CONTRACTING INSTITUTIONS AND FOREIGN

DIRECT INVESTMENT: EVIDENCE FROM

THE U.S. MULTINAIONALS

by

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ABSTRACT

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Development Economics studies have highlighted the importance of both property rights and contracting institutions for attracting foreign direct investment. However, to the best of our knowledge, none of the previous studies has examined the separate FDI impacts of these institutions. Using country level data, this thesis examines the effects that both contracting and property rights institutions have on United States multinationals' foreign direct investment decisions. We control for potential endogeneity by using indigenous population density and country latitude, along with a British legal origin dummy variable as instruments for property rights and contracting institutions, respectively. We find strong evidence that weak contracting institutions are a deterrent to US firms' investment. We believe US multinationals place high importance on formal contracting institutions because of the quantity, size, and complexity of their transactions.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

There is a growing body of literature examining factors that affect the amount of foreign direct investment a country receives. For instance, Kogut and Singh (1988) find that cultural distance is likely to increase the probability of FDI in order to mitigate management costs resulting from different organization and administrative practices. Kogut and Chang (1991) show that similar R&D intensities for U.S. and Japanese industries increase the prevalence of FDI flowing from Japan to the U.S. Disdier et al. (2003) find that increasing wages are thought to decrease the probability of locating multinational firms in a particular country, while Bertrand et al. (2002) finds evidence that increasing labor costs are actually positively related to U.S. investment in foreign markets, suggesting that firms may be interested in higher labor productivity. Furthermore, large market potential or foreign market size increases the benefits of location in a particular country by spreading startup costs across larger markets as evidenced by Chen et al. (2002). Helpman et al. (2004) find that when trade costs, such as tariffs or freight costs, are high firms will be more likely to conduct foreign direct investment. And finally, Bertrand et al. (2002) show that when the U.S. is an "insider" in a free trade agreement (NAFTA) the probability of locating multinational enterprises in partner countries increases compared to when the U.S is considered an "outsider" (MERCOSUR).

With few exceptions none of the previous studies address the impacts of institutions on foreign direct investment decisions. The studies that examine the foreign direct investment impact of institutions mainly focus on "property rights institutions." For instance, Maskus et al. (2003) find that improving property rights institutions in the host country increases the probability of engaging in FDI rather than exporting. Other researchers have chosen to focus on broader measures of institutional environments. For instance, Dikova et al. (2007) explores the

effects of institutional advancement on FDI choice using a composite index composed of measures of political stability, regulatory quality, contract enforcement, and corruption level. Similarly, Disdier et al. (2003) find evidence that strengthening political rights in European countries is associated with higher probabilities of French firms locating FDI in a particular country.

However, development economics studies have highlighted the importance of both strong property rights and contract enforcement mechanisms for attracting foreign direct investment (Dixit, 2009). Contracting institutions can also be a significant determinant in attracting foreign direct investment because they regulate transactions between private parties and are closely related to the functioning of a legal system (Acemoglu et al., 2003), which is of high importance to multinational firms. This is because multinational firms typically engage in hundreds of transactions on a daily basis, such as those between suppliers and buyers, sellers, etc., and these contracts are usually large and complex. North (1990) explains that with greater specialization, number, and variability of valuable attributes, firms place more emphasis on reliable institutions that allow complex contracting that minimize risk. Parties will not be willing to sign these contracts if they are not confident that the contracts will be carried out. Additionally, the size and complexity of these contracts make it difficult to find viable substitutes for contracting institutions. Dixit (2009) explains that *"a businessman who comes from economies with well-functioning formal governance is likely to find the relation-based informal institutions in many less-developed countries and transition economies bewildering, and is likely to make mistakes."* Good contracting institutions can also improve the economic performance of firms by providing them with incentive to outsource rather than vertically integrate. Better contracting institutions can increase efficiency by creating "thicker" input markets for specialized products. These thicker markets are likely to lead to higher equilibrium levels of transactions, which can result in more producer surplus.

Thus, multinational firms will be more likely to invest in a region, where both the legal system that protects the property rights and the mechanism that enforces these laws are strong. In a country with a poor legal system, the parties can break contracts and expropriate property rights, and thus firms will be less likely sign long-term contracts with other agents in that country. Thus, identifying the separate impacts of these two institutions can shed some further light on the importance of legal system for attracting more investment and trade.

The objective of this study, therefore, is to contribute to the literature on the determinants of foreign direct investment by examining whether property rights institutions and contract enforcement mechanisms have differing levels of impact in attracting foreign direct investment. To the best of our knowledge, this is the first paper that explicitly looks at the separate foreign direct investment impact of these two institutions, while at the same time controlling for other country-level variables that have been identified by the previous studies as significant determinants of the foreign direct investment decisions. We estimate our model by ordinary least squares (OLS) and by an instrumental variable (IV) estimator that controls for endogeneity of our two main variables of interests. It could be that part of the impact of these two institutions on foreign direct investment decisions arise from the associations between these institutions and unobserved country characteristics. Thus, by using instrumental variable estimator, we control for this potential endogeneity problem in order to be able to distinguish between association and causality.

The remainder of this thesis is organized as follows. Chapter 2 includes a review of previous studies that examine the determinants of foreign direct investment. Our empirical framework and data are laid out in Chapters three. Empirical results are reported in Chapter four, and conclusions are discussed in Chapter five.

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CHAPTER 2

LITERATURE REVIEW

Various theoretical and empirical studies have examined the main determinants of foreign direct investment decisions. In this section our goal is to critically review some of these studies that are closely related to this paper. Park and Lippoldt (2003) analyze the relationship between intellectual property rights, inward/outward FDI, and exports/imports using industry panel data of several countries from 1990-2000. The researchers hypothesize that FDI and trade are positively related to changes in IPR strength. Results show that inward and outward FDI are positively related to GDP per capita and IPR strength. FDI is negatively affected by country specific risk and tariff rates, but only in the case of inward FDI. The results also indicate that effects of IPRs on FDI are greatest for developing, and least developed countries. In these areas it seems that stronger IPRs attract more firms to the market rather than creating excess monopoly power for a small number of firms. The results of this analysis suggest that IPRs also have moderately positive effects on the amount of imports and exports of a country.

