimension on the impact of FDI inflows on the host country, which may advance our understanding of the contribution of FDI inflows to economic growth in the host country. Second, it provides a new argument and empirical verification on explaining differences in property rights, one of the most important aspects of institutional quality.

The rest of the paper is organised as follows: section two briefly discusses the theory of property rights determinants with more emphasis on the empirical literature. Section three introduces arguments of linking property rights to FDI inflows. The empirical results are presented in section four; and section five concludes.

2. Determinants of the institutional quality

According to La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1999), theories that explain determinants of institutional quality, and in particular property rights protection and contract enforcement can be grouped into three broad categories: *economic*, *political* and *cultural*. Beck, Demirguc-Kunt, and Levine (2003) and Levine (2005) add the *endowments* view. While economic theory stresses the role of social efficiency when creating institutions, political theory focuses on the redistributional aspects. Cultural theory emphasizes the role of social beliefs and endowment theory points to the role of geographical factors, such as the availability of natural resources or climate, in shaping institutions[1].

Economic theory, represented by Demsetz (1967) and North (1981), argues that institutions are created when it is efficient to do so. To repeat the example provided by La Porta et al. (1999), private property rights are created when land becomes scares, and when their benefits exceeds the cost of their enforcement. As institutions are generally considered efficient, economic theory sees poor property rights as a reflection of insufficient resources and high costs, rather than of bad institutions. Within this view, economic development creates a demand for good institutions, and governments will oblige, if benefits exceed enforcement costs.

Political theory, represented by Marx 1872, North 1990 and Olson 1993, states that institutions are designed by the elite to retain existing power structures and history provides many examples that demonstrate that institutions are shaped by the ability of powerful groups to extract rents, rather than social efficiency considerations: Russian czars, Ottoman sultans

[1] This section is a summary of the discussions in La Porta et al. (1999) and Beck et al. (2003).

and Tokugawa shoguns all created institutions that increased their absolute authority and control, resulting in a poor definition and enforcement of property rights (see La Porta et al. (1999) and references therein). According to this view, political divergence in society (social, ethnic, class or other) has a negative impact on government performance and property rights. The other prediction of this theory is based upon the historic circumstances within which common and civil laws have been developed. Common Law was developed, in part, as a tool to limit the authority of the crown and to protect property rights, while civil law was developed to restrain the authority of sovereigns over their subjects. Thus political theory argues that civil law, compared with common law, has a negative impact on property rights.

Cultural theory, represented by Weber (1958), Banfield (1958), Putham (1993) and Landes (1998), states that institutions are a reflection of the beliefs in a society. In some societies, intolerance and distrust run so high that governments cannot function effectively which produces poor institutional quality and insufficient property rights protection (La Porta et al. (1999)). Landes (1998) argues that Catholicism and Islam are hostile to institutional development. The reason for this, according to Landes (1998) and Putnam (1993), is that these two religions tend to foster "vertical bonds of authority", which limits the security of property rights and private contracting (Levine, 2005).

The endowment theory, represented by Engerman and Sokoloff (1997) and Acemoglu et al. (2001), states that today's institutions are affected by factor endowments and initial conditions at the time of colonisation. Two versions of the endowment theory exist: Engerman and Sokoloff (1997) emphasizes that natural resource endowments, related to mining and crops, often gave rise to highly unequal societies, where the ruling elite prevented the development of egalitarian institutions and favoured institutions that fostered their

hegemony (Levine, 2005). Acemoglu et al. (2001) establish a link between settler strategies of European colonialists and institutional quality in developing countries today. They argue that in areas where disease produces high mortality rates, Europeans did not settle, but set up 'extractive' colonies (e.g. Congo). The institutions of these 'extractive colonies' favoured the elite and facilitated the extraction of wealth; only in 'settler colonies' where Europeans colonialists settled, did they create institutions that supported property rights (e.g. Australia) .

3. Foreign direct investment and property rights

There is growing evidence that greater integration into the global economy has an impact on institutional quality. For example, Bonaglia et al. (2001) provides robust empirical support that higher import openness lowers corruption. Li and Reuveny (2003) establish that trade openness and portfolio investment have a negative impact on democracy, while FDI has a positive one. Larrain and Tavares (2004) show evidence that FDI is a robust predictor of corruption and that larger FDI inflows reduce the level of corruption in the host country. El-Marhubi (2004) finds that trade openness has a positive impact on governance indictors and concludes that openness may encourage governments to adopt better governance to reap the full benefits of integration into the world economy. Mosley and Uno (2007) find FDI to be positively and significantly correlated with labour rights, while trade openness impacts on them negatively.

This section develops arguments that facilitate a better understanding of the possible impact of FDI on property rights. In our view, FDI affects both the demand and the supply of property rights, and through this, FDI leads to better institutional quality. The demand for property rights arises because property rights allow individuals and firms to capture potential

rents and benefits; governments, on the other hand, may be induced to supply property rights when it is advantageous to do so.

