# Unbundling Institutional Determinants of Multinational Investments

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## Abstract

Previous studies often examined how a broad-based institution affects FDI flows across countries. However, analysis of differential impacts of two or more constituent institutions within a broad-based institution appears to be more useful for policy decision-making. There is a paucity of studies on how constituent institutions within a broad measure of institution affect FDI across countries. Our paper constitutes the first attempt in bridging this gap. In this paper, we examine the relative effects of property rights institution (PI) and contracting institution (CI) on investment flows. Our results show that PI is much more important than CI in determining the cross-border flows of FDI and affiliate sales. Moreover, PI is found to be more important for FDI than for affiliate sales, indicating that final goods are less of a concern for being expropriated by governments and powerful elites than capital goods. Through unbundling a broad-based institution and examining how the constituent institutions affect investments flows, our paper provides practical location decisions for investments in FDI, M&A and affiliate sales.



Keywords: FDI; Property Rights Institution; Contracting Institution.

JEL: F21; F23; O17.

## Introduction

The importance of institution in affecting FDI and growth has attracted much attention (Alfaro, Kalemli-Ozcan, and Volosovych, 2008; Du et al. 2008; Fan et al. 2009; Papaioannou, 2009). One of the most important institutions used in the literature is North's institutional measure, which is a broad-based measure because it embodies two or more different constituent institutions such as property rights institution and contracting institution. The importance of property rights institution and contracting institution has long been identified in the literature (see De Long, Bradford and Shleifer, 1993; Dixit, 2012; Hart, 1995; North, 1981; Olson, 2000). Private property rights or property protection institution (hereafter PI) constitutes the rules and regulations that protect firms against the power of the government and elite groups whereas contracting or contract enforcement institution (hereafter CI) is defined as the rules and regulations that protect firms or private individuals against exploitations by one another. This paper attempts to unbundle a broad institutional measure and examines the differential impacts of PI and CI on cross-border investment flows such as FDI, M&A and affiliate sales. Though the aggregate effects of broad-based institutional measures on FDI flows have been widely investigated (e.g. Fukumia and Nishijima 2010; Shah at al. 2015), the relative impacts of the different constituent institutions (such as PI and CI) embodied within the broad measures, however, have not been analyzed before. Previous studies often examined how a broad-based institution affects FDI flows across countries. However, analysis of the differential impacts of two or more constituent institutions within a broad-based institution appears to be more useful for policy decision-making. There is a paucity of studies on how constituent institutions within a broad measure of institution affect FDI and other types of investment flows across countries. Our paper provides the first attempt to explore how PI and CI separately affect cross-country investment flows of FDI, M&A and affiliate sales.

The investment decisions across countries about where to park the fixed and production assets could be compounded by the heterogeneity of PI and CI. Figure 1 shows that countries vary widely in the relative strength of PI and CI. Some countries have strong PI but relatively weak CI whereas others have weak PI but strong CI. Some countries are strong in both PI and CI but others are weak in both. These two types of institutions have relatively low correlations. It is common for countries to exhibit strength in PI but weakness in CI and vice versa. Hence, it could be misleading to use their aggregate effect as an indicator for the quality of a country's institution.

[Figure 1 about here]

We contribute to the literature in three ways. Firstly, we are the first to examine, theoretically and empirically, the relative impacts of PI and CI on multinational investments such as FDI, M&A and affiliate sales.[1] There are important distinctions between FDI and affiliate sales. For example, while FDI comprises long-term investments in new plants, machineries or fixed capital assets in host countries, affiliate sales constitute mainly short-term final output of goods and services. Hence, given the different types and nature of the multinational transactions, and the possibility of locating initial production facilities and/or final goods and services in certain countries, the impacts of PI and CI on location decisions may differ from one another. Therefore, knowledge of the relative strengths of these two institutions equips multinational firms with strategies for choosing the locations of their fixed investments and affiliate sales. PI is especially important to international investments because asset expropriation and property confiscation may destroy the business of an MNE in a host country. Economic theory stipulates that global investors face high production costs if host countries have weak PI (see Dunning and Lundan, 2008). In the case of FDI, for instance, investors from home countries are concerned about the long-term safety of their physical and financial assets in host country. Fixed assets such as production facilities, warehouses, building, and machinery remain in the host countries for a long period of time. Hence, multinational firms are likely to be disinterested in this type of investment if their properties are not well protected or if their cumulative assets are subject to expropriation by powerful elite groups in the host countries. Affiliate sales may also be vulnerable to such cost constraints if the goods and services produced are subject to expropriation. Our empirical results show that strong PI, but not CI, is very important in the global positioning of FDI and affiliate sales. Furthermore, PI is found to be more important in location choices for FDI (as well as M&A) than for affiliate sales, indicating that final goods and services are less of a concern for being expropriated by powerful elite groups than capital goods.

Our results show that unlike CI, PI is an important determinant of multinational investments. It is difficult for foreign investors to rectify a weak PI because the powerful elites are often in control of policies that govern the protection of their assets (Henisz, 2000). Foreign investors are often barred from taking part in making political and economic decisions in the host countries. However, unlike PI, contract enforcement inefficiency may be circumvented in the absence of coercion by governmental or elitist forces (see also Acemoglu and Johonson, 2005; Alcacer and Ingram, 2013). Firms and individuals are more likely to come to terms with each other than with powerful politicians. The business literature reveals that informal networking

[1] Since M&A is often construed as a part of FDI, we will use M&A as an additional variable for robustness check.

may be used to offset contracting institutional constraints (see Alcacer and Ingrams, 2013; Peng et al., 2009). Our results show that while informal networking cold not circumvent cost constraints due to asset seizure or government policy change, cost constraints posed by inefficient formal contractual enforcement could somehow be alleviated by some informal channels. That is, government exploitation appears to be intractable but exploitations by business partners could somehow be prevented and hence inefficient formal court cases avoided. In the economic literature, the cost theory has hitherto been used to explain the institutional barriers across countries (Antras, 2005; Nunn, 2007). However, as seen from our empirical results, cost theory by itself cannot sufficiently explain why CI has little effect on multinational investment flows. In this paper, we use an alternative (networking) theory to explain why inefficient contract institutions could be circumvented.

Secondly, our empirical results provide several practical location strategies for international investors and multinational firms: (a) it is wise for investors and firms to consider unbundled constituent institutional variables rather than resorting to a single, and potentially ambiguous broad institutional measure; (b) multinational firms should locate their FDI (or M&A) and to some extent their affiliate business sales to countries having strong PI or avoid those with weak PI; (c) while multinational enterprises must consider the relative strengths of PI in their location choices, their decisions to locate FDI and affiliate sales should not be strictly deterred by weak CI in the host countries, otherwise they may lose competitive positions vis-à-vis their competitors who make the right location choices; and (d) multinational managers should view weak PI as a persistent problem but more stringently in their global positioning of FDI than with business sales. The above location choices not only help multinational managers or investors to enhance their business performances but also provide practical strategies for government policy makers in host countries on how to attract foreign investments.

Lastly, we establish causation rather than simple association between the institutions and the multinational investments. Empirical studies investigating the relationships between institutions and FDI were often fraught with reverse causality and/or omitted variable bias. For instance, institutions may affect multinational investments, and multinational investments may also affect institutions. An omitted variable may affect institutions and multinational activities at the same time, rendering the independent variables endogenous. It is therefore important to control for endogeneity in this type of research. In this paper, we contribute to the literature by identifying and using proper and well-tested instrumental variables to deal with the potential endogeneity in institutional research. Moreover, since we use cross-country data in this paper, it is important to establish a causal relation between institutions (PI and CI) and multinational investments (FDI and affiliate sales) using valid and well-established instrumental variables.

**Theories and Hypotheses**

North (1981; 1990) provided a broad view of institution (or macro institution) that aims to address the issues of long-term macroeconomic growth. He defined institutions as the social, economic, legal, and political organization of a society and argued that good institutions will concurrently support private contracts as well as checks against expropriation by governments or other politically elite groups (pointing to the importance of PI and CI). The literature often used broad institutional clusters. For example, Dixit (2012) focused on governance structure defined as insecurity of property rights and contracts (also emphasizing the importance of PI and CI). Fan *et al* (2009) also recognized the importance of PI and CI, among others, in their broad concepts of institutions. However, the relative importance of PI and CI on FDI and other types of cross-border investment flows have not hitherto been explored in the literature.