An, Maskus, and Puttitanun (2008) analyze the effect of differing IPR protection on entry mode choice. They also consider the estimated time period when firms can realize positive profits in their empirical analysis using data from U.S. multinational firms in 52 manufacturing industries across 62 host countries. They show that higher levels of intellectual property protection are found to increase the likelihood of engaging in FDI or licensing while reducing the probability of exporting by multinational firms. Results suggest that a greater degree of economic freedom (implying lower fixed cost of FDI) increases the likelihood of FDI more than licensing. Additionally, longer distances between parent and host countries are associated with more exporting and licensing relative to FDI. Greater distances are most likely

4

associated with a higher cost of monitoring and controlling subsidiaries, and therefore reduce the probability of engaging in FDI. Also, larger host market sizes are associated with greater amounts of FDI. While higher GDP per capita measures suggest decreased probabilities of FDI and licensing. This may be due to higher GDP per capita being associated with higher labor costs or absorptive capacities. According to the results, industries with higher degrees of R&D seem to export more. Lastly in industries thought to have shorter time periods of rent extraction, such as computer, and electronic equipment, exporting seems to be the preferred mode of entry. While areas such as chemicals and drugs, which tend to have longer periods of rent extraction, are more likely to see firms engaging in more licensing and FDI.

Panpiemras and Puttitanun (2006) perform two analyses of the effects of intellectual property rights on two types of FDI, wholly owned affiliates and joint ventures. Results from the first analysis show that stronger IPRs have a positive effect on the sales of Joint Ventures. Market size, size of labor force, and education level all have positive effects on the sales of JVs for the sample. Stronger IPRs are shown to decrease the amount of wholly owned affiliates sold. However, the positive coefficient of interaction of education and IPRs show that for high levels of education stronger IPRs have a positive impact on the sales of wholly owned affiliates. Market size, labor force, and education level are all shown to have positive impacts on the sales of wholly owned affiliates as well. The second analysis uses count data to examine how IPRs affect the number of JVs and wholly owned affiliates. Results from this analysis show that stronger IPRs increase the number of both JVs and wholly owned affiliates.

Puttitanan (2007) explores the simultaneous effects of intellectual property rights on Exporting, FDI, and Licensing. Puttitanan uses an industry level data of U.S. manufacturing industries involved in FDI and Licensing in 1995 and exporting in 1994. The results suggest that stronger IPRs have positive impacts on FDI and licensing. Market size and GDP per capita also positively affect all three entry modes. Additionally, greater distance between the U.S. and the host country negatively affects exporting due to increased transportation costs, and also

5

negatively impacts on FDI. Puttitanan suggests that longer distances between countries can also imply greater cultural distance, and therefore countries with highly different cultures from the U.S. are less likely to receive FDI from U.S. firms. Wages are shown to have a negative effect on both FDI and licensing. Puttitanan (2007) proposes that threat of imitation must also be considered, and uses R&D expenditures to account for this. In low R&D industries, where technology is more easily imitated, firms are more likely to conduct FDI. The study suggests that this is due to firms desire to internalize knowledge assets in countries where imitation is more easy.

In addition to intellectual property rights, researchers have also analyzed the impact of broader measures of institutions on FDI. Meyer (2001) argues that foreign entrants choose entry mode based on differing institutional frameworks while focusing on transition economies in Eastern Europe, where institutional framework is unstable as they move from central-plan coordination to market economies. Meyer suggests that entrants are more likely to establish wholly owned subsidiaries in economies with the lowest transaction costs, and that economies that have progressed the farthest in their reforms will have the lowest transaction costs. He also argues that psychic distance is lower for firms whose home countries are located closer to Eastern Europe, and therefore have a lower transactions cost of doing business there. He also states that entrants that transfer technology and know-how are more likely to establish wholly owned subsidiaries. Survey data from 667 West German and British companies from 1994 and 1995 was used to test these hypotheses. Firms either chose to export, license, set up a joint venture, or establish wholly own subsidiaries in Eastern Europe. EBRD indices, whether or not the firm is German are used as proxies for institutional progress and psychic distance respectively. Several dummy variables were created along with human capital intensity to test the hypotheses about technology and know-how transfer. Firm size, global, and regional experience are used as controls. Results of the empirical study suggest that as transactions costs decrease firms are more likely to set up wholly owned subsidiaries. Also, according to the

results, German firms are less likely to set up licensing contracts in Eastern Europe. This may suggest that German firms are less likely to rely on local firms due to a smaller difference in psychic distance relative to British firms.

Disdier and Mayer (2003) consider how factors affecting location choice of MNEs may be different for FDI from French firms located in the EU versus Eastern Bloc countries from 1980-1999. Independent variables considered include agglomeration, local demand (GDP), development level (GDP per capita), geographic distance, labor market costs (average wage level), unemployment, exchange rate volatility, and several measures of institutional quality. Over the entire sample of both EU and Eastern European countries location choice seems to be positively related to local demand and industrial agglomeration. Labor costs, distance, and exchange rate volatility have a negative effect on location choice after the fall of the Soviet Union while the level of unemployment does not. Results suggest that GDP per capita has a negative effect on location choice which is opposite the expected sign. All measures of institutional quality are positively related to location choice. When the two regions are looked at independently it seems that local market demand is more important in Eastern countries than in the EU. Agglomeration has a stronger impact in EU countries. The negative effect of distance is stronger for Eastern European countries suggesting that transactions costs are higher in those countries. French MNEs seem to be more sensitive to labor costs in Eastern Countries than in the EU as well. Exchange rate risk is not significant, but it may be the case that MNEs are more concerned with Eastern versus EU exchange rate risk rather than country specific risk. Institutional quality has a positive impact on location choice in Eastern Europe but no significant effect in the EU.

