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THE FORMAL AND INFORMAL FRAMEWORK OF FOREIGN DIRECT INVESTMENT

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Abstract

This paper studies the impact of social trust and formal legal and institutional determinants of foreign direct investment inflows and investment in a panel of countries. It reports that formal determinants and trust interact, and that the two are substitutes. Namely, the marginal impact of formal measures decreases with trust and vice versa.

JEL Classification: C33, F21, F41, O17.

Keywords: Foreign direct investment, investment, institutions, trust.

ملخص

تدرس هذه الورقة تأثير الثقة الاجتماعية والمحددات القانونية والمؤسسية الرسمية من تدفقات الاستثمار الأجنبي المباشر والاستثمار في عدد من البلدان. تشير التقارير الرسمية أن محددات الثقة والتفاعل، هما فى الواقع بدائل. وبالتحديد يتناقص التأثير الهامشي من التدابير الرسمية مع الثقة والعكس بالعكس.

1. Introduction

Foreign direct investment (FDI) enjoys a positive reputation among researchers and policymakers. It has been attributed a long list of virtues, among which being a vector of managerial and technological expertise (Kose et al. 2010), being a stable source of capital (Levchenko and Mauro 2007, Tong and Wei 2009), and being, at least under some conditions, conducive to growth (Borensztein et al. 1998, Alfaro et al. 2004/2010, Aizenman et al. 2011). Determining why some countries attract more FDI than others has, therefore, become a major research topic. Among the many determinants of FDI, legal and political institutions have been emphasized. Alfaro et al. (2008), for instance, emphasize country risk as a deterrent of FDI, while Harms and Ursprung (2002) and Asiedu and Lien (2011) underline the role of democracy as an attractor of FDI. Rossi and Volpin (2004) observe that investor protection shapes the flows of mergers and acquisitions, which nowadays account for the bulk of FDI flows. Overall, that literature suggests that implementing a stable legal and institutional environment increases FDI inflows.

It is tempting to jump from those findings to the conclusion that a set of simple policy principles would guarantee a country's attractiveness to FDI, and should be uniformly adopted. However, yielding to temptation would be ill-advised in that case. Indeed, as Rodrik (2007) points out, attempts at importing the same set of good practices everywhere may prove futile, if not counterproductive, if those practices do not take their environment into account. Evidence suggests that the effect of formal rules depends in the environment where they are applied. One dimension of that environment that has received extensive coverage in the literature is the formal judicial environment. The law of finance literature initiated by La Porta et al. (1997, 1998) has emphasized that formal rules such as those improving creditor rights are favorable to the development of the financial sector and subsequently to investment. It later appeared that such rules where insubstantial if not upheld in courts. Johnson et al. (2002b) studied a survey of Eastern European firms in the late nineties, and observed a significant positive relation between the belief of their managers in the reliability of courts and their propensity to reinvest earnings. Jappelli et al. (2005) similarly observe that credit was less widely available in Italian provinces with longer trials and larger backlogs, despite legal rules being the same everywhere, as they were determined at the national level. Laeven and Woodruff (2007) study the impact of legal protection on the size of firms in Mexico. They observe that the same legal system leads to larger of firm size in provinces with more efficient courts. Safavian and Sharma (2007) confirmed that creditor rights and efficient courts were complements in a cross-country study.

Yet, courts are only one component of the formal environment in which reforms are implemented, which is itself only a fraction of the general environment in which there are embedded. As Dixit (2009) points out, the informal environment, which includes norms of behavior and trust, matters as much as the formal environment. Suggestive evidence supports the view that formal rules interact with their informal environment. In some instances, they have been found to be substitutes. For instance, Johnson et al. (2002) observed in a sample of Eastern European post-communist countries that firms resorted to bilateral relationships where courts were inefficient. Steer and Sen (2010) describe how Vietnamese firms compensate for the deficiency of the formal legal system by using relational contracts. Conversely, formal and informal rules have also been found to be complements. Lambert-Mogiliansky et al. (2007) observe that the outcome of the enactment of the bankruptcy law in Russia differed across regions, depending on the popularity of governors and the quality of the relationship with the federal center. Bjørnskov (2011) studies the impact of legal quality on corruption. He observes that legal quality reduces corruption in high-trust countries, but has no significant effect in low-trust countries. In other words, legal quality and trust are complements.

Surprisingly, no attempt has been made at investigating the interaction of formal and informal rules on FDI. This is precisely the aim of the present paper. In a large panel of countries, we investigate the impact of formal incentives to FDI and generalized trust on FDI inflows, paying careful attention to the interaction of formal incentives and trust.

The issue matters in several respects. Firstly, from a policy perspective, it is important to determine whether local informal factors may affect the impact of formal incentives to FDI. If they do, then policy advisers will have to take local culture into account before formulating recommendations. In other words, the same set of measures will not be relevant everywhere irrespective of the local context. In that respect, the present paper contributes and may qualify the general literature on the institutional determinants of FDI by analyzing the interaction of formal and informal factors. Secondly, the present paper contributes to the literature on the impact of trust. While the role of bilateral trust on bilateral FDI flows has been investigated by Guiso et al. (2009), we are aware of no attempt at assessing the impact of generalized trust on FDI inflows. Thirdly, the present paper contributes to our understanding of the interaction of legal rules and their environment by including foreigners in the picture. Indeed, all the studies in that literature have focused on the interaction of legal rules and their environment in shaping domestic outcomes. By assessing their impact on FDI, we observe how foreigners react to the local formal and informal characteristics of the local country. Finally, the question is of particular relevance in the case of MENA countries. Bohnet et al. (2010) indeed observe that citizens of Gulf countries are more reluctant than Westerners to trust others, and relate that discrepancy to the fact that trust is relation-based in the Gulf, while it is rule-based in the West. Although Gulf countries are only a sub-group of MENA countries, the findings of Bohnet et al. (2010) suggests an important specificity of the region that hinges on its capacity to attract foreign investment.

To address those questions, the rest of the paper is organized as follows. We first discuss the formal and informal determinants of FDI inflows by surveying the existing literature in the next section. In the third section, we describe our empirical strategy. The empirical results are analyzed in section 4, while section 5 concludes.

2. Theoretical Framework

In this section, we start by recalling the formal and informal determinants of FDI inflows. We then discuss why they are likely to interact and how.

2.1 Formal determinants of FDI

Previous research has shown FDI to be sensitive to a series of formal policies chosen at the country level and affecting the country's general investment climate. For instance, trade and exchange rate policies have been identified as determinants of FDI inflows. Méon and Sekkat (2004) provide a series of estimates focusing on the MENA region. Kinda (2010) distinguishes the impact of the various dimensions of the investment climate in developing countries.

A specific dimension of the investment climate is the protection of investors, emphasized in the law and finance literature spurred by La Porta et al. (1997/1998/2000). La Porta et al. (2000) contend that being acquired by a foreign firm operating in a legal system that protects investors is a way to opt into that system. Rossi and Volpin (2004) provide empirical support to that presumption. They found that acquirers in international merger and acquisition deals tend to come from richer countries with better accounting standards and stronger shareholder protection than their targets. Antràs et al. (2009) also emphasize the role of creditor rights. They argue that one should observe a negative relation between the strength of investor protection in a country and the amount of foreign