Private property protection deficiencies arise for the following reasons. First, there is a possibility of asset seizure (outright expropriation) by governments and powerful elite groups. Expropriation benefits them directly by transferring asset or revenue from multinational firms to the government budget or the bank accounts of the elite groups. The government may also receive indirect benefits by transferring assets or property rights of a foreign company to domestic ownership. Second, host government, and its implicit presence in the background of every economic transaction, poses a threat to multinational firms through policy shifts in taxation, regulations or other agreements, which then diminishes their asset ownership and expected returns. Whereas blatant expropriation of foreign assets may not be ubiquitous, assets of foreign firms can be insecure due to policy shifts that render the repatriation of profits to be restricted. Property hazard cannot easily be internalized because the government always retain its monopoly power on the legal use of force.

As espoused in the economic literature, the deficiencies in PI and CI pose as institutional cost constraints (Antras 2005). In this paper, weak PI adversely affects FDI mainly because it is predominantly in the forms of fixed durable assets or physical capital, which are invested in host countries for a long time period. Unlike trading in final goods and services, fixed capital goods (such as machinery and factory) are less internationally mobile and it is not easy to move these types of assets from one country to another. International asset immobility enhances the chance of expropriation by powerful and often corrupt authorities. Furthermore, fixed durable asset investments are characterized by long durations of investments. The likelihood of expropriation increases over time with unpredictable changes in government policies or

political regimes. Foreign investors become nervous about building their long-term assets in countries where PI is lacking.

Apart from PI, CI is needed to protect investors against manipulations by business partners in host countries due to potential payment failure, shipment delay, quality deterioration, and various unprecedented disputes (Antras and Foley 2015). Unlike PI, however, governmental coercion is absent in the case of CI as individual and firms are holders of business agreements and contracts. A breach of contract means that a source country's investor will seek a formal court proceeding (for example to retrieve an unpaid check or seek compensation for a quality infringement) against the offender in a host country. If CI is weak, investors may not choose to invest in that country. However, unlike PI, governmental coercion is not common when an investor in a source country enters into a contract with a partner in a host country in order to reduce payment failure, quality infringements, mutual exploitation, etc. It is possible for an investor to reduce adverse selection problems in order to prevent lengthy court proceedings by deliberately screening out potential bad partners via informal networking (knowing who to work with). It is also possible to reduce moral hazard through private negotiations, mediations (such as using banks to reduce agency cost), and insurance purchases, etc.

The cost theory postulates that cost barriers imposed by weak PI and weak CI may inhibit the flows of production assets across countries (Antras 2005; Nunn 2007). However, the emergence of another theory, namely, the networking theory, shows that institutional cost constraints may be alleviated via informal networking among private agents (see Alcacer and Ingram 2013). Past literature, however, did not consider which institution (PI or CI) within a broad measure of institution may or may not be circumvented by informal networking. This paper attempts to shed some light on this. First and foremost, it is important to understand that implicit in PI is the relation between the government and private agent. PI involves protection against asset expropriation by governments, which constitute powerful forces for investors to manage or control. Implicit in CI is the relation between the investor and her private agent or business partner. A major distinction between these two types of institutions is that government coercion is explicitly involved in PI but not in CI. In theory, it is difficult for international investors or multinational firms to counter political/governmental forces in the host country. For example, if the government in a host country introduces a policy change, a multinational firm has little control over it. Hence, weak PI seems to exert a cost barrier not easily offset by private networking. However, in the case of CI, manipulation or fraud emanates from among business agents or partners rather than from the government or powerful elites. Therefore, in theory, investors may circumvent private manipulations more than government coercion. Hence, CI is conjectured to impose less constraint on multinational firms compared with PI.

In theory, if private conflicts can somehow be circumvented ex-ante or ex-post, then investors' reliance on formal contractual enforcements via court cases for instance will be reduced, and hence weak CI may not necessarily deter investment flows. Informal networking has recently become a well-known theoretical proposition in institutional-based view: "where formal constraints are unclear or fail, informal constraints will play a larger role in reducing uncertainty, providing guidance, and conferring legitimacy and rewards to managers and firms (Peng *et al*, 2009). It is possible for investors to use personal networks, business practices or connection, strategic alliance, or interpersonal-level embeddedness, and a host of other informal arrangements to overcome the constraints of formal institutions (Sun, Mellahi and Thun 2010). Alcacer and Ingram (2013) showed that networking could span the institutional abyss between the jurisdictions of the states involved. Over time, multinational firms have shifted to more open business network structures that provide greater flexibility in adapting to changes in the institutional environment. Hence, the cost theory by itself, as previously espoused in the economic literature, is no longer sufficient to account for the differential effects of PI and CI on investment flows.

In this paper, while acknowledging that cost constraint may apply to both PI and CI, informal networking theory, which works to alleviate cost constraints, appears to be more relevant to CI than to PI, as mutual manipulations are easier among business partners. For example, it seems manageable for an investor to search for an alternative agent, a trustworthy private individual or an intermediary (such as banks) to partner with. It also appears feasible for an investor to buy insurance to protect the investor against unexpected losses. However, government policy changes or indirect expropriation by political forces can hardly be guarded against even if one has connection with a particular politician in the host country. Therefore, in the case where a host country's government is prone to embezzle private properties or change taxation policies to transfer assets, informal networking may not significantly help to protect their physical capital assets. However, in the case where an agent in a source country is prone to breaking a contract, the investor from a source country may resort to a large number of informal alternative arrangements. Hence we hypothesize that:

*Hypothesis 1: The impacts of PI on FDI are quantitatively larger than that of CI.*

In this paper, we examine not only the location decision of FDI but also the global positioning of affiliate sales. Since affiliate sales are outcome of long-term investments in fixed production assets, and the commodities are also subject to expropriation by governments and political elites, PI is also conjectured to be important. However, investors may in the same way avoid

their reliance on formal contractual enforcement in the host countries via business networking (Peng et al. 2009) or mutual agreements (Alcacer and Ingram 2013), thereby potentially reduce their dependence on CI in the host countries. However, while weak CI may be alleviated, expropriation by powerful elites seems to be intractable. Investors may replace an agent or a contract but not government policies. Hence we hypothesize that:

*Hypothesis 2: The impacts of PI on affiliate sales are quantitatively larger than that of CI.*

The above compares PI with CI. Now, we compare FDI and affiliate sales. We first focus on how PI affects FDI and affiliate sales. While M&A is similar to FDI, there is a distinction between FDI and affiliate sales. First, FDI is likely to be adversely affected by weak PI mainly because it is in the form of fixed durable assets, which are invested in host countries for a long time. Consequently, the likelihood of expropriation increases over time with unpredictable changes in government policies or political regimes. Second, unlike trading in final goods and services, fixed capital goods are less internationally mobile. International asset immobility increases the chance of expropriation by powerful authorities. While FDI is essentially cross-country flows of investment in durable physical capital, affiliate sales are mainly flows of transient goods and services. Therefore, in the case of affiliate sales, goods and services could be less subject to expropriation. Third, cross-border FDI investments involve very large sunk costs but this is not so in affiliate sales. The above shows that affiliate sales may face less information asymmetry than FDI because the investors or producers in the case of affiliate sales have more access to the information after successfully establishing their production plants. Affiliate sales, therefore, may not face the same types of risk and uncertainty (cost constraints) inherent in the initial stages of fixed-capital investments. Affiliate sales are essentially a successful outcome of a long, tedious and risky investment process. In other words, FDI seems to be more vulnerable to expropriations than affiliate sales. Hence, we conjecture that:

*Hypothesis 3: PI affects FDI more than it affects affiliate sales.*

The above examines how PI affects FDI and affiliate sales. How does CI affect FDI and affiliate sales? In theory, FDI is more contract intensive than simple sales transactions partly because FDI entails a long term investment with a multitude of contractors, upstream suppliers and business agents/partners while affiliate sales are basically short-term transactions involving fewer agents/contracts to deal with. Naturally, the more the requirement for contracts, the greater will be the reliance on CI in host countries (Antras 2005). Therefore, we predict that:

*Hypothesis 4: CI affects FDI more than it affects affiliate sales.*

**Data and Variables**

In this paper, since one of our objectives is to derive location decisions for FDI and affiliate sales across host countries, the use of comprehensive cross-country investment data is especially relevant. A merit of using country-level data is that data on FDI flows are available across a large combination of countries whereas firm-level data is usually available for investment flows from one particular country (e.g. US or Japan) to a few destination countries. Since multinational firms in virtually all the different countries engage in FDI and affiliate sales, cross-country data show the revealed preferences of MNEs across countries. Since the insights derivable from one country may not represent the decisions for another country, and given the institutional heterogeneity, the use of a large set of cross-country data is propitious and provides a fuller picture of the actual investment flows and the locations strategies made by multinational firms. We combine data from several sources with details of each data source for each variable discussed in the section below.