Dikova and Witteloostuijn (2007) focus on the effect of regulative institutions on multinational enterprises' establishment and entry mode choices in Eastern European transitional economies in 2003. For the scope of this paper, firms' choices between Greenfield and acquisition are considered establishment mode, while firms' choices between setting up a

wholly owned subsidiary or a joint venture is considered entry mode. The researchers make three hypotheses. First, more institutional advancement is positively associated with acquisition establishments and joint venture type FDI. Second, more institutional advancement also has positive moderating effects on tendencies of high-tech MNEs to choose Greenfield, and shared ownership type ventures. Lastly, a higher degree of institutional advancement has positive effects on the tendency of multi-domestic MNEs to establish acquisitions and also joint venture type FDI. Results of the empirical analysis support the first hypothesis entirely. However, while a higher degree of institutional advancement does seem to increase the likelihood of Greenfield investment, it does not necessarily lead to an increased likelihood of joint venture type FDI. Finally, empirical results do support a positive moderating effect of institutional advancement on the tendency of multi-domestic MNEs to acquire pre-existing firms but to do not provide evidence of increased likelihood of shared ownership ventures. Overall, the study concludes that acquisitions are only desirable if the institutional level of a country is sufficiently advanced. Also, in industries with a higher technology level Greenfield is preferred only in more institutionally advanced economies, and firms who acquire pre-existing firms to serve host markets also prefer more institutionally advanced economies.

Pentecost and Rasciute (2008) employ a Latent Class discreet choice model to study the location choices of MNEs in Central Eastern European Countries. Their data cover entry decisions of 693 US , EU15, Norwegian, Swiss, Russian, and Japanese firms into 13 Central and Eastern European countries from 1997-2007. The data also includes firm, industry, and country characteristics. The authors point out that most empirical research of investment location focus on house country or industry characteristics. However, characteristics of the investing firm are also key factors in the investment location decision. Empirical results of this study show that MNEs who locate abroad to access new markets prefer EU countries (most likely due to superior institutions), are not dissuaded by distance to the market, but are by high rates of unemployment. Small firms concerned with cheap labor tend to invest in neighboring

countries preferably in the EU. Large, less profitable firms that are sensitive to remoteness prefer to locate in countries with low wages and high unemployment rates, implying that these firms demand less skilled labor. The group of small, profitable non-traditional firms (science, service, and scales intensive) is most discouraged by higher rates of unemployment, and also will most likely locate in countries with higher wage rates. These firms also prefer neighbor countries. These results show that it is not enough to consider host country characteristics in location choice decisions but also firm and industry specific factors too.

Trofimenko (2010) uses data on firms' perspectives about advantages of different location characteristics for exporting and foreign owned firms' location decisions. 1,409 firms in China were surveyed and asked to rank the top five reasons for locating in a particular area. Market size, proximity to clients, and proximity to distribution channels all had negative and significant effects on the probability of an exporters' location. Low rents, fewer regulatory requirements and taxes imposed in the region, and the amount of government services available to businesses all had positive and significant effects on probability of a firm choosing a particular location. From the data, foreign owned firms respond positively to greater market size, better telecommunications infrastructure, skilled labor supply, and the availability of government services. The study finds that both proximity to suppliers and availability of unskilled labor discourage firms from locating in an area. However, the sign of the coefficients of these two variables are positive for foreign owned exporting firms. Trofimenko (2010) proposes that this may be a sign that foreign owned firms that export are more conscience of lower factor costs due to a need to compete with relatively low world prices.

Kogut and Singh (1988) study how cultural distance between the country of investing firms and country of entry affect the firm's mode of entry. Firms choose to acquire an existing firm, enter a joint venture (JV) with one or more firms in the foreign market, or wholly owned Greenfield investment (GI). Kogut and Singh use Hofestede indices to estimate cultural distance between two countries. They assert that the management of an acquired firm is more expensive

relative to JV or GI because of the difficulty in integrating into a pre-existing foreign management, and thus greater cultural distances lead to the establishment of more JVs or wholly owned GI relative to acquisitions. The results support their hypothesis.

Klein and Roth (1989) examine the effects of firm experience in export markets and psychic distance on the amount of forward integration a firm employs in its export strategy. The most extreme type of forward integration is the establishment of subsidiary firms in foreign markets, while the least extensive is simply exporting goods produced in the source country to the foreign market. Klein and Roth (1989) hypothesize that increased export experience is positively associated with greater forward integration (i.e. more FDI). This is because more experience for parent firms leads to less uncertainty and risk, and therefore lower transaction costs in the foreign market. The authors also hypothesize that greater psychic distance negatively associated with the establishment of FDI. Greater psychic distance is thought to create more uncertainty for the parent firm, and therefore higher transaction costs that encourage the parent firm to make a smaller investment in the foreign market. These hypotheses are tested using survey data of 477 Canadian firms. Firms were divided into two groups: low asset specificity and high asset specificity. For the low asset specificity group coefficients on measures of firm experience and psychic distance all have the predicted sign and are also statistically significant. Similarly, for the high asset specificity group the coefficients have the expected sign, but are not statistically significant. These results suggest that perhaps experience and psychic distance may not be as important to firms whose products are more difficult to copy/steal because higher levels of skill and knowledge are needed to do so.

Che and Facchini (2007) develop a sequential game model to study the entry mode decisions in foreign markets facing both cultural differences and imperfect property right enforcement. Firms can choose to enter through licensing, joint ventures, or Greenfield investment. Imperfect property right enforcement allows host country firms to act opportunistically and attempt to extract higher rents from the parent foreign firm. Cultural

differences cause uncertainty from the parent multinational firm and prompt them to spend resources to monitor the host country firm. The model suggests that in areas where property rights are strictly enforced licensing is the preferred mode of entry, while JVs are more preferred in areas with poor enforcement. The model also suggests that in areas of intermediate enforcement the preferred mode of entry is more ambiguous.

Bertrand and Madariaga (2002) examine the effects of regional trade areas on the amount of outward FDI, mergers and acquisitions, and Greenfield investment by US firms. They use panel data of NAFTA and MERCOSUR members from 1989 to 1998. The results of the test show that NAFTA has had a positive impact on the amount of US FDI and GI in Canada, and Mexico. However, for countries involved in MERCOSUR, where the US is an outsider, receive less FDI from the us in the form of mergers and aquisitions.