3.1. Demand side

Foreign direct investors may create an effective demand for better institutional quality in the host country. This may be the case for two reasons: first, there is growing evidence that foreign investors consider institutional quality, especially property rights, as an important factor for their business success[2]. Second, there is evidence that multinational corporations tend to manipulate their business environment in order to maximize profits and to achieve business goals. For example, Poynter (1985) finds that some multinational corporations attempt to change government policy by entering domestic political processes. Moreover, according to Navaretti and Venables (2006), foreign investors at times rely on domestic interest groups with a vested interest to pressurize government to change the FDI incentive scheme in their favour. Libman (2006) provides evidence showing that multinational corporations have played an important role in shaping the course of reform and institutional change in some transitional countries. Given the above points, it seems plausible that foreign investors with a lasting commitment to the host country have an incentive to lobby for institutional change when faced with a poor property rights and business climate. FDI inflows should therefore create a higher demand for better institutional quality and property rights.

[2] See Ali, Fiess and MacDonald (2008) for more details.

3.2. Supply side

Why would governments respond to the demand of foreign investors? North (1981) assumes that the government acts like a discriminating monopolist, offering property rights protection to different groups of constituents in return for tax revenues. Using this model, one may argue that governments might find it advantageous to provide foreign investors with property rights and to ensure contract enforcement so that they can enjoy the benefits of FDI inflows which ultimately strengthen the government positions. While this might explain why governments protect property rights and enforce contracts, it does not explain why governments would commit to this role if they find it in their advantage to renege their commitments. For example, policy makers may try to alter property rights for their own benefits after the investments took place (North and Weingast 1989).

Two factors may prevent governments from reneging on their commitments, or at least making it costly for them to do so. The first factor is reputation. The fact that foreign investors can reallocate their investments to another country makes government value the long run effects resulting from reneging on their commitment. Thus, building a good reputation can induce governments to honour their today so as to retain the opportunity to attract FDI inflows in the future. The other factor is related to devising more complex institutional arrangements to limit a ruler's incentives to renege. Bullow and Rogoff (1989) show that reputation alone may not be enough to prevent reneging in developing countries and that more complex institutional arrangement are necessary to police reneging (North and Weingast 1989). In the context of FDI inflows to developing countries, Buthe and Milner (2005) stress that governments try to assure foreign investors about their commitments by binding themselves by various kinds of agreements and treaties, such as bilateral investment treaties, preferential trade agreements, and multilateral agreements. These international

commitments, although not determining government behaviour, are more credible than domestic commitments, because reneging on these commitments is more costly.

The above arguments can be supported by the fact that many countries, in an attempt to attract FDI inflows, have since the beginning of the 1980s introduced several changes in their regulatory frameworks. The aim of these changes was to create stronger incentives for foreign investors. According to UNCTAD (2002), in 2001 alone, 71 countries have introduced 208 changes to their FDI laws and 194 of these changes created a more favourable climate in an effort to attract more FDI. Furthermore, many countries have tried to increase their commitment on proving a better regulatory framework for FDI by entering into bilateral investment treaties. The number of these treaties has increased rapidly over recent decades (UNCTAD, 2002). It seems plausible to view these changes to domestic regulations and investment treaties at least in part as host governments' responding to foreign investors' demand for a better investment climate, including better institutions.

In sum, we expect that in a search for higher profits foreign investors will demand more secure property rights; host governments, aware of the potential benefits of FDI for growth and development, will respond. In an attempt to retain established FDI and attract new FDI, governments will further try to signal a high level of commitment by binding themselves through various international treaties. It seems therefore entirely plausible to expect that FDI inflows have a positive impact on institutional quality and in particular on the protection of property rights.

4. Empirical results

The previous sections laid out a hypothesis about the impact of FDI inflows on property rights. We now attempt to empirically verify this hypothesis. To ensure comparability of our analysis with existing work on the determinants of institutional quality, we first replicate the cross-sectional analysis of La Porta et al. (1999), Beck et al. (2003) and Levine (2005). We then expand on their work in several directions, which significantly adds to the literature on determinants of institutional quality and property rights. In particular, we extend the cross-sectional analysis in La Porta et al. (1999), Beck et al. (2003) and Levine (2005) to a dynamic panel setting which allows us to study variations over time. We further control for the possibility, that some of the regressors, in particular FDI could be endogenous. Moreover, North (1990) argues that previous levels of institutional quality determine current levels (see below). The use of a dynamic panel framework also enables us to test this hypothesis. Finally, to gain robustness, we present results from different estimation techniques. In general, we will estimate this model:

$$Proty = B_1 + B_2\,polit + B_3 Econ + B_4 FDI + B_5 Cultr + B_6 Endo + B_7 V + \varepsilon$$

Where: *Proty* is the property rights index. *Polit* is a vector of variables representing the political theory. *Econ* is a vector of variables capturing the impact of economic development. *FDI* is the ratio of foreign direct investment inflows to gross domestic product. *Cultr* is a vector of variables capturing the impact of culture. *Endo* is a vector of variables representing the endowment theory. V is a vector of controlling variables and ε is the disturbance term.