*Dependent Variables*

Our dependent variables are bilateral *FDI* and *affiliate sales* undertaken by multinational firms. We use cross-sectional data for our research for another reason: our institution variables (PI and CI) do not change significantly for most countries, yet are endogenous. In the presence of time-invariance, a pooled time-series and cross sectional data analysis using fixed effect model does not offer much advantage as it captures only within variance of the estimation and does not allow the estimation of time-invariant variables (Baltagi 2001; Wooldridge 2002). Second, to tackle endogeneity and to establish causality for institutional research, we select our instrumental variables from well-established cross-sectional colonial historical variables.

We note that multinational investment decisions are basically based on prior information, so our institution variables are assigned ten-year-average measure of institution before the investment activities were made. The use of independent lagged variables also helps to establish causality. In our benchmark regressions, we use data on bilateral cumulative multinational investment stock and bilateral affiliate sales in 2000. However, in our robustness tests, we use data on bilateral cumulative multinational investment stock in 2012 with corresponding data on institution variables being the ten-year-averages between 2002 and 2012. A separate analysis shows that our institutional variables do not change significantly over the period 2000-2012.

Bilateral FDI stock is obtained from Organization for Economic Cooperation and Development (OECD)'s database while bilateral affiliate sales are from Blonigen and Piger (2014). All our dependent variables (in US$ million) are expressed in logarithmic form.

*Independent Variables*

To proxy for CI, we use the three different measures developed by Djankov *et al* (2003), which track the difficulty level in enforcing a business contract. The first is an index of *legal formalism*, measuring the number of formal legal procedures necessary to resolve a simple case of collecting an unpaid check. It is expressed as an index ranging from 1 (lowest formalism) to 7 (highest formalism). The second is an index of *procedural complexity*, measuring the difficulties in resolving the case of an unpaid commercial debt. It is also expressed as an index ranging from 0 (least complex) to 10 (most complex). The third is the *number of procedures* necessary to resolve a court case involving this same commercial debt. All the three empirical measures explicitly deal with a dispute between private parties without political coercion.

To proxy for PI, we use Polity IV's *constraint on executive* measure, as it comprises notion of relation between private party and government. The measure *constraint on executive* captures the degree of constraints on powerful elites. It is expressed as an index ranging from 1 (lowest level of constraint) to 7 (highest level of constraint). To supplement this measure, we also resort to two other proxies: Political Risk Services' assessment of *protection against government expropriation* and the Heritage Foundation's assessment of *private property protection* (Acemoglu and Johnson 2005). *Protection against government expropriation* denotes the average risk index of expropriation of private investment by government between 1985 and 1995. The index ranges from 0 to 10 with higher scores implying greater risk protection. *Private property protection* is also an index ranging from 0 to 5 with higher scores indicating better private property protection. Notice that coercion in terms of government expropriation or executive constraint is present in our PI measure.

*Control Variables*

First, we control for host and parent country sizes (*Parent and Host Country Real GDP*) which may affect the level of a multinational investment. A larger host country may imply a bigger market while a larger parent country may imply more supply-side potential for firms to go abroad. Real GDP, in US$ trillion (2005 constant price) is expressed in logarithmic form. Second, we take into account bilateral geographical distance (*Distance*) between the two most populous cities in the parent and host countries. It is expressed in logarithmic form. The variable measures the degree of liability of foreignness and hence the cost of setting up a business. Third, we introduce several dummy variables that previous literature has identified to be relevant to

multinational investment such as whether the pair countries are geographical contiguous (*Contiguous*), share common official language (*Common Language*), have or had colonial link (*Colony*). These three control variables are dummies, which equal to "1" if parent and host countries are contiguous, or share the same language, or have/had the same colonial heritage. Fourth, the multinational investments might be driven by resource seeking motive. To control for this, we include share of a host country's export of natural resource relative to its total export (*Resource Export*). It is the ratio of fuel, ores and metals exports to the total merchandise exports in the year 2000. In addition, multinational firms may be attracted to a host country with a stable macroeconomic environment, measured by average inflation rate in the past two decades (*Inflation*). It is the logarithm of average annual consumer price index (CPI) from 1970 to 1998. Finally, we control for host country's government consumption (*Government Consumption*). It is the average ratio of government consumption expenditure to GDP from 1970 to 1989. For robustness tests, we use data from different sample period (e.g. five-year average lag).

*Instrumental Variables*

There are two endogenous variables, PI and CI. Following the literature, we use the *legal origin* of a country to instrument CI. It is a dummy variable, with "1" denoting English legal origin and "0" otherwise. We use mortality rate facing European settlers during the early period of European colonization to instrument the three measures of PI. An alternative instrumental variable to *settler mortality* is *population density* in 1500. All these data are obtained from Acemoglu and Johnson (2005).

****INSERT TABLE 1 HERE****

**Empirical Strategy**

To test our hypotheses, we estimate variations of the following equation.

$$Y_{ij} = a_0 + a_1 PI_i + a_2 CI_i + \boldsymbol{X'b} + \varepsilon_{ij} \qquad (1)$$

where $Y$ refers to either bilateral FDI or affiliate sales to host country $i$ by parent country $j$, $PI_i$ is the property rights institution variables while $CI_i$ is the contracting institution variables in host country $i$ and $\boldsymbol{X}$ is a vector of controls of host and parent country characteristics. The coefficients $a_1$ and $a_2$ are the parameters of interest.

We first estimate equation (1) using OLS regression. However, there are two pertinent issues with simple OLS. Take FDI as an example. First, there is a possibility of simultaneous causality, meaning that in our present context, institutional environment can impact FDI flows and *vice versa*. In the presence of simultaneous causality, OLS regression leads to simultaneous bias: the OLS coefficient thus obtained measures only the magnitude of *association/correlation* rather than the magnitude and direction of *causation*. Second, bilateral FDI flows could be due to factors that are unobservable by researchers. An unobservable or omitted factor that influences PI for instance may also concurrently influence FDI flows. For example, geography, in terms of location advantage, may be a factor behind both the development of a better PI and a country's attractiveness to FDI. Although omitted variable bias due to observable factors can be addressed directly by including the observable variables as control variables in the regression, yet, omitted variable bias due to unobservable factors presents a greater challenge.

Our empirical strategy in tackling the endogeneity problem is to make use of well-established instrumental variables (IV) and apply an IV estimator called two stage least squares (2SLS) to estimate the causal effect. Specifically, in the first stage, we regress each of the two endogenous variables (PI and CI) on two instrumental variables with controls as follows

$$PI_i = \beta_1 SM_i + \beta_2 LO_i + \boldsymbol{Z}'\boldsymbol{c} + u_{1i}$$
$$CI_i = \gamma_1 SM_i + \gamma_2 LO_i + \boldsymbol{Z}'\boldsymbol{d} + u_{2i} \qquad (2)$$

where $SM_i$ refers to settler mortality rate in host country $i$ and $LO_i$ to the legal origin of host country $i$. These two instrumental variables serve as the sources of ***exogenous*** and distinct sources of variation in property rights institutions and contracting institutions, effectively isolating the part of variation of institutions due to exogenous instruments from other part of variation of institutions due to endogenous factors. In the second stage of our 2SLS regression, the predicted values of the two endogenous variables from first stage regression equation (2) are used to run regression equation (1). The 2SLS method establishes the *casual* relationship between the institutions and the multinational investments.