Glass and Saggi (2002) shows that countries providing subsidies to production of multinational firms reduces the cost disadvantage to foreign firms, and increases the share of FDI relative to licensing in the market. In other words, subsidies to multinational production have a positive effect on the number of firms choosing FDI, and a negative effect on firms that choose licensing. Glass and Saggi (2002) do not conduct their own empirical test of this hypothesis, but do however point to supporting results found in other empirical tests.

Helpman, Melitz, and Yeaple (2004) build a model that looks at choices between exports and FDI in heterogeneous firms. By using a sample of US exports and affiliate sales data from 52 manufacturing sectors and 38 countries, they empirically test the implications of their model. Both the model and empirical tests are consistent with the proximity-concentration trade-off where firms substitute FDI for exports when costs of international trade are high and returns to scale are low. They conclude that sectoral differences across firms/industries such as plant level fixed costs, capital intensity, and R&D intensity are key factors in entry mode choice.

Tekin-Koru (2009) conducts an empirical test of the role of trade costs in the entry mode decisions made by multinational enterprises using data from Swedish multinationals in

manufacturing sectors from 1987 to 1998. Two trade costs are considered in this study, tariffs and transportation costs. Tekin-Koru (2009) finds that tariff reductions encourage M&A type of FDI by the Swedish firms and discourage exports. It is also concluded that higher transportation costs decrease the volume of M&A, GI, and Exports. Another interesting finding is that a higher skilled workforce in the host country increases the likelihood of FDI through M&A while decreasing the likelihood of exports.

Kogut and Chang (1991) take a look at how technological capabilities in both Japan and the United States affect Japanese FDI into the US. They use R&D expenditures for both countries to determine the probability of investing in the US across 297 industries from 1976-1987. Results from the negative binomial regression suggest that Japanese R&D expenditures for an industry decrease the probability of entering the US. However, results also show that R&D expenditures in both countries have a positive effect on probability of investment. I think a reasonable interpretation of this is that higher absorptive capacities in US industries attract more Japanese FDI. In fact, Kogut and Chang's interpretation of this result is that Japanese to US FDI seems to be "motivated by the sourcing of US technology." The results also suggest that FDI is more likely in high R&D industries. When disaggregating FDI into acquisitions, JVs, and Greenfield, US R&D expenditures have a positive impact on the probability of entry mode choice across all three options. Also in industries where R&D expenditure is higher in the US than in Japan, JV seems to be the preferred method of entry.

Ethier and Markusen (1996) develop a two country model where the source country is endowed with capital and labor, while the host country is only endowed with labor. This leads to the result that only source countries have the ability to innovate. Source country firms must supply their source markets from plants in the source country, while they may supply host country markets though either exports or production in the host country. Production in the host country can be done either through product licenses or a subsidiary. The model predicts that a subsidiary is chosen when knowledge is of higher importance relative to physical capital, firms

wish to ensure future product commitments, exporting costs are high, wages in the host country are relatively lower than in the source country, and relatively few source country firms compete to sell in the host country. The model also predicts that firms will choose to transfer knowledge and technology to the host country through exports and licensing when it is believed that there is not an opportunity for persistent profits for the product in the host country. This paper is purely theoretical and therefore does not provide an empirical test of the predictions made by the model. However, this research sheds some light on factors and their effects on entry mode decisions that can be empirically tested by other researchers.

Glass and Saggi (2002) develop a model that examines labor mobility's effect on technology transfer, and how this transfer affects a country's policy towards FDI. The implications of this model are that more developed countries attract more FDI due to lower marginal costs and higher labor productivity. Lesser developed countries tend to have lower levels of skilled labor which implies higher training costs for the multinational firm. This increases the risk of labor turnover effects in these countries and discourages FDI

CHAPTER 3

EMPIRICAL SPECIFICATION AND DATA DESCRIPTION

<u>3.1 Empirical Specification</u>

We express the factors affecting the amount of FDI a country receives from the United States by the following functional form:

$$(1) \ln FDI_i = \beta_0 + \beta_1 CI_i + \beta_2 PR_i + \beta_3 \ln DISTi + \beta_4 \ln GDPCAP_i + \beta5 \ln LABOR_i$$
$$+ \beta_6 RTA + \sum \beta_j RELIGION + u_i$$

Where $\ln FDI$ is the natural log of the number of Unites States firms conducting FDI in country i during 1995; $\ln DIST$ is the natural log of the distance in kilometers between Washington DC and country $i's$ capital city; $\ln GDPCAP$ represents the natural log of GDP (PPP) per capita of country i; $\ln LABOR$ is the natural log of labor force of country i in year 1995; RTA is a dummy variable, and equals 1 if the country is part of a regional trade agreement with the United States; $RELIGION$ is the percentage of population that is Catholic, Protestant, Muslim or, "other", where Catholic population is considered the base group; CI is the measure of contracting institutions in country i; and PR is the measure of property rights institutions is for country i.

Our main variables of interest are the contracting institutions and property rights institutions. We use an index of procedural complexity as our measure of contracting institution. This index measures the complexity of resolving a court case involving nonpayment of a commercial debt contract worth fifty percent of the country's annual income per capita. This index is advantageous because it specifically involves commercial debt contracts, and therefore may provide more information about the firm impacts of contracting institutions (Acemoglu, 2003) This index comes from The World Bank (2004). As a proxy of property rights institutions we use an index measuring the constraints on politicians and politically powerful elites that range from 1 to 7 where higher values indicate greater constraints. This index is from the Polity

14

IV dataset and average values over the 1990s are used. Other proxies for contracting and property rights institutions are available, however, we choose to include these two measures because they are reported for more countries and lead to a higher sample size.