4.1. Results from cross-sectional estimations

To investigate the impact of FDI inflows on property rights, we start by using the same data set as La Porta et al. (1999). To measure property rights protection, La Porta et al. (1999) use the *Property Rights index* in the year 1997. This index is based, broadly, on the degree of legal protection of private property; the extent to which the government protects and enforce laws that protect private property; the probability that the government will expropriate private property; and a country's legal protection of private property. This index takes values between 1 and 5 and higher values indicate greater protection of private property.

As already mentioned above, La Porta et al. (1999) empirically evaluate the contribution of political, cultural and economic theories in explaining institutional quality, they also control for geography. Political theory is tested by the degree of ethno-linguistic fractionalization as well as the origin of commercial law. The *Ethno-linguistic fractionalization index is an* average of several measures of ethnic diversity. The index ranges from 0 to 1 and is expected to have a negative impact on property rights. The higher ethnic and linguistic division, the poorer are property rights. A country's Company Law or Commercial Code can stem from five different origins: (1) English Common Law; (2) French Commercial Code; (3) German Commercial Code; (4) Scandinavian Commercial Code; (5) Socialist/Communist laws. Given the historical context within which these Laws have been developed, as already explained earlier, it is expected that, respective to English Common Law, French, German, Scandinavian, socialist laws have a negative impacts on property rights index.

The relative share of Roman Catholics, Protestants, and Muslims in a country (*religious composition of population*) proxy cultural determinants of institutional quality (La Porta et

al., 1999). It is expected that relative to Protestantism, Catholicism and Islam have a negative impact on property rights.

La Porta et al. (1999) use the logarithm of the average of GNP per capita in current US dollars during 1970-1995 as a proxy for economic determinants of institutional quality. Per capita income is expected to have a positive impact on the property rights index. La Porta et al. (1999) further use latitude, scaled to take values between 0 and 1, to control for geography. They argue that latitude impacts institutional quality as more temperate regions have more productive agriculture and healthier climates, which allowed them to develop better economically and possibly also institutionally.

The results are summarized in Table 1. **Model 1** replicates model 3 in Table 4 in La Porta et al. (1999). It serves as our benchmark to which we add the other variables discussed above and in which we explicitly test the impact of FDI on property rights. Model 1 replicates La Porta et al. (1999)'s finding that political variables, represented by ethno-linguistic fractionalization and French legal origin, have the expected negative impact on property rights. In **Model 2**, we control for the impact of economic and geographic factors by including log of GNP per capita and latitude. The results show that both of them have the expected positive impact on property rights, however, ethno-linguistic fractionalization losses its significance. In Model 3, we add the average of FDI-GDP ratio during 1970-1995 to test the impact of FDI on property rights index. Model 3 shows that FDI has a positive and significant impact on property rights. The fact FDI maintains its significance after controlling for the income level means that FDI affects property rights beyond its impact on economic development and income level. We retain FDI as a regressor in all further model specifications. In **Model 4**, we control for the impact cultural factors on property rights by

including the percentage of the population which belongs to Catholic, Muslim or other non-protestant faith. The results show that FDI does not lose significance once we control for the cultural determinants of property rights, however, the results show that culture factors do not have significant impact on property rights once we control for other factors.

Table 1- Property Rights and FDI: Cross-sectional regressions.

(Dependent variable: Porperty rights index 1997)(1)

	Model1	Model2	Model3	Model4	Model5	Model6 (2)
	OLS	OLS	OLS	OLS	OLS	IV
Ethnic Fractionalization	-0.826***	0.332	0.387	0.474	-0.103	-0.257
	(-2.76)	(1.26)	(1.39)	(1.64)	(-0.24)	(-0.34)
French Legal Origin	-0.704***	-0.559***	-0.483***	-0.560***	-0.728**	-0.604
	(-3.51)	(-3.84)	(-3.14)	(-2.99)	(-2.37)	(-1.15)
Socialist Legal Origin	-1.386***	-1.114***	-1.133***	-1.273***	-	-
	(-3.65)	(-4.26)	(-4.47)	(-4.30)		
German Legal Origin	1.084***	0.068	0.285	0.270	-	-
	(4.91)	(0.28)	(1.07)	(1.08)		
Scandinavian Legal Origin	0.879***	-0.531**	-0.394	-0.030	-	-
	(3.08)	(-2.03)	(-1.42)	(-0.06)		
Latitude		1.638***	1.964***	2.178***	-	-
		(3.30)	(3.83)	(3.67)		
Log GNP per capita		0.417***	0.365***	0.342***	-	-
		(5.79)	(5.09)	(3.82)		
FDI-GDP Ratio			0.110**	0.113***	0.182***	0.468**
			(2.57)	(2.71)	(2.74)	(2.16)
Catholic				0.007	-0.011	-0.031
				(1.27)	(-1.22)	(-1.59)
Muslim				0.003	-0.007	-0.018
				(0.56)	(-0.85)	(-1.39)
Other Religion				0.006	-0.012	-0.033
				(1.06)	(-1.40)	(-1.40)
Independence					0.502	1.379
					(0.91)	(1.67)
Settler Mortality					-0.191**	0.023
					(-2.07)	(0.19)
Intercept	3.981***	0.191	0.262	-0.091	5.039***	4.988***
	(16.97)	(0.38)	(0.51)	(-0.12)	(6.65)	(4.59)
No. of obs.	124	124	121	121	69	36
F	91	48	39	31	7	6

Note: (1) Values in parentheses are White heteroskedastic adjusted t-values. *, **, and *** denote significance at 10%, 5%, and 1%, respectively. F is F-statistics. (2) FDI is instrumented by the by real exchange rate, infrastructure, and continental dummies for Africa and Latin America. The validity of these instruments is supported by Sargan Test χ^2 (3) = 5.36 (Prob> χ^2 = (0.147)).