We refer to the literature to guide our choice of the instrumental variables. The colonial history has been identified, as in Djankov *et al* (2002, 2003), Acemoglu and Johnson (2005), and Acemoglu, Johnson, and Robinson (2001, 2002), to be an important exogenous source of variations affecting the development of both PI and CI, and it is quite impossible for a direct feedback from FDI flows to colonial history. Specifically, Djankov *et al* (2002, 2003) showed that the legal system imposed by colonial power has strong effects on all three measures of CI

but little effect on our measures of PI. We thus use the *legal origin* of a country to instrument the three measures of CI. It is a dummy variable, with "1" denoting English legal origin and "0" otherwise. On the other hand, evidence from European colonization suggests that in countries with favorable disease environment (low mortality rate) colonizers settled and developed similar or even better institutions than the contemporary institutions in Europe while in countries with high mortality rate extractive institutions were established to exploit the native population. Mortality rates for potential European settlers have been shown to exert large effects on PI and virtually no impact on CI (see Acemoglu, Johnson, and Robinson 2001, 2002). *Settler mortality* is estimated from the mortality rates of European-born soldiers, sailors and bishops when stationed in the colonies. We therefore use mortality rate facing European settlers during early period of European colonization to instrument the three measures of PI. Note that data on settlers is patchy and so is that of the settler mortality rate. Though Albouy (2012) questions the quality of the data used in Acemoglu, Johnson, and Robinson (2001), Acemoglu, Johnson, and Robinson (2012) argue that Albouy's claims are not compelling. In light of the unsettled debate, we use *settler mortality* rate data from Acemoglu and Johnson (2005). We show that the two instruments are highly correlated with the institution variables (see Table 2) and we discuss *Instrument Relevance* and *Instrument Validity* fully in the *empirical result* section.

**Empirical Results**

Table 1 presents descriptive statistics (means and standard deviations) for all the variables used in our empirical analysis. Take bilateral cumulated FDI for instance (first row). For the world sample with 1710 country pairs of bilateral FDI stock across 188 host countries and 162 parent countries where positive data is available, the average FDI stock in a host country from a parent country is US$2.8 billion in 2000. For the ex-colonies sample with 589 country pairs of bilateral cumulated FDI stock across 96 host countries and 76 parent countries where positive data is available, the average FDI stock is US$3.15 billion. Former English colonies attract more FDI (US$5.17 billion) than former French colonies (US$1.04 billion). In each of the two groups of ex-colonies, former colonies with lower settler mortality during the colonization period attract on average more FDI than those with high settler mortality.

Consider legal formalism for example (Row 4, Table 1). The *legal formalism index* measures the procedural formalism in resolving a commercial dispute, ranging from one to seven with higher scores indicating greater formalism. In the sample of 61 former European colonies, the average index is 3.78. The ex-English colonies have on average a lower score (2.79) than ex-French colonies (4.68), suggesting that enforcing a commercial dispute is less complicated in

the ex-English colonies (with better CI). Similar patterns emerge for the other two measures of CI, *procedural complexity* and *number of procedures*.

Our key measure of PI is *constraint on executive*, an index ranging from one to seven with higher scores indicating greater constraint on the politicians. We are interested in whether countries with lower settler mortality rates have better PI. The index of constraint on executive is on average higher in the former English colonies with lower settler mortality (5.53) than those with higher settler mortality (3.38). The same index is also higher in the ex-French colonies with lower settler mortality (5.11) than those with higher settler mortality (3.37), suggesting that countries with lower settler mortality rates have better PI. Similar pattern emerges for other two measures of PI (Rows 8 and 9, Table 1).

We report in Table 2 the correlation results from univariate regressions. There are two advantages: (a) biasness of the correlations due to the endogenous influence can be compared (OLS versus 2SLS) and (b) validity of the instruments can be verified. There are three panels (top, middle and bottom) in Table 2 corresponding to each of the three dependent variables. Each cell in Table 2 corresponds to a separate regression. Take for instance the correlation between FDI and "*constraint on executive*" (Row 4, panel 1). For both the whole world and ex-colony sample, this correlation is statistically significant at one-percent level, estimated using either OLS without due regard to causality or 2SLS. Controlling for endogeneity, the 2SLS results provide statistically meaningful relationship between *constraint on executive* and FDI. On average, a one-unit rise in *constraint on executive* leads to a 47-percent increase in FDI inflow to a host country (equivalent to an increase of US$1.48 billion). Controlling for endogeneity, our benchmark from 2SLS in Table 2 shows that there are strong causal relations between PI (executive constraints, protection against risk of expropriation and property rights) and multinational investment while evidence for causal relations between CI (legal formalism, procedural complexity and number of procedures) and multinational investment are weak.

****INSERT TABLE 2 HERE****

A merit of Table 2 is found in its report of the first stage regression results that point to the relationships between the institutional variables and their instruments. It is well known that a valid instrument should be correlated with the endogenous regressor (*instrument relevance*) but orthogonal to other omitted characteristics (*instrument exogeneity)*. While it is accepted in the literature that a country's *legal origin* and *settlement mortality*" satisfy *instrument exogeneity* condition (by not affecting multinational investment directly), the *instrument relevance* condition can be established through inspection of the highly significant correlations between

the institutional variables and the instrumental variables (last column of Table 2), pointing to the validity of our instrumental variables in controlling for any inherent endogeneity. Formal tests for validity and excludability of the instrument are reported in Table 3 through 5. The Hansen J-statistic tests indicate that we cannot reject the null hypothesis that the instrument is valid with all of the p-values far exceed the conventional 5% significance level. The F-test on the 'strength' of instruments in the first stage regression rejects in general the null hypothesis that the equation is weakly identified.

Our main results are reported in Tables 3 and 4. Each column reports results from a 2SLS regression of a multinational investment on each of the institutions. The effects of PI and CI on FDI are reported in Table 3, which shows that all the PI proxies are significant at 1 percent level. The 2SLS results also point to substantial impacts of PI on cross-border FDI flows. For example, a one-unit improvement in *constraint on executive* leads to 84 percent increase in FDI for a host country (equivalent to an increase of US$2.65 billion). Table 3 also shows that all the CI proxies are not significant at the 5 percent level. Our results support H1. We deduce that PI is a more important determinant of FDI than CI and conclude that weak PI in the host countries result in significantly less entry of Greenfield FDI into these countries.

****INSERT TABLE 3 HERE***

Table 4 points to a similar pattern of results for affiliate sales. PI variables are generally significant but CI variables are not. These results corroborate H2. An implication is that if the PI is poor, the final goods itself may also be subject to executive constraint or expropriation by "ruling" authorities. However, it is possible for business firms to alleviate weak CI through networking. One of the primary functions of networking is to build relationships. Good relationships might reduce conflicts and hence obviate the needs for contractual enforcements (Bharanth et al 2011). A real-life example for instance is found in the credit market in which good relationships (often develop via business networking) between creditors and debtors enhance information sharing and therefore reduce the incidences of contractual enforcements (see Gopalan, Udell and Yerramilli 2011). In some cases of loan defaults, the banks made arrangements to extract rents from the firms when these firms were in positive NPV states or renegotiated the contractual terms with their customers.

Table 4 also shows that PI measured in terms of *protection of assets against government appropriation* and *private property rights protection* significantly affects affiliate sales, but PI indicated by *constraint on executive* does not significantly affect affiliate sales. This is in contract to our previous results that all the PI measures have significant effects on FDI. Our

empirical finding supports the proposition that PI imposes more costs on FDI than on affiliate sales, corroborating H3. Affiliate sales appear to be less subject to executive constraint than FDI.

However, our results in Table 4 reveal that CI neither exerts any significant effect on affiliate sales nor any significant effect on FDI. It is therefore not true to assert that CI imposes more constraint on FDI than on affiliate sales. Hence, H4 seems to be partially corroborated.

****INSERT TABLE 4 HERE***

**Robustness Check**

The literature often concentrates on the Greenfield type of FDI, where parent firms construct new plants in host countries. Yet, the bulk of FDI takes the form of cross-border mergers and acquisitions (M&A), in which a parent firm acquires a controlling interest in an existing host-country firm, often via stock swaps. In the case of partial take over, the physical and financial assets that foreign investors acquire are vulnerable to expropriations. Again, in the case of M&A, multinational investors, being stationed in the host countries for a long time, acquire sufficient knowledge, experience and networking, which help in circumventing poor contracting institution. It is of interest that our results in Table 5 using an alternative empirical measure of FDI as a proxy for cross-border investment flows are found to be robust to those reported in Table 3.