Among the control variables, we consider distance as a proxy for transportation costs, monitoring costs, and possible cultural differences between countries (Maskus et al. 2004, and Tekin-Koru, 2009). As such distance may have a negative impact on FDI. GDP per capita is considered a measure of the level of development for a country and we expect higher GDP per capita to be associated with greater amounts of FDI. Labor force is used as a proxy for market size and we expect it to have a positive impact on the amount of FDI country i receives (Puttitanun, 2007). Religion has been shown to be a determinant of financial development (Acemoglu, 2003). Stulz and Williamson (2002) show that Catholic countries typically have weaker creditor rights along with weaker enforcement of these rights. Additionally, Chen et al. (2008) states that Protestantism is negatively correlated with bribery and corruption, which in turn boost economic growth. La Porta et al. (1999) find that Muslim affiliations are associated with less efficient governments. We therefore believe that the religion of a country should have an impact on FDI.

3.2 Data

FDI data is obtained from the Bureau of Economic Analysis BE-11 Annual Survey of U.S. Direct Investment Abroad from 1995. Distances are calculated using geographic coordinates of each city obtained from CEPII, and calculated using the Haversine formula for great circle distance. GDP per capita and labor force data were retrieved from The World Bank's World Development Indicators Database online version. Procedural complexity index is from World Bank, *Doing Business in 2004.* Constraints on executives has been taken from the Polity IV dataset. Data for religious shares of populations is from World Christian Encyclopedia 1982, Worldmark Encyclopedia of Nations 1995, Statistical Abstract of the World 1995,

democraphic yearbook 1995, and CIA world Factbook 1996. A list of the countries our analysis is included in Appendix A.

3.3 Estimation Methods

We estimate our model by ordinary least squares (OLS) and by an instrumental variable (IV) estimator that controls for endogeneity of our two main variables of interests. It could be that part of the impact of these two institutions on foreign direct investment decisions arise from the associations between these institutions and unobserved country characteristics. Thus, by using instrumental variable estimator, we control for this potential endogeneity problem in order to be able to distinguish between association and causality. Specifically we employ an over identified two-stage least squares estimation.

Our instruments for property rights institutions are initial indigenous population density, and the absolute value of capitol city latitude. Where population density was high, European settlers were more likely to establish some sort of forced labor system that put the local population to work. Additionally, in regions with lower population densities, settlers were more likely to set up permanent settlements, and establish institutions very similar to those in Europe (Acemoglu et al., 2003). The absolute value of latitude captures a country's distance from the equator. Western settlers were more likely to permanently settle in areas with climates very similar to those found in their home countries, and sparsely populated (Hall and Jones, 1999). Settler mortality rates has also been used as a valid instrument by Acemoglu et al. (2003). However, the small number of countries for which this data is available would have severely constrained our sample size to less than eighty countries.

We use legal origin as an instrument for contracting institutions. An important determinant of procedural complexity is whether or not a country has a common law or civil law legal system. In general, former British colonies typically keep the common law legal systems, while countries colonized by the French keep the civil law legal systems Acemoglu et al., (2003)

CHAPTER 4

RESULTS

4.1 Ordinary Least Squares

Summary statistics and correlation matrix of selected variables are presented in Tables B1 and B2, respectively. The OLS parameter estimates are presented in Table B3, with one, two, and three asterisks indicating statistical significance at the 10, 5, and 1 percent significance levels, respectively. When the impacts of contracting institutions are analyzed individually using the procedural complexity index the resulting coefficient is both negative and significant at the 5 percent significance level, suggesting that as the cost of enforcing contracts increases in the host country, the amount of FDI received from the United States will decrease. Regressing the natural log of FDI on constraints on executives results in a positive, but insignificant parameter estimate. Thus, this result suggests that property rights are not as important as contracting institutions in attracting foreign direct investment.

Including both proxies for contract institutions and property rights institutions yields consistent results with the previous regressions where the coefficient for procedural complexity is negative and significant at the 5 percent level, while the coefficient for constraints on executives is still positive but insignificant at any conventional significance level. These results suggest that when analyzed separately, differing levels of contracting institutions have a significant impact on the amount of FDI that is conducted by US firms. This finding is consistent with the reasoning of North (1990), where multinational enterprises place high importance on contracting institutions due to the size and complexity of their transactions. However, these OLS regressions do not give insight into the true causal relationship between contracting and property rights institutions and FDI, and therefore further analysis is needed.

As for our control variables, both the coefficients on the natural log of GDP per capita and labor force are positive and significant at the 10 and 1 percent significance levels, respectively. Both of these results are consistent with our prior belief that greater economic development and increased market size should attract more FDI, and confirms the results of Puttitanun (2007). The estimated parameter for the natural log of distance is positive but insignificant, and we are unable to conclude the impact distance may have on foreign direct investment from this analysis. Additionally, religious affiliations of host countries also seem to have an effect on the U.S multinationals' FDI decision. The coefficients of both Muslim and Non-Catholic-Protestant-Muslim are negative and significant at the 1 percent significance level. Therefore, increasing shares of Muslim and Non-Catholic-Protestant-Muslim populations relative to Catholic populations seems to attract less FDI to a country. As for countries belonging to RTAs with the United States we find a positive but significant coefficient, and we are unable to confirm the findings of Bertrand et al. (2002), where countries belonging to free trade areas typically receive more foreign direct investment.

4.2 Instrumental Variable Model

As we have discussed earlier, there may exist some unobserved country characteristics associated with the impacts of contracting and property rights institutions on foreign direct investment decisions. In order to control for this potential endogeneity problem we also employ a two-stage least squares estimation and use the natural logarithm of indigenous population density in the 1500s and absolute latitude of a country as instruments for property rights institutions. Also, an English legal origin dummy is used as an instrument for contracting institutions. 2SLS parameter estimates are presented in Table B4.

In order for instruments to be valid, they must be significantly correlated with our endogenous variables, and should not be correlated with the error term. To check that instruments and endogenous variables are sufficiently correlated, the absolute value of their t-statistics from the first stage regressions should be greater than 3.3. The first stage regression t

stat for English legal origin is -6.94. The first stage t-statistic for absolute latitude is 3.51, while the t stat for indigenous population density is 1.45. Therefore, indigenous population density in the 1500s is only weakly associated with our measure of property rights institutions. In order to test the correlation between our instruments and the error term we need to conduct a Sargan test of overidentifying restrictions. The null hypothesis of the Sargan test is that the instruments and error terms are independent of each other. Therefore rejecting the null would invalidate the instruments. We fail to reject the null hypothesis, at all conventional levels of significance, in our Sargan test, and are able conclude that our instruments are valid.