Model 5 shows the results based on data from Beck et al. (2003) and Levine (2005). Beck et al. (2003) and Levine (2005) basically use the same data set as in La Porta et al. (1999) but they only include countries of either British or French legal origin, as most countries are based on these legal tradition, which are also the most distinct.

The other difference between La Porta et al. (1999) and Beck et al. (2003) and Levine (2005) is that the latter two studies introduce the endowment factor as an additional determinant of institutional quality. Beck et al. (2003) and Levine (2005) follow Acemoglu et al. (2001) and use the settler mortality rate, the log of the annualized deaths per thousand European soldiers in European colonies in the early 19^{th} century, to test endowment theory. The model shows that French legal origin has the expected negative impact on property rights, while Ethnic Fractionalization has the expected negative sign but is insignificant. The results also show that FDI maintains a significant and positive impact on property rights. Model 5 shows that non-Protestant religions have negative but insignificant impact on property rights index. Settler Mortality has a negative and statistically significant correlation with Property Rights, which confirms the endowment theory expectations.

Beck et al. (2003) and Levine (2005) argue that the longer a country has spent in independence, the more time it has had to develop sound institutions and hence the better its property rights might have become. They therefore use the percentage of years since 1776 that a country has been independent to control for the impact of independence on property rights. The results show the independence does not have significant impact on property rights, though it has the expected sign.

So far there has been no consideration of the endogeneity problem. It should be noticed that the above results may be subject to endogeneity bias. In fact, there is a large body of literature showing that FDI is determined by institutional quality and property rights. Thus, in Model 6, we have tried to control for endogeneity problem by using instrumental variable approach (IV). The choice of appropriate instruments should be driven by the literature of FDI determinants. A good instrument should be highly correlated with FDI but not with the disturbance term of property rights regression. Several empirical studies show that real exchange rates and infrastructure quality are among the significant determents of FDI inflows (Froot and Stein 1991), (Blonigen, 1997), and (Dunning and Lundan, 2008). Therefore, we instrumented FDI by real exchange rates and infrastructure measured by number of landline per thousand of people, in addition to, continental dummies for Africa and Latin America. The result of IV regression, reported in Table 1 Model 6, shows that the estimated coefficient on FDI are still significantly positive, which can be interpreted as impact of FDI on Property rights is robust to endogeneity problem.

The above results make it very clear that, compared to other determinants; the correlation between FDI and property rights is highly significant in a cross-sectional setting. These results can be interpreted as offering base-line support to our hypothesis that FDI has a positive impact on institutional quality, and that countries that attracted more FDI enjoy greater protection of property rights. However, these results are not without limitations, as they do not consider changes in property rights over time. This issue is taken up in more detail below.

4.2. Results from panel data estimations

The cross-sectional approach helps us to explain the differences in property rights across countries, i.e. identifying which characteristics explain why one country has a higher degree of property rights protection than another. A panel framework is however needed to assess how institutions are affected by FDI over time, and how different determinants interact dynamically. To investigate the time dimension of variations in property rights, we use a sample of 70 developing countries over the period 1981-2005. Data availability restricts the sample size and the time period covered. The Appendix describes the sample and data sources used in the subsequent analysis. Property rights index is constructed by combining two indexes: *Law and Order* and *Investment Profile*, both of which published by Political Risk Services Group. The index is scaled to take values between 0 and 12, with higher values mean better protection of property rights. *Law and Order index* assesses the strength and impartiality of the legal system, popular observance of the law, and the effectiveness of sanctions. *Investment Profile index* assesses contract viability, expropriation risk, and profits repatriation.

We construct a panel dataset with data averaged over each of the 5-year periods between 1981 and 2005. Within our sample, some countries have made remarkable improvements in their property rights indexes, while others experienced deterioration (see Table 3 and Figure 1 in the Appendix). Morocco's property rights index, for example, increased from 4.5 in the period 1981-85 to 9.94 in the period 2000-05. Bolivia, which started from a very low score, 2.12, in the 1980's, reached a high score of 7.4 in 2000-05. The same applies to Chile and Tunisia. Zimbabwe, on the other hand, showed a decline in its score from 4.25 in 1984-85 to

2.47 in 2000-05. Cote d'Ivoire and Venezuela also experienced a fall in the property rights index.