****INSERT TABLE 5 HERE***

Firstly, to check the sensitivity of our results to an alternative instrument, we replace *settlement mortality* with *population density* in 1500, another colonial history variable that has been found to be strongly correlated with PI in the literature. We repeat the exercise by running 15 sets of regressions as in Tables 3-5 using *population density* in 1500 as an instrument for PI (see Tables 6-7) and find similar results that the different levels of CI have no significant impact on multinational investment such as FDI and affiliate sales.

****INSERT TABLE 6 & 7 HERE***

Thirdly, we check whether or not our results were driven by a few outliers. We exclude four English ex-colonies (Australia, Canada, New Zealand and the US), which are the dominant players in international investments. Our main hypotheses that PI are important determinants

of multinational investments (FDI and affiliate sales) while CI are not still hold for the subsample that excludes these four major English ex-colonies (see Table 8a).

****INSERT TABLE 8a and 8b HERE***

Lastly, we extend our data on bilateral cumulated FDI to the year 2012 and check if our results are robust to those in 2000. We run 2SLS regressions using both *settlement mortality* and *population density* in 1500 as alternative instruments for the PI variable while keeping *legal origin* as instrument for CI. Our results confirm that PI but not CI matters for FDI (see Table 8b).

**Conclusions and Policy Implications**

PI and CI have been identified to be important determinants of multinational investments (FDI, M&A and business sales) across countries. Previous research was not able to provide a meaningful comparison of the relative influences of these two types of institutions because they are jumbled together within a cluster of institution. The clustering effect may result in heterogeneous influences across countries as shown in Figure 1, which could be misleading if international investors or multinational firms used a broad institutional measure to guide their investment location decisions. In this paper, we unbundle these institutions and examine the relative disaggregate influences of PI and CI on Greenfield FDI, financial flows (M&A) as well as foreign affiliate/subsidiary sales. Several important results emerge from this paper.

First, our empirical analysis shows that PI is an important determinant of the different types of multinational investments under study, indicating that in the absence of asset protection, multinational investments across countries would be severely thwarted. An improvement in PI via an increase of one-point scale in *constraint on executive* for instance leads to enormous inflows of multinational investments to the host countries. Second, the influences of PI on affiliate sales, however, were found to be diminishing in significance, judging from the insignificance of *constraint on executive* on affiliate sales, indicating that fixed capital goods are more vulnerable to expropriation by governments or powerful elitists than transient final goods. Third, CI, contrary to conventional wisdom, is found in this paper to be relatively unimportant in all the multinational investment activities under study. Our results imply that it is possible for multinational firms to circumvent weak CI (possibly through informal networking), but weak PI could not be averted at all.

Our paper provides useful location strategies for multinational investors/managers. First, it is wise for investors/firms to consider several constituent institutional variables such as PI and CI rather than resorting to a single broad-based institutional measure as indicators of the quality of a country's institution. Our results point to the deficiency in using a broad institutional measure for formulating location choices as investor/firms in parent countries have to rely on the specific information concerning the relative importance of the constituent institutions in order to be effective in making location choices and enhancing their global competitive positions. Second, investors/ firms should locate their FDI and to some extent their affiliate business sales to countries having strong PI or avoid those with weak PI. Third, countries with weak CI should not always be construed as harmful, otherwise multinational managers may miss the opportunities to enhance their global competitive positions across countries. Fourth, multinational managers should always view weak PI as a potential problem but more stringently in the location of FDI than output sales. Our paper not only helps multinational managers or investors to enhance their business performances but also provide strategies for government policy makers on how to attract foreign investments.

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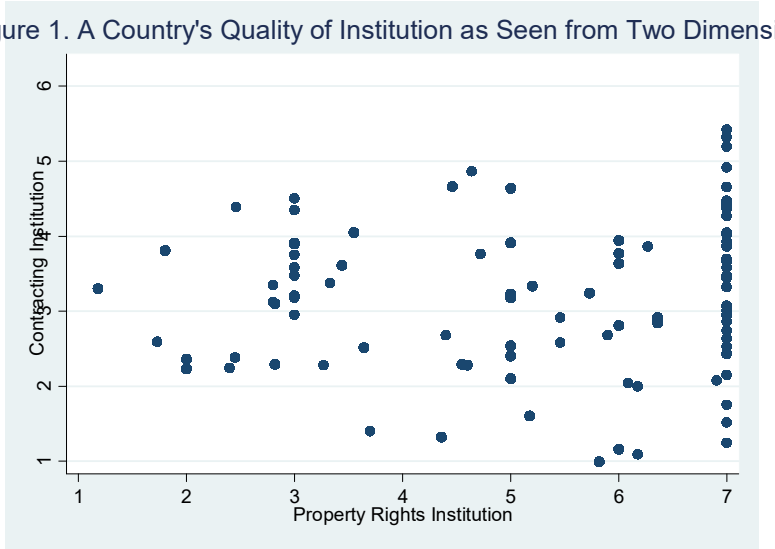
Figure 1. A Country's Quality of Institution as Seen from Two Dimensions




Note: In this graph, a country's quality of institution (a dot in the graph) is seen from two dimensions, property rights institution and contracting institution. Property rights institution is measured by *constraint on executive* which captures the degree of constraints on politicians and powerful elites with higher index indicating better property rights institution. Contracting institution is measured by *legal formalism* which is an index of formal legal procedures involved in collecting an unpaid check. In this graph, we normalize the *legal formalism* index so that the higher the index the better the contracting institution.

Table 1 Descriptive Statistics

| | | | | English Ex-Colonies | | | French Ex-Colonies | |
|---|---|---|---|---|---|---|---|---|
| | World Sample | Ex-Colonies Sample | English Ex-Colonies | Low Settler Mortality | High Settler Mortality | French Ex-Colonies | Low Settler Mortality | High Settler Mortality |
| FDI Stock (US$ billion) | 2.825 | 3.151 | 5.166 | 6.061 | 0.162 | 1.038 | 1.397 | 0.401 |
| | (14.47) | (15.69) | (21.45) | (23.18) | (0.50) | (3.63) | (4.43) | (1.09) |
| Affiliate Sale (US$ b) | 9.069 | 14.779 | 19.785 | 20.079 | 0.095 | 5.579 | 6.428 | 2.500 |
| | (26.21) | (41.41) | (50.39) | (50.71) | -- | (9.67) | (10.72) | (2.87) |
| Legal Formalism | 3.660 | 3.776 | 2.790 | 2.470 | 3.096 | 4.678 | 4.837 | 4.475 |
| | (1.06) | (1.23) | (0.82) | (0.86) | (0.73) | (0.72) | (0.78) | (0.59) |
| Procedural Complexity | 5.768 | 5.930 | 4.546 | 4.566 | 4.527 | 6.752 | 6.951 | 6.601 |
| | (1.36) | (1.54) | (1.00) | (0.98) | (1.02) | (1.16) | (1.27) | (1.04) |
| Number of Procedures | 26.999 | 28.720 | 20.504 | 19.931 | 21.087 | 33.496 | 31.210 | 35.167 |
| | (12.00) | (12.81) | (7.11) | (4.90) | (8.76) | (12.96) | (10.75) | (14.12) |
| Constraint on Executive | 4.501 | 4.124 | 4.347 | 5.533 | 3.384 | 4.038 | 5.108 | 3.366 |
| | (2.09) | (1.89) | (2.00) | (1.54) | (1.80) | (1.77) | (1.61) | (1.52) |
| Protection against Gov't Expropriation | 7.099 | 6.402 | 6.910 | 7.610 | 6.106 | 6.023 | 6.502 | 5.606 |
| | (1.81) | (1.46) | (1.67) | (1.59) | (1.36) | (1.15) | (0.92) | (1.17) |
| Private Property Rights Protection | 3.315 | 3.042 | 3.510 | 3.793 | 3.222 | 2.682 | 3.210 | 2.324 |
| | (1.17) | (1.05) | (1.07) | (1.18) | (0.85) | (0.87) | (0.52) | (0.88) |
| Log Parent Country GDP | -3.439 | -3.459 | -3.458 | -3.466 | -3.452 | -3.459 | -3.464 | -3.456 |
| | (2.20) | (2.20) | (2.19) | (2.19) | (2.19) | (2.20) | (2.20) | (2.20) |
| Log Host Country GDP | -3.437 | -3.653 | -3.761 | -2.113 | -4.916 | -3.590 | -2.577 | -4.227 |
| | (2.20) | (2.00) | (2.35) | (2.24) | (1.62) | (1.69) | (1.61) | (1.41) |
| Contiguous | 0.012 | 0.014 | 0.011 | 0.009 | 0.013 | 0.017 | 0.016 | 0.017 |
| | (0.11) | (0.11) | (0.11) | (0.096) | (0.11) | (0.12) | (0.12) | (0.12) |
| Log Distance | 8.831 | 8.872 | 8.897 | 8.985 | 8.832 | 8.851 | 8.942 | 8.795 |
| | (0.77) | (0.72) | (0.73) | (0.68) | (0.75) | (0.72) | (0.71) | (0.71) |
| Common Language | 0.176 | 0.220 | 0.301 | 0.279 | 0.317 | 0.156 | 0.148 | 0.163 |
| | (0.38) | (0.41) | (0.45) | (0.44) | (0.46) | (0.36) | (0.35) | (0.36) |
| Colony | 0.010 | 0.006 | 0.007 | 0.009 | 0.005 | 0.005 | 0.005 | 0.005 |
| | (0.09) | (0.07) | (0.08) | (0.09) | (0.70) | (0.07) | (0.07) | (0.07) |
| Resource Exports (%) | 23.091 | 21.102 | 16.765 | 12.985 | 19.867 | 24.758 | 26.065 | 23.312 |
| | (28.98) | (26.15) | (25.56) | (16.27) | (30.83) | (26.26) | (27.98) | (24.13) |
| Host Country Openness | 89.098 | 83.643 | 99.963 | 111.891 | 91.596 | 71.966 | 71.075 | 72.528 |
| | (48.86) | (55.26) | (73.59) | (92.89) | (54.72) | (29.64) | (31.09) | (28.68) |
| Log Inflation | 2.839 | 2.757 | 2.385 | 2.012 | 2.672 | 3.085 | 3.524 | 2.767 |
| | (1.48) | (1.31) | (0.72) | (0.34) | (0.80) | (1.59) | (1.41) | (1.65) |
| Government Consumption | 0.178 | 0.184 | 0.188 | 0.148 | 0.221 | 0.180 | 0.151 | 0.202 |
| | (0.07) | (0.07) | (0.08) | (0.07) | (0.07) | (0.06) | (0.05) | (0.05) |