When instrumented, our estimated coefficient of procedural complexity is negative and significant at the 1 percent significance level. This finding is consistent with both our OLS estimate and the predictions of North (1990). Also, the magnitude of the parameter is much greater than the OLS estimate, suggesting that OLS may bias the parameter downward. The estimated coefficient of constraints on executives is now negative. However, this coefficient is not statistically significant at any conventional significance level. Therefore, we are still unable to find any impact of property rights institutions on FDI decisions.

Once again distance does not seem to have significant explanatory power in this sample. The coefficient of GDP per capita is still positive, but is no longer significant but, the coefficient for labor force is both positive and significant at the one percent level. Therefore, larger market sizes in host countries seem to attract greater amounts of FDI. As for our religious controls, the coefficient for Muslim is still negative and significant at the 10 percent level. Also, the coefficient of Non-Catholic-Protestant-Muslim is still negative and significant at the one percent level. Therefore, our results still suggest that religious affiliation have an impact on the amount of FDI a country receives from the United States. When using 2SLS estimation, belonging to RTAs with the United States still does not seem to have and impact on U.S. Multinationals' investment decisions, as the coefficient is insignificant.

CHAPTER 5

CONCLUSIONS

Despite the recognition of the importance of both property rights and contracting institutions, to the best of our knowledge, none of the previous studies has examined the separate FDI impacts of property rights institutions and contract enforcement mechanisms. Although few studies have examined the role of property rights institutions for attracting foreign direct investment, the impact of contract enforcement mechanisms in the host countries has not yet been explored. This paper provides a first step in that direction. By using indices of procedural complexity and constraints on politicians and powerful elites, we are able to capture the separate FDI impacts of contracting and property rights institutions, respectively. Additionally, ordinary least squares and instrumental variable methods are used to estimate these effects.

Once we control for heterogeneous macroeconomic variables across countries and endogeneity amongst our variables of interest, we find that weaker contracting institutions are a deterrent to U.S. foreign direct investment. This result confirms the theoretical predictions of previous development economics literature (North, 1990, Williamson 1996, and Dixit 2009). We do not find evidence that property rights institutions have a significant impact on U.S. multinationals' FDI decisions.

In comparison, Acemoglu et al. (2003) found that property rights institutions have significant influence on economic growth, investment and financial development. However, contracting institutions have a very limited impact on these macroeconomic variables. The researchers suggest that as long as contract enforcement is not severely dysfunctional, in the absence of formal contracting institutions, informal contract arangments arise, such as "handshake agreements."

20

We believe that a reasonable explanation of why contracting institutions are of high importance to U.S. multinationals is the quantity and complexity of transactions conducted by multinational firms. North (1990) writes, *"the greater the specialization and the number and variability of valuable attributes, the more weight must be put on reliable institutions that allow individuals to engage in complex contracting with a minimum of uncertainty about whether or not the terms of the contract can be realized."* If it is the case that U.S. multinationals are engaging in these types of transactions then it is likely to be very difficult for U.S. investors to find viable substitutes for formal contracting institutions (Dixit, 2009). We therefore conclude that higher quality contracting institutions decrease uncertainty, and provide strong incentive for foreign direct investment.

This study, of course, is not without limitations. Future analysis should also consider controlling for tariffs in order to confirm the finding of Helpman et al. (2004). A valid concern about this study, or any other instrumental variable estimation, is the strength of the instruments. It can be helpful if future researchers are able to identify additional instruments for contracting and property rights institutions. Moreover, controlling for additional factors, using a panel dataset or industry level analysis to estimate the impacts of institutions have on FDI decisions can greatly increase the robustness of the results.

APPENDIX A

LIST OF COUNTRIES

Algeria
Angola
Argentina
Australia
Austria
Azerbaijan
Bangladesh
Belgium
Bolivia
Botswana
Brazil
Bulgaria
Burkina Faso
Cameroon
Canada
Chad
Chile
China
Colombia
Congo, Rep.
Costa Rica
Cote d'Ivoire
Czech Republic
Denmark
Dominican Republic
Ecuador
Egypt, Arab Rep.
El Salvador
Ethiopia
Finland
France
Ghana
Greece
Guatemala
Guinea
Haiti
Honduras
Hungary
India
Indonesia
Iran, Islamic Rep.
Ireland
Israel
Italy
Jamaica
Japan
Jordan
Kazakhstan
Kenya
Korea, Rep.
Kuwait
Latvia

Malawi
Malaysia
Mali
Mexico
Morocco
Mozambique
Netherlands
New Zealand
Nicaragua
Niger
Nigeria
Norway
Oman
Pakistan
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Poland
Portugal
Romania
Russian Federation
Saudi Arabia
Senegal
Sierra Leone
Singapore
Slovak Republic
Slovenia
South Africa
Spain
Sri Lanka
Sweden
Switzerland
Syrian Arab Republic
Tanzania
Thailand
Togo
Tunisia
Turkey
Uganda
Ukraine
United Arab Emirates
United Kingdom
Uruguay
Uzbekistan
Venezuela, RB
Vietnam
Yemen, Rep.
Zambia
Zimbabwe

APPENDIX B

SUMMARY STATISTICS AND REGRESSION RESULTS

Table B1. *Summary statistics of selected variables [No. of Obs. = 103]*

Variable	Mean	Std. Dev.	Min	Max
ln FDI	3.385	1.982	0	7.516
ln Distance	8.952	0.516	6.602	9.701
ln GDP per captia	8.430	1.592	-1.396	10.740
ln Labor Force	15.653	1.302	13.412	20.352
Procedural complexity Index	5.799	1.429	2.900	9.030
Contraints on Executives	4.870	1.977	1	7
Catholic	34.596	37.931	0	96.9
Muslim	24.591	36.634	0	99.5
Protestant	11.160	20.182	0	97.8
Non Catholic, Muslim, Protestant	29.652	30.863	0.400	100.0
English Legal Origin dummy	0.272	0.447	0	1
ln Poplulatoin Density 1500s	1.163	1.722	-3.831	5.643
Absolute Latitude	0.299	0.194	0.011	0.711