Table 2: Changes in averages of property Rights Index

country	1981-85	1986-90	1991-95	1996-2000	2001-05
Morocco	4.542	4.542	7.567	9.875	9.938
Bolivia	2.125	3.092	5.150	7.533	7.400
Chile	5.417	7.000	8.108	9.475	10.483
Tunisia	4.500	4.500	7.025	9.367	9.225
Venezuela, RB	6.104	6.892	6.883	6.300	4.925
Cote d'Ivoire	7.167	6.775	5.908	6.208	5.517
Zimbabwe	4.250	4.708	5.750	6.050	2.475

We start our panel analysis with a Random Effects model. This model specification allows us to capture the impact of the time-invariant variables that represent culture, political, and endowment theories. One problem with this technique is that it does not allow for the endogeneity of some of regressors, particularly FDI. To reduce the problem of endogeneity, we have lagged all endogenous variables for one period, that is, five years. We also use system GMM where lagged differences and levels of the endogenous variables are used as instruments.

The results are reported in Table 3. **Model 1** includes political variables, Ethno-linguistic fractionalization index and French legal origin, in addition to lagged FDI inflows. Both of the

political variables have the expect sign, although not statistically significant. FDI has the expected positive sign and is highly significant. In **Model 2**, we add variables representing cultural theory; the results show that Catholicism has a negative and significant correlation with the property rights index, while Islam has no significant correlation with property rights. The FDI term is still significant and positive and Ethno-linguistic fractionalization index becomes significantly related to property rights, while French legal origin dummy becomes positively but insignificantly correlated with property rights.

Model 3 controls for endowment and economic effects, by including settler mortality and GDP per capita growth[3]. The results show that while settler mortality has a negative but insignificant impact, lagged economic growth has a positive and significant impact on property rights, which confirms economic theory. FDI remains significant even after controlling for the impact of economic growth, which supports the claim that FDI influences property rights beyond its contribution to economic growth and development.

Using settler mortality reduces the sample size from 70 to 57 countries as we have only limited country coverage for settler mortality. To deal with this problem, we replace settler mortality rate with the ratio of primary exports to GDP. This variable is widely used in the literature to represent natural resources abundance (e.g. Sachs and Warner, 1995). Using the primary export ratio further accords with the view of Engerman and Sokoloff about endowments. Model 4 shows the results; the coefficient on primary export ratio suggests that natural resource endowments have a negative correlation with property rights, which give some support Engerman and Sokoloff's view, however it is not significant. Controlling for natural

[3] We also used GDP per capita to control for economic effect but it provided poor results.

resources endowment does not affect the significance of FDI; interestingly Catholic dummy becomes statistically significant.

Table 3-Property Rights and FDI: Panel Data Regressions
(Dependent variable: Porperty rights index(1981-2005) 5-year intervals)

	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8
	RE(1)	RE(1)	RE(1)	RE(1)	RE(1)	FE(2)	Sys GMM(3)	Sys GMM(4)
Ethnic Fractionalization	-0.671	-0.947**	-0.327	-0.246	-0.074	-	0.019	-
	(-1.50)	(-2.07)	(-0.59)	(-0.47)	(-0.14)		(0.07)	
French Legal Origin	-0.352	0.232	0.490	0.373	0.415	-	0.648**	0.688***
	(-1.23)	(0.63)	(1.15)	(0.91)	(1.02)		(2.47)	(3.05)
Economic Growth	-	-	0.163***	0.133***	0.129***	0.119***	0.209***	0.236***
			(4.65)	(3.87)	(3.71)	(3.27)	(2.71)	(3.38)
FDI-GDP Ratio	0.237***	0.241***	0.172***	0.200***	0.173***	0.162***	0.116**	0.124***
	(6.50)	(6.59)	(4.93)	(5.00)	(4.59)	(3.13)	(2.24)	(2.71)
Catholic	-	-0.016**	-0.011	-0.014**	-0.011	-	-0.004	-0.008**
		(-2.47)	(-1.57)	(-2.20)	(-1.63)		(-1.08)	(-2.12)
Muslim	-	-0.007	-0.005	-0.010	-0.008	-	-0.004	-0.006*
		(-1.25)	(-0.76)	(-1.58)	(-1.19)		(-1.06)	(-1.88)
Settler Mortality	-	-	-0.174	-	-	-	-	-
			(-1.31)					
Resource Endowments	-	-	-	-0.019	-0.025**	-0.009	-0.010	-0.005
				(-1.62)	(-2.13)	(-0.28)	(-1.38)	(-0.76)
Trade	-	-	-	-	0.007**	0.014**	0.004	0.004*
					(2.49)	(1.98)	(1.49)	(1.87)
Lagged property right	-	-	-	-	-	-	0.619***	0.492***
							(5.90)	(4.83)
Ethnic Tensions	-	-	-	-	-	-	-	0.231***
								(4.67)
Intercept	6.342***	6.860***	6.596***	6.432***	5.877***	4.991***	1.081	1.211*
	(18.59)	(16.97)	(9.50)	(14.42)	(11.33)	(10.60)	(1.3)	(1.73)
No. of groups	70	70	57	68	68	68	68	68
No. of obs.	278	278	224	240	240	240	240	240
Wald χ2	51.44(3)	58.62(5)	86.72(7)	69.37(7)	77.67(8)	-	644.64(12)	902.91(12)