Note: Mean values are reported with standard deviations in parentheses.

Table 2 Correlations between Multinational Investment and Institutions: Univariate Regressions

| | World Sample | Ex-Colonies Sample | | |
|---|---|---|---|---|
| | OLS | OLS | 2SLS | First Stage Regression |
| | Dependent Variable: Log FDI Stock | | | |
| Legal Formalism | -0.351*** | -0.262*** | -0.149 | -2.234*** |
| | [-4.08] | [-2.80] | [-1.33] | [-34.15] |
| Procedural Complexity | -2.144*** | -0.125 | -0.193* | -2.400*** |
| | [-3.86] | [-1.62] | [-1.89] | [-26.82] |
| Number of Procedures | -0.023** | -0.026** | -0.035* | -13.515*** |
| | [-2.38] | [-2.44] | [-1.95] | [-17.54] |
| Constraint on Executive | 0.124*** | 0.241*** | 0.466*** | -0.976*** |
| | [2.58] | [3.71] | [4.23] | [-18.86] |
| Protection against Gov't Expropriation | 0.095* | 0.338*** | 0.451*** | -1.026*** |
| | [1.71] | [4.62] | [4.36] | [-25.92] |
| Private Property Rights Protection | 0.315*** | 0.559*** | 0.619*** | -0.726*** |
| | [4.00] | [5.13] | [4.14] | [-26.34] |
| | Dependent Variable: Log Affiliate Sales | | | |
| Legal Formalism | -0.393*** | -0.441*** | -0.261 | -2.291*** |
| | [-2.77] | [-2.87] | [-1.42] | [-15.71] |
| Procedural Complexity | -0.051 | -0.361*** | -0.258 | -2.570*** |
| | [-0.56] | [-2.86] | [-1.60] | [-12.68] |
| Number of Procedures | -0.009 | -0.051** | -0.050 | -13.178*** |
| | [-0.45] | [-2.36] | [-1.58] | [-9.13] |
| Constraints on Executive | 0.105 | 0.322** | 0.805*** | -0.846*** |
| | [0.92] | [2.15] | [2.65] | [-6.04] |
| Protection against Gov't Expropriation | 0.539*** | 0.482*** | 0.539*** | -1.325*** |
| | [5.19] | [3.74] | [3.12] | [-12.83] |
| Private Property Rights Protection | 0.601*** | 0.744*** | 0.802*** | -0.932*** |
| | [3.73] | [3.36] | [3.13] | [-17.62] |

Note; *, **, *** denote significance level at 10%, 5% and 1%, respectively.

Table 3 First-Stage regressions for contracting and property rights institutions

| | Dependent Variable: | | | | | |
|---|---|---|---|---|---|---|
| | Legal Formalism | | Procedural Complexity | | No. of Procedures | |
| Legal origin | -1.93 | -2.11 | -2.0 | -2.31 | -11.56 | -12.5 |
| | (-21.49) | (-29.8) | (-15.29) | (-21.88) | (-10.54) | (-14.28) |
| Settler mortality | 0.17 | | 0.01 | | 1.1 | |
| | (3.86) | | (0.19) | | (1.95) | |
| Population density in 1500 | | 0.01 | | 0.04 | | 0.28 |
| | | (0.71) | | (1.2 | | (1.13) |
| $R^2$ in first stage | 0.74 | 0.74 | 0.59 | -0.6 | 0.42 | 0.4 |
| Obs. | 467 | 502 | 491 | 531 | 499 | 531 |
| | Constraint on Executive | | Protection against Expropriation | | Private Property | |
| Legal origin | -0.29 | -0.01 | 0.54 | 1.01 | 0.71 | 0.82 |
| | (-1.65) | (-0.04) | (5.16) | (11.38) | (8.87) | (12.71) |
| Settler mortality | -0.89 | | -0.56 | | -0.42 | |
| | (-10.2) | | (-10.94) | | (-10.73) | |
| Population density in 1500 | | -0.44 | | -0.24 | | -0.21 |
| | | -11.72 | | -9.81 | | -11.6 |
| $R^2$ in first stage | 0.41 | 0.43 | 0.74 | 0.72 | 0.72 | 0.67 |
| Obs. | 467 | 502 | 499 | 531 | 475 | 493 |

Note: t-statistics are in parentheses.

Table 4 Institutional Determinants of FDI: Contracting versus Property Rights Institutions (2SLS)

| Dependent Variable: Log FDI Stock | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| *Contracting Institution* (*CI*) | | | | | |
| Legal Formalism | 0.335 | | | 0.137 | 0.403 |
| | [1.15] | | | [0.63] | [1.38] |
| Procedural Complexity | | 0.282 | | | |
| | | [1.01] | | | |
| Number of Procedures | | | 0.048 | | |
| | | | [1.06] | | |
| *Property Rights Institution* (*PI*) | | | | | |
| Constraint on Executive | 0.843*** | 0.825*** | 0.857*** | | |
| | [3.15] | [3.24] | [3.01] | | |
| Protection against Gov't Expropriation | | | | 1.121*** | |
| | | | | [3.29] | |
| Private Property Rights Protection | | | | | 1.380*** |
| | | | | | [3.36] |
| Log Parent Country GDP | 1.016*** | 1.017*** | 1.007*** | 1.042*** | 1.061*** |
| | [12.89] | [12.95] | [12.93] | [13.63] | [13.25] |
| Log Host Country GDP | 0.709*** | 0.681*** | 0.730*** | 0.259* | 0.565*** |
| | [7.63] | [7.66] | [6.58] | [1.84] | [6.56] |
| Contiguous | 0.422 | 0.268 | -0.201 | 0.580 | 0.246 |
| | [0.27] | [0.17] | [-0.12] | [0.39] | [0.16] |
| Log Distance | -1.10*** | -1.21*** | -1.34*** | -0.99*** | -1.08*** |
| | [-4.38] | [-4.73] | [-4.27] | [-4.34] | [-4.24] |
| Common Language | 0.897*** | 0.865** | 0.864** | 0.648** | 0.746** |
| | [2.63] | [2.54] | [2.50] | [2.02] | [2.27] |
| Colony | 1.472*** | 1.436*** | 1.519*** | 1.493*** | 1.276** |
| | [2.66] | [2.65] | [2.73] | [2.85] | [2.35] |
| Resource Exports | 0.014** | 0.014** | 0.014** | 0.011* | 0.006 |
| | [2.36] | [2.38] | [2.42] | [1.81] | [0.89] |
| Host Country Openness | 0.018*** | 0.017*** | 0.018*** | 0.007*** | 0.006*** |
| | [4.75] | [5.28] | [4.43] | [3.93] | [3.10] |
| Log Inflation | 0.211* | 0.186 | 0.282*** | 0.553*** | 0.313*** |
| | [1.71] | [1.35] | [2.73] | [4.29] | [2.86] |
| Government Consumption | 2.221 | -0.027 | 4.037 | 3.664 | -0.715 |
| | [0.70] | [-0.01] | [0.75] | [1.15] | [-0.28] |
| Constant | 7.633** | 8.834*** | 9.261*** | 2.563 | 7.663*** |
| | [2.49] | [3.04] | [3.44] | [0.66] | [2.76] |
| N | 454 | 456 | 456 | 470 | 445 |
| Adjusted $R^2$ | 0.314 | 0.328 | 0.307 | 0.366 | 0.388 |
| *p*-value (*J*-test) | 0.90 | 0.93 | 0.92 | 0.64 | 0.35 |
| *Weak Instrument Test F-statistics* | 40.5 | 38.8 | 43.7 | 42.6 | 11.22 |