Table B2. Correlation matrix of independent variables

	ln DIST	ln GDPCAP	ln LABOR	Muslim	Protestant	Non Catholic, Muslim, Protestant	RTA	CI	PI
ln DIST	1.0000								
ln GDPCAP	-0.2256	1.0000							
ln LABOR	0.1935	-0.0617	1.0000						
Muslim	0.2556	-0.1733	-0.0310	1.0000					
Protestant	-0.0475	0.1622	-0.2071	-0.3106	1.0000				
Non Catholic, Muslim, Protestant	0.3911	-0.1172	0.3419	-0.2992	-0.0889	1.0000			
RTA	-0.7242	0.0468	-0.1930	-0.2758	-0.0624	-0.2550	1.0000		
CI	-0.2632	-0.0932	-0.1168	0.0316	-0.3913	-0.3260	0.3212	1.0000	
PI	-0.2983	0.5082	-0.0298	-0.6029	0.3075	0.0268	0.2036	-0.1040	1.0000

Table B3. *OLS parameter estimates [dependent variable = natural log of FDI]*

VARIABLE	(1)	(2)	(3)
ln Distance (DIST)	0.0985 (0.333)	-0.195 (0.340)	0.0579 (0.339)
ln GDP per capita (GDPCAP)	0.678** (0.278)	0.577** (0.276)	0.571* (0.300)
ln Labor Force (LABOR)	0.629*** (0.0932)	0.653*** (0.0746)	0.636*** (0.102)
Muslim	-0.0200*** (0.00508)	-0.0133*** (0.00391)	-0.0147*** (0.00488)
Protestant	0.000908 (0.00545)	-0.000984 (0.00551)	0.00578 (0.00527)
Non Catholic, Muslim, Protestant	-0.0158*** (0.00520)	-0.0109** (0.00481)	-0.0156*** (0.00521)
RTA	0.443 (0.415)	0.0517 (0.407)	0.365 (0.399)
Procedural Complexity Index (CI)	-0.238** (0.026)		-0.214** (0.101)
Constraints on Executives (PI)		0.149 (0.101)	0.172 (0.115)
Constant	-10.790** (5.107)	-10.08** (4.336)	-10.68** (4.845)
Observations	105	120	103
R-squared	0.644	0.629	0.656

Robust standard errors in parentheses
*Significant at the 10% level
**Significant at the 5% level
***Significant at the 1% level

Table B4. *2SLS parameter estimates [dependent variable = natural log of FDI]*

VARIABLES	(1)	(2)	(3)
ln Distance (DIST)	0.117 (0.327)	-0.328 (0.473)	0.0409 (0.310)
ln GDP per capita (GDPCAP)	0.638** (0.255)	0.736 (0.468)	0.603 (0.427)
ln Labor Force (LABOR)	0.581*** (0.103)	0.692*** (0.117)	0.599*** (0.104)
Muslim	-0.0239*** (0.00575)	-0.0224* (0.0117)	-0.0223* (0.0130)
Protestant	-0.0156* (0.00860)	0.00166 (0.00576)	-0.0135 (0.00828)
Non Catholic, Muslim, Protestant	-0.0244*** (0.00656)	-0.0121** (0.00514)	-0.0242*** (0.00735)
RTA	0.678 (0.460)	0.0184 (0.412)	0.577 (0.467)
Procedural Complexity Index (CI)	-0.714*** (0.460)		-0.654*** (0.238)
Constraints on Executives (PI)		-0.167 (0.473)	0.0304 (0.450)
Constant	-6.611 (5.368)	-9.088** (3.665)	-.6431 (4.531)
Observations	105	117	103
R-squared	0.573	0.566	0.588

Robust standard errors in parentheses
*Significant at the 10% level
**Significant at the 5% level
***Significant at the 1% level

APPENDIX C

VARIABLE DEFINITIONS AND SOURCES

Table C1 *Variable definitions and sources*

Variable	Description	Source
ln FDI	Natural log of the number of U.S. firms conducting foreign direct investment	U.S. Department of Commerce, Bureau of Economic Analysis. Unpublished detail from BE-11 Annual Survey of U.S. Direct Investment Abroad, 1995
ln Distance	Natural log of distance in kilometers from Washington D.C. to capitol city. Calculated using geographic coordinates of each city and Haversine formula for great circle distance.	Centre d'Etudes Prospectives et d'Informations Internationales (CEPII). geo_cepii dataset
ln GDP per captia	Natural log of GDP per capita (ppp, constant 2005 international $)	World Bank, World Development Indicators, on-line version. January 2011
ln Labor Force	Natural log of total labor force	World Bank, World Development Indicators, on-line version. January 2011
Procedural complexity Index	Index of complexity involved in collecting a commercial debt, valued at 50% of annual GDP per capita	World Bank (2004),
Constraints on Executives	A seven category scale from 1 to 7 , with a higher score indicating more constraint. Score of 1 indicates unlimited authority; score of 3 indicates slight moderate limitations; score of 5 indicates substantial limitations; score of 7 indicates executive parity or subordination. Scores of 2, 4, and 6 indicate intermediate values. Average values from 1990 to 2000, inclusive, treating interregnums as missing values.	Polity IV dataset, from Inter-University Consortium for Political and Social Research
Catholic	Percentage of population that belonged in 1980 (or for 1990-1995 for countries formed more recently) to Catholic	World Christian Encyclopedia 1982, Worldmark Encyclopedia of nations 1995, Statistical Abstract of the World 1995, Demographic Yearbook 1995, and CIA World Factbook 1996
Muslim	Percentage of population that belonged in 1980 (or for 1990-1995 for countries formed more recently) to Islam	
Protestant	Percentage of population that belonged in 1980 (or for 1990-1995 for countries formed more recently) to Protestant	
Non Catholic, Muslim, Protestant	Percentage of population that belonged in 1980 (or for 1990-1995 for countries formed more recently) to Other Religions	