Note: (1) Random effects model, z-values reported in parentheses. (2) Fixed effects model, t-values reported in parentheses. (3) System GMM. Arellano-Bond test for AR (2) in first differences: z = -1.01, Pr > z = 0.312, Hansen test of over identification restrictions: χ^2 (32) = 34.29, Prob > χ^2 = 0.359. (4) System GMM. Arellano-Bond test for AR (2) in first differences: z = -1.24, Pr > z = 0.215. Hansen test of over identification restrictions: χ^2 (32) = 33.67 , Prob > χ^2 = 0.386. Model 7 & 8 include time dummies. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

Rodrik (2000) argues that openness to trade could help developing countries to build sound institutions. A growing number of imperial evidence shows that trade has a positive impact on some aspects on institutions such as corruption (see for example Bonaglia et al. (2001) and El-Marhubi (2004)). Thus, in Model 5, we control for openness by including lagged trade-GDP ratio. The result shows that trade ratio has a positive and significant impact on property rights; the negative impact of natural resource abundance becomes significant, while Catholic dummy loses its significance. Interestingly, FDI maintains its positive and significant correlation with property rights, while political and cultural variables lose their significance.

In Model 6, we use fixed effects technique to investigate the role played by FDI in determining property rights. This technique concentrates on variations within countries which gives insights in how variations in FDI contribute to explaining the variations of property rights index in each country around its own mean. In other words, Fixed Effects technique allows us to investigate what causes property rights to change over time within each country. However, this advantage comes at the cost of dropping time invariant variables. Model 6 shows that FDI remains significant and so does GDP growth term. Trade ratio also enters positively and significantly. This result suggest that these three variables played positive role in determining changes in property rights index during the period of the analysis[4]. The endowment variable, on the other hand, loses significance, although it maintains a negative sign. This may be due to the fact that the primary exports to GDP ratio varies little over time, which implies that the endowments view can explains differences in property rights across countries, but not over time.

[4] Note that, as in the previous models, we lagged all of these variables one period, i.e. five years, in order to mitigate the problem of the endogeneity.

So far, we have dealt with the endogeneity of FDI by using the lagged value of FDI inflows. A more appropriate way to address endogeneity is to use the instrumental variable approach. Arellano and Bond (1991) show that in a dynamic panel setting lagged differences of endogenous variables can be used as effective instruments. Including the lagged value of the property rights index further allows us to study to what extent past institutional quality determines present institutional quality. North 1990 argues that history matters for institutional change, in a sense that institutional quality in the past has an impact in the current institutional quality. North states that the institutional framework provides society with opportunities (both politically and economically) and agents try to benefit from these opportunities within the existing institutional framework; they however also try to maximise profits by altering the existent institutional framework. North (1990) argues that the nature of the existing institutional quality may provide incentives for agents to alter it. To illustrate, in an inefficient institutional framework, organizations will form with the specific purpose to benefit from the opportunities offered by this inefficient framework, and these organizations will devote resources to maintain these inefficiencies. North (1990) states that this mechanism explains the persistent of the inefficient institutions in developing countries. On the other hand, organizations embedded in an efficient institutional framework will devote resources to maintain efficiency, as this serves their interests. North (1990) states that this mechanism explains the development of the American economy in the nineteenth century. Based on this argument, one would expect that lagged property rights have a positive impact on the current institutional quality, as efficient institutions provide agents with incentives to further increase the level of efficiency, promoting even more efficient institutions in the future.

Model 7 shows the results from system GMM estimation. In this model, we include the lagged dependent variable, the property rights index, as an additional explanatory variable. In this specification, the lagged dependent variables and the time-invariant country-specific error terms are correlated, and both random and fixed effects models produce inconsistent estimations. Arellano and Bond (1990) solve this problem by using generalized method of moment (GMM). They eliminate the country-specific error term by taking the first difference of the model and then use the lagged levels of the dependent variable as instruments for the first differences of the dependent variable. The same procedure can be applied to any endogenous variable within the set of explanatory variables. This technique is often called difference-GMM (Baum, 2005). Arellano and Bover (1995) and Blundell and Bond (1998) acknowledge a potential weakness in difference-GMM, since the lagged levels are often poor instruments for first-differenced variables (Baum, 2005). They propose, therefore, to use lagged levels as well as lagged differences as instruments. This technique is generally referred to as system GMM. Both difference and system GMM require an absence of second-order serial correlation in the residuals of the differenced model. As standard errors of the difference and system GMM estimators are shown to have a severe downward bias (Baum, 2005), the Windmeijer (2005)'s finite-sample correction is applied to correct this bias. A Hansen test of the over-identifying restrictions is used to test overall appropriateness of instruments.