Note: *, **, ***denote significance level at 10%, 5% and 1%, respectively.

Table 5 Institutional Determinants of Affiliate Sales: Contracting vs. Property Rights Institutions (2SLS)

| Dependent Variable: Log Affiliate Sales | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| *Contracting Institution (CI)* | | | | | |
| Legal Formalism | 0.646 | | | 0.004 | 0.392 |
| | [0.68] | | | [0.01] | [1.02] |
| Procedural Complexity | | 0.476 | | | |
| | | [0.71] | | | |
| Number of Procedures | | | 0.107 | | |
| | | | [0.65] | | |
| *Property Rights Institution* (*PI*) | | | | | |
| Constraint on Executive | 1.807 | 1.677* | 2.009 | | |
| | [1.55] | [1.77] | [1.32] | | |
| Protection against Gov't Expropriation | | | | 1.439** | |
| | | | | [2.21] | |
| Private Property Rights Protection | | | | | 1.636*** |
| | | | | | [3.14] |
| Log Parent Country GDP | 0.925*** | 0.925*** | 0.952*** | 0.932*** | 1.026*** |
| | [4.54] | [4.75] | [4.36] | [6.50] | [6.68] |
| Log Host Country GDP | 0.830*** | 0.794*** | 1.004** | 0.149 | 0.695*** |
| | [3.55] | [3.86] | [2.30] | [0.54] | [4.70] |
| Contiguous | -1.033 | -1.105 | -1.987 | -1.630 | -1.941* |
| | [-0.64] | [-0.72] | [-0.99] | [-1.46] | [-1.69] |
| Log Distance | -0.995* | -1.094** | -1.328** | -1.348*** | -1.399*** |
| | [-1.73] | [-2.15] | [-2.20] | [-3.72] | [-3.77] |
| Common Language | 0.002 | 0.106 | 0.168 | -0.169 | 0.039 |
| | [0.00] | [0.15] | [0.21] | [-0.33] | [0.08] |
| Colony | -0.848 | -0.797 | -0.985 | -0.771 | -0.954 |
| | [-0.79] | [-0.78] | [-0.83] | [-1.02] | [-1.24] |
| Resource Exports | 0.006 | 0.007 | 0.009 | 0.001 | -0.003 |
| | [0.34] | [0.45] | [0.56] | [0.05] | [-0.24] |
| Host Country Openness | 0.027* | 0.024** | 0.030 | 0.003 | 0.003 |
| | [1.73] | [2.09] | [1.44] | [1.01] | [1.14] |
| Log Inflation | 0.386 | 0.356 | 0.620 | 0.720*** | 0.411** |
| | [1.61] | [1.49] | [1.53] | [3.06] | [2.45] |
| Government Consumption | -16.878** | -18.812** | -10.017 | -4.685 | -10.953** |
| | [-2.15] | [-2.15] | [-0.89] | [-0.77] | [-2.09] |
| Constant | 2.669 | 4.432 | 2.299 | 5.846 | 11.890*** |
| | [0.20] | [0.42] | [0.16] | [0.77] | [2.83] |
| N | 98 | 98 | 98 | 98 | 98 |
| Adjusted $R^2$ | 0.019 | 0.102 | 0.000 | 0.508 | 0.522 |
| *p*-value (*J*-test) | 0.21 | 0.20 | 0.16 | 0.35 | 0.69 |
| *Weak Instrument Test F-statistics* | 7.69 | 7.14 | 5.98 | 3.94 | 3.66 |

Note: *, **, ***denote significance level at 10%, 5% and 1%, respectively.

Table 6 Institutional Determinants of M&A: Contracting Enforcement versus Private Property Protection (2SLS)

| Dependent Variable: Log M&A | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| *Contracting Institution (CI)* | | | | | |
| Legal Formalism | 0.173 | | | 0.164 | 0.391** |
| | [1.09] | | | [1.07] | [2.07] |
| Procedural Complexity | | 0.052 | | | |
| | | [0.40] | | | |
| Number of Procedures | | | 0.011 | | |
| | | | [0.40] | | |
| *Property Rights Institution (PI)* | | | | | |
| Constraint on Executive | 0.634*** | 0.559*** | 0.569*** | | |
| | [3.84] | [3.79] | [3.51] | | |
| Protection against Gov't Expropriation | | | | 1.184*** | |
| | | | | [3.82] | |
| Private Property Rights Protection | | | | | 1.130*** |
| | | | | | [4.06] |
| Log Parent Country GDP | 0.563*** | 0.567*** | 0.567*** | 0.574*** | 0.560** |
| | [10.10] | [10.23] | [10.25] | [10.51] | [10.44] |
| Log Host Country GDP | 0.663*** | 0.625*** | 0.636*** | 0.092 | 0.514*** |
| | [9.23] | [8.85] | [7.46] | [0.61] | [7.43] |
| Contiguous | -0.596 | -0.583 | -0.642 | -0.294 | -0.521 |
| | [-1.31] | [-1.31] | [-1.32] | [-0.69] | [-1.22] |
| Log Distance | -0.364** | -0.382*** | -0.400*** | -0.408*** | -0.482*** |
| | [-2.46] | [-2.62] | [-2.73] | [-2.81] | [-3.34] |
| Common Language | 0.482** | 0.501** | 0.493** | 0.400* | 0.508** |
| | [2.27] | [2.40] | [2.36] | [1.91] | [2.45] |
| Colony | 1.449*** | 1.428*** | 1.436*** | 1.538*** | 1.456*** |
| | [3.81] | [3.86] | [3.88] | [4.11] | [3.93] |
| Resource Exports | 0.010** | 0.013*** | 0.013*** | 0.001 | -0.002 |
| | [2.18] | [2.98] | [2.93] | [0.30] | [-0.41] |
| Host Country Openness | 0.008*** | 0.008*** | 0.008*** | 0.001 | -0.001 |
| | [3.36] | [3.49] | [3.17] | [0.13] | [-0.18] |
| Log Inflation | 0.258*** | 0.266*** | 0.283*** | 0.534*** | 0.258*** |
| | [3.21] | [3.18] | [3.99] | [5.21 | [3.42] |
| Government Consumption | 0.624 | 0.545 | 1.327 | 1.733 | -3.468* |
| | [0.27] | [0.26] | [0.45] | [0.70] | [-1.71] |
| Constant | 2.704 | 3.569* | 3.531* | -3.192 | 3.485* |
| | [1.33] | [1.88] | [1.80] | [-1.01] | [1.96] |
| N | 643 | 642 | 642 | 675 | 638 |
| Adjusted $R^2$ | 0.225 | 0.252 | 0.250 | 0.225 | 0.283 |
| *p*-value (*J*-test) | 0.49 | 0.21 | 0.23 | 0.62 | 0.79 |
| *Weak Instrument Test F-statistics* | 58.34 | 71.1 | 62.8 | 44.67 | 28 |

Note: *, **, ***denote significance level at 10%, 5% and 1%, respectively.