Table C.1 *continued*

English Legal Origin dummy	Coded as zero or one. One indicates the country was colonized by Britain and English legal code was transferred	La Porta, Lopez-de-Silanes, Shleifer and Vichny, 1998, extended using "Foreign laws: Current Sources of Basic Legislation in Jurisdictions of the world." 1989: and CIA World Factbook 1996
In Population Density 1500s	Natural log of population density in 1500; population density is inhabitants per square kilometer	McEvedy and Jones 1978, *Atlas of world Population History*
Absolute Latitude	Absolute value of the country, scales to take values from 0 to 1, where 0 is the equator	La Porta, Lopez-de-Silanes, Schleifer and Vichny, 1999

REFERENCES

Acemoglu, D. and, S. H. Johnson. (2003). "Unbundling Institutions." NBER Working Paper Series.

An, G., K. E. Maskus, and T. Puttitanun. (2008) "Duration of Rent Extraction and the Entry Mode Decision of Multinational Enterprises." *Review of Development Economic,* 12 (4). 861-876.

Bertrand, O, and N. Madariaga. (2002) "Firm Location Choices, Modes of Entry and Economic Integration: A Macroeconomic Study Applied to US FDI in NAFTA and the MERCOSUR." ETSG Papers

Che, J., and G. Facchini. (2010). "Cultural Differences, Insecure Property Rights and the Mode of Entry Decision." *Economic Theory,* 19. 465-84.

Chen, H., and M. Y. Hu. (2002). "An Analysis of Determinants of Entry Mode and its Impact on Performance." *International Business Review*, 11. 193-210.

Chen, Y., M. Yasar, and R. M. Rejesus. (2008) "Factors Influencing the Incidence of Bribery Payouts by Firms: A Cross-Country Analysis." *Journal of Business Ethics.* 77. 231-244

Dikova, D., and V.W. Arjen. (2007). "Foreign Direct Investment Mode Choice: Entry and Establishment Modes in Transition Economies." *Journal of International Business Studies,* 38 (6). 1013-33.

Disdier, A., and T. Mayer. (2004). "How Different is Eastern Europe? Structure and determinants of location choices by French firms in Eastern and Western Europe." *Journal of Comparative Economics,* 32 (2). 280-96.

Dixit, A. (2009). "Governance Institutions and Economic Activity." *The American Economic Review,* 99 (1). 5-24.

Ethier, W. J., and J. R. Markusen. (1996). "Multinational Firms, Technology Diffusion and Trade." *Journal of International Economics,* 41 (1). 1-28.

Glass, A., and K. Saggi. (2002)."Intellectual Property Rights and Foreign Direct Investment," *Journal of International Economics*, 56 (2). 387-410.

Glass, A., and K. Saggi. (2002). "Licensing Versus Direct Investment: Implications for Economic Growth." *Journal of International Economics,* 56. 131-53.

Glass, A., and K. Saggi. (2002). "Multinational Firms and Technology Transfer." *Scandinavian Journal of Economics* 104 (4). 495-513.

Hall, R., and C. Jones. (1999). "Why Do Some Countries Produce So Much More Output per Worker than Others?" *Quarterly Journal of Economics,* 114 (1). 83-116.

Helpman, E., M. J. Melitz, and S. R. Yeaple. (2004). "Export Versus FDI with Heterogeneous Firms." *The American Economic Review,* 94 (1). 300-316.

Klein, S., and V. J. Roth. (1989) "Determinants of Export Channel Structure: The Effects of Experience and Psychic Distance Reconsidered." *International Marketing Review,* 7 (5). 26-38.

Kogut, B., and S. J. Chang. (1991) "Technological Capabilities and Japanese Foreign Direct Investment in the United States." *The Review of Economics and Statistics,* 73 (3). 401-13.

Kogut, B., and H. Singh. (1988) "The Effect of National Culture on The Choice of Entry Mode." *Journal of International Business Studies,* 19 (3). 411-32.

La Porta, R., R. Lopez-de-Silanes, A. Shleifer, and R. Vishny. (1999). "The Quality of Government." *Journal of Law, Economics, and Organization*, 15 (1). 222-279.

Maskus, K. E., K. Saggi, and T. Puttitanun. (2003): ''Patent Rights and International Technology Transfer through Direct Investment and Licensing.'' Working Paper. University of Colorado, Boulder.

Myers, K. E. (2001). "Institutions, Transactions Costs, and Entry Mode Choice in Eastern Europe." *Journal of International Business Studies,* 32 (2). 357-67.

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

Park, W. G. and D. Lippoldt. (2003). "The Impact of Trade-Related Intellectual Property Rights on Trade and Foreign Direct Investment in Developing Countries", OECD Papers: Special Issue on Trade Policy, 4 (11)

Puttitanun, Thitima. (2006). "Intellectual Property Rights, International Joint Ventures and FDI: An Empirical Study," Working Papers 0015, San Diego State University, Department of Economics.

Puttitanun, T. (2007). "Intellectual Property Rights and Entry Choices," Working Papers 0027, San Diego State University, Department of Economics.

Rasciute, S. and E. J Pentecost. (2008). "The Latent Heterogeneity in Investment Location Choices of Multinational Enterprises," Discussion Paper Series, Department of Economics, Loughborough University.

Stulz, R. M. and R. Williamson. (2003) "Culture Openness, and Finance." *Journal of Financial Economics*. 70. 313-349.

Tekin-Koru, A. (2009). "Asymmetric Effects of Trade Costs on Entry Modes: Firm level Evidence." Working Paper.

Trofimenko, N. (2010). "Factors Affecting Location Decisions of the Economic Headliners-Exporters and Foreign-Owned Firms-in China." Kiel Working Papers 1645, Kiel Institute for the World Economy.

Williamson, O. E. (1996). *The Mechanisms of Governance,* Oxford University Press, New York

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