In Model 7, we treated FDI inflows, economic growth, and trade ratio as endogenous variables. We find that the basic assumption of no second-order serial correlation is satisfied. The Hansen test approves the validity of the instruments for Model 7. The results show that the lagged value of property rights has a positive and significant impact on the current level of property rights index, which supports North's hypothesis. More importantly, FDI still has a

positive and significant impact on institutional quality index. Economic growth maintains its significance, while trade ratio loses its. Interestingly, all culture and political variables lose their significance apart from French legal origin which becomes significant but with the wrong sign. This can be interpreted as the evidence on political and culture theory is sensitive to model specifications or sample changes. This may call for other proxies for the political factors. One attempt could be by replacing the ethno-linguistic fractionalization index, which primarily measures ethnic division, with an index that captures the degree of tension resulting from racial, ethnic, or language divisions[5]. It seems reasonable to assume that the degree of social tension that results from ethnic and religious division is more important for institutional quality than ethnic division *per se*. One can cite many cases in developed countries where ethnic linguistic groups live in relative harmony without negative implications on institutional quality. For example, Canada and Belgium have Ethno-linguistic indices of 0.376 and 0.364, which are above the sample average, but have ones of the highest score of property rights index, 10.73 and 11.95 respectively. An additional advantage of using ethnic tension index rather than ethnic division is the former is time-variant and hence allows us to study the impact of political variables on institutional quality over time.

The results are shown in Model 8. As can be seen from **Model 8,** this change has led to substantial improvements in our results. Political factors, represented by ethnic tension index, now have the expected sign: improvements in the ethnic tension index have a positive and significant impact on property rights[6]. However, French legal origin is still significant but with the wrong sing. More interestingly, culture factors become significant with the rights sing. More related to our paper object, FDI maintains its significance which can be viewed as additional support for our main hypothesis.

[5] The Ethnic Tension index is published by PRS Group. See Appendix A for details about this index.
[6] Note that the index is scaled to take values between 0 and 12, with higher values mean less tension.

To summarize our results, FDI appears to be a robust predictor of property rights. The impact of FDI on institutional quality is not sensitive to model specifications, control variables, or estimation techniques. This supports our hypothesis that FDI inflows have a positive impact on the quality of property rights.

5. Conclusion

This paper introduces a hypothesis about the impact of FDI inflows on property rights in host countries and provides an empirical assessment. The results show that FDI inflows have a positive and highly significant impact on property rights. These results seem very robust and are not affected by model specification, control variables, or estimation techniques. The main conclusion of this paper is that FDI inflows can explain differences in property rights across counties and over time. In particular, FDI inflows have a positive influence on property rights in the host country.

This conclusion has several important implications for academic and practical purpose. First, it shows a new mechanism by which FDI inflows may positively affect economic performance in the host country. And given the importance of institutional quality in determining economic growth, this mechanism may be comparable to other positive effects of FDI. Our results suggest that foreign investors do not only import high quality manufacturing and production technology to the host county but also import high quality social technology and institutions.

Our findings also are a significant step towards the understanding of the determinants of institutional quality and institutional change. It establishes the integration into the world

economy, and FDI inflows in particular, as a new factor in determining property rights. Some policy implications emerge from this conclusion. First, there appears to be a positive interaction between the integration into the world economy as developmental strategy and institutional reform, where efforts spent in attracting FDI may well enforce institutional reform efforts. Furthermore, a policy more open to FDI may lead to improved institutional quality. Further analysis is needed to underpin these policy recommendations however.

Bibliography:

Acemoglu, D., Johnson, S. & Robinson, J. (2001). The colonial origins of comparative development: an empirical investigation. *American Economic Review, (91),* 1369-401.

Ali, F., Fiess, N. & MacDonald, R. (2008) *Do Institutions matter for Foreign Direct Investment?* University of Glasgow Working Paper 2008-26.

Al-Marhubi, F. (2004). The determinants of governance: A cross-country analysis. *Contemporary Economic Policy, (2),* 394-406.

Alston, L., Eggertsson, T., & North, D. (1996). *Empirical Studies in Institutional Change.* Cambridge: Cambridge University Press.

Aron, J. (2000). Growth and institutions: A review of the evidence. *World Bank Research Observer, (15),* 99-135.

Banfield, E. (1958). *The Moral Basis of a Backward Society.* New York: Free Press.

Baron, D. (2000). *Business and its Environment.* Third ed. Upper Saddle River, NJ: Prentice Hall.

Baum, C. (2005) *An Introduction to Modern Econometrics Using Stata.* Texas: Stata Press.

Beck, T., Demirguc-Kunt, A., & Levine, R. (2003). Law, endowments, and finance. *Journal of Financial Economics. (70),* 137-81.

Blonigen, B. (1997). Firm-specific assets and the link between exchange rates and foreign direct investment. *American Economic Review.(87),* 447-465.

Bonaglia, F., Braga de Macedo, J, & Bussolo, M. (2001). *How Globalisation Improves Governance,* OECD Development Centre Working Papers 181, OECD Development Centre.

Bullow, J. & Rogoff, K. (1989). A Constant recontracting model of sovereign debt. *Journal of Political Economy. (97),* 155-78.

Buthe, T. & Milner, H. (2005). The politics of foreign direct investment into developing countries: increasing FDI through policy commitment via trade agreements and investment treaties? http://www.princeton.edu/~hmilner/working%20papers/ButheMilner_FDI_v5.pdf

Demsetz, H. (1967). Toward a theory of property rights. *American Economic Review: Papers and Proceedings. (57),* 347-59.

Dunning, J., & Lundan, S. (2008). *Multinational Enterprises and the Global Economy.* Cheltenham: Edward Elgar.