Table 7 Institutional Determinants of FDI: Using Alternative Instrumental Variable

| Dependent Variable: Log FDI Stock | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| *Contracting Institution Variables (CI)* | | | | | |
| Legal Formalism | 0.312 | | | 0.421* | 0.231 |
| | [1.39] | | | [1.83] | [1.25] |
| Procedural Complexity | | 0.229 | | | |
| | | [1.21] | | | |
| Number of Procedures | | | 0.066 | | |
| | | | [1.12] | | |
| *Property Rights Institution* Variables (*PI*) | | | | | |
| Constraint on Executive | 0.998*** | 0.930*** | 1.207** | | |
| | [3.42] | [3.40] | [2.36] | | |
| Protection against Gov't Expropriation | | | | 1.218*** | |
| | | | | [3.60] | |
| Private Property Rights Protection | | | | | 1.070*** |
| | | | | | [3.80] |
| Log Parent Country GDP | 0.998*** | 0.998*** | 1.004*** | 1.041*** | 1.022*** |
| | [13.02] | [13.20] | [12.17] | [13.73] | [14.23] |
| Log Host Country GDP | 0.697*** | 0.662*** | 0.719*** | 0.304** | 0.601*** |
| | [7.90] | [7.64] | [6.77] | [2.23] | [7.35] |
| Contiguous | 0.261 | 0.164 | -0.747 | 0.348 | 0.538 |
| | [0.17] | [0.11] | [-0.39] | [0.23] | [0.38] |
| Log Distance | -1.274*** | -1.351*** | -1.642*** | -1.009*** | -1.035*** |
| | [-4.81] | [-5.01] | [-3.68] | [-4.48] | [-4.48] |
| Common Language | 0.668** | 0.659** | 0.686** | 0.589* | 0.687** |
| | [2.08] | [2.09] | [2.00] | [1.93] | [2.28] |
| Colony | 1.760*** | 1.714*** | 1.864*** | 1.687*** | 1.473*** |
| | [3.24] | [3.26] | [3.19] | [3.30] | [2.88] |
| Resource Exports | 0.017*** | 0.017*** | 0.017*** | 0.005 | 0.009* |
| | [2.97] | [3.07] | [2.81] | [0.89] | [1.80] |
| Host Country Openness | 0.020*** | 0.018*** | 0.022*** | 0.008*** | 0.006*** |
| | [4.98] | [5.34] | [3.40] | [4.39] | [3.26] |
| Log Inflation | 0.240** | 0.220* | 0.314*** | 0.465*** | 0.301*** |
| | [2.11] | [1.88] | [2.77] | [3.82] | [2.94] |
| Government Consumption | 1.892 | -0.482 | 6.073 | 1.903 | -2.272 |
| | [0.59] | [-0.18] | [0.81] | [0.64] | [-0.98] |
| Constant | 8.201*** | 9.594*** | 8.870*** | 1.539 | 9.176*** |
| | [2.91] | [3.69] | [2.74] | [0.39] | [3.82] |
| N | 487 | 488 | 488 | 502 | 477 |
| Adjusted $R^2$ | 0.291 | 0.318 | 0.212 | 0.340 | 0.420 |

Note: (1) *, **, ***denote significance level at 10%, 5% and 1%, respectively. (2) All regressions are cross-sectional 2SLS in which Log Population density in 1500 is the instrument for property rights institutions and English Legal Origin is the instrument for contracting institutions, with one observation per pair-countries. (3) The dependent variable is Log FDI Stock of parent country in host country.

Table 8 Institutional Determinants of Affiliate Sales: Using Alternative Instrumental Variable

| Dependent Variable: Log Affiliate Sales | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| *Contracting Institution Variables (CI)* | | | | | |
| Legal Formalism | 0.342 | | | 0.506 | 0.306 |
| | [0.76] | | | [1.13] | [1.09] |
| Procedural Complexity | | 0.280 | | | |
| | | [0.76] | | | |
| Number of Procedures | | | 0.081 | | |
| | | | [0.68] | | |
| *Property Rights Institution* Variables (*PI*) | | | | | |
| Constraint on Executive | 1.495*** | 1.480*** | 1.850* | | |
| | [2.65] | [2.71] | [1.69] | | |
| Protection against Gov't Expropriation | | | | 1.850*** | |
| | | | | [2.88] | |
| Private Property Rights Protection | | | | | 1.467*** |
| | | | | | [3.92] |
| Log Parent Country Real GDP | 0.918*** | 0.918*** | 0.943*** | 0.986*** | 1.013*** |
| | [5.19] | [5.22] | [4.79] | [5.89] | [7.09] |
| Log Host Country Real GDP | 0.805*** | 0.787*** | 0.949*** | 0.012 | 0.708*** |
| | [4.20] | [4.26] | [2.75] | [0.04] | [4.99] |
| Contiguous | -1.096 | -1.128 | -1.751 | -1.661 | -1.771 |
| | [-0.80] | [-0.83] | [-1.04] | [-1.31] | [-1.66] |
| Log Distance | -1.066** | -1.117** | -1.274** | -1.230*** | -1.334*** |
| | [-2.34] | [-2.54] | [-2.49] | [-3.06] | [-1.66] |
| Common Official Language | 0.037 | 0.085 | 0.133 | -0.047 | -1.334*** |
| | [0.06] | [0.13] | [0.19] | [-0.08] | [-3.92] |
| Colony | -0.810 | -0.796 | -0.914 | -0.236 | 0.067 |
| | [-0.90] | [-0.89] | [-0.88] | [-0.29] | [0.14] |
| Resource Exports | 0.009 | 0.010 | 0.011 | -0.013 | -0.766 |
| | [0.68] | [0.74] | [0.74] | [-0.87] | [-1.09] |
| Host Country Openness | 0.023*** | 0.022*** | 0.028* | 0.004 | 0.003 |
| | [2.81] | [2.99] | [1.83] | [1.24] | [1.23] |
| Log Inflation | 0.405* | 0.391* | 0.586* | 0.752*** | 0.400** |
| | [1.94] | [1.84] | [1.87] | [3.10] | [2.49] |
| Government Consumption | -16.380** | -17.650** | -11.566 | -1.945 | -10.881** |
| | [-2.47] | [-2.48] | [-1.28] | [-0.28] | [-2.15] |
| Constant | 6.233 | 6.675 | 3.759 | -0.579 | 12.250*** |
| | [0.88] | [1.01] | [0.34] | [-0.07] | [3.41] |
| N | 101 | 101 | 101 | 104 | 101 |
| Adjusted $R^2$ | 0.233 | 0.242 | 0.054 | 0.315 | 0.544 |

Note: (1) *, **, ***denote significance level at 10%, 5% and 1%, respectively. (2) All regressions are cross-sectional 2SLS in which Log Population density in 1500 is the instrument for property rights institutions and English Legal Origin is the instrument for contracting institutions, with one observation per pair-countries. (3) The dependent variable is Log Affiliate Sales in host country of parent country.

Table 9 Institutional Determinants of Multinational Investment: Subsample Excluding Four Neo-Europe (Australia, Canada, New Zealand, and the United States)

| Dependent Variable | Log FDI Stock | | Log M&A | | Log Affiliate Sales | |
|---|---|---|---|---|---|---|
| Instrument | Log Settler Mortality | Log Population density | Log Settler Mortality | Log Population density | Log Settler Mortality | Log Population density |
| Legal Formalism | -0.059 | 0.028 | 0.205 | 0.211 | 0.731 | 0.673 |
| | [-0.31] | [0.15] | [1.60] | [1.51] | [0.11] | [-0.13] |
| Constraint on Executive | 0.859*** | 1.129*** | 0.948*** | 1.330*** | 23.085 | -19.581 |
| | [2.71] | [2.62] | [3.67] | [3.25] | [0.13] | [-0.18] |
| N | 329 | 364 | 515 | 562 | 54 | 57 |

Table 10 Institutional Determinants of FDI: Contracting vs. Property Rights Institutions (2012)

| Dependent Variable | Log FDI Stock | |
|---|---|---|
| Instrument | Log Settler Mortality | Log Population density |
| Legal Formalism | -0.005 | -0.016 |
| | [-0.17] | [-0.67] |
| Constraint on Executive | 1.849*** | 1.506*** |
| | [4.87] | [5.84] |
| N | 920 | 974 |