Engerman, S. & Sokoloff, K. (1997). Factor endowments, inequality, and paths of development among new world economies. In *How Latin America Fell Behind. Haber, S. Ed.* Stanford: Stanford University Press. 260-304.

Froot, K., & Stein, J. (1991). Exchange rates and foreign direct investment: An imperfect capital market approach. *Quarterly Journal of Economics. (106),*1191-1217.

Garretsen, H. & Peetere, J. (2007). Capital mobility, agglomeration and corporate tax rates: Is the race to the bottom for real? *Economic Studies, (53),* 263-293.

Hall, R. & Jones, C. (1999). Why do some countries produce so much more output per worker than others? *Quarterly Journal of Economics, (114),* 83-116.

IMF. (2003). *World Economic Outlook: Growth and Institutions*. Washington: International Monetary Fund.

Knack, S. and Keefer, P. (1995). Institutions and economic performance: cross-country tests using alternative institutional measures. *Economics and Politics. (7),* 207-227.

Landes, D. (1998). *The Wealth and Poverty of Nations.* New York: W.W. Norton.

La Porta, R. Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1999). The quality of government. *Journal of Law, Economics, and Organization. (15),* 222-79.

Larrain, B. & Tavares, J.(2004). Does foreign direct investment decrease corruption? *Cuadernos De Economia, (41),* 217-230.

Levine, R. (2005). Law, endowment and property rights. *Journal of Economic Perspectives. (19),* 61-88.

Li, Q. & Reuveny, R. (2003). Economic globalization and democracy: An empirical analysis, *British Journal of Political Science, 33,* 29-54.

Mosley, L. & Uno, S. (2007). Racing to the bottom or climbing to the top?, *Comparative Political Studies, (40),* 923-948.

Navaretti, G. and Venables, A. (2006). *Multinational Firms in the World Economy.* Princeton: Princeton University Press.

North, D.C. (1981). *Structure and Change in Economic History.* New York: W.W. Norton.

North, D.C. (1990). *Institutions, Institutional Change and Economic Performance.* Cambridge: Cambridge University Press.

North, D. & Weingast, B. (1989). Constitutions and commitment: The evolution of institutions governing public choice in Seventeenth-Century England. *The Journal of Economic History. (56),* 803-32.

Olson, M. (1993). Dictatorship, democracy, and development, *American Political Science Review. (87),* 567-76.

Oman, C. (2000). *Policy competition for foreign direct investment: A study of completion among governments to attract FDI.* Paris: OECD Development Centre.

Poynter, T. (1985). *Multinational Enterprises and Government Intervention.* London: Croom Helm.

Putnam, R. (1993). *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton: Princeton University Press.

Rodrik, D. (2000b, August). *Trade policy as Institutions reform.* Retrieved March 10, 2008, from http://ksghome.harvard.edu/~drodrik/Reform.PDF

Sachs, J. & Warner A. (1995). *Natural resource abundance and economic growth.* NBER Working Paper No. 5398, National Bureau of Economic Research, Cambridge,MA.

Spar, D. (1999). Foreign investment and human rights. *Challenge, (42),* 55-80.

NUCATD, (2002). *World Investment Reports: Transnational Corporation and Export Competitiveness.* New York: UNCTAD, United Nations.

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics, (126),* 25-51.

Appendix A: Sample and Sources of Data

The analysis covers 70 developing countries over the period 1981-2005. All the variables are computed as five-year averages, covering the period 1981-85, 1986-90, 1991-95, 1996-2000, and 2001-05.

Countries in the sample:

Angola, Argentina, Bangladesh, Bolivia, Botswana, Brazil, Burkina Faso, Cameroon, Chile, Colombia, Congo Dem. Rep., Congo Rep., Costa Rica, Cote d'Ivoire, Dominican Republic, Ecuador, Egypt Arab Rep., El Salvador, Ethiopia, Gabon, The Gambia, Ghana, Guatemala, Guinea, Guyana, Haiti, Honduras, Hong Kong, India, Indonesia, Jamaica, Jordan, Kenya, Korea Rep., Lebanon, Madagascar, Malawi, Malaysia, Mali, Mexico, Morocco, Mozambique, Namibia, Nicaragua, Niger, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Senegal, Sierra Leone, Singapore, South Africa, Sri Lanka, Sudan, Suriname, Syrian Arab Republic, Tanzania, Thailand, Trinidad and Tobago, Tunisia, Turkey, Uganda, Uruguay, Venezuela RB, Zambia, Zimbabwe.

Variable	Definition	Source
FDI	Net FDI inflows as Percentage of GDP	United Nations, UNCTAD's World Investment Directory.
GDP Growth	GDP Growth (annual %)	World Bank, World Development Indicators
Property Rights	Average of indices of Law and Order & Investment Profile, scale 0-12.	Calculated from ICRG Data, PRS Group.
Ethnic Tensions	Tensions among ethnic groups, Scale 0-12.	Calculated from ICRG Data, PRS Group.
Natural Resources Abundance	Ratio of primary exports to GDP	World Bank, World Development Indicators
Trade	Export + Imports as Percentage of GDP	World Bank, World Development Indicators

- Changes in Property Rights Index in selected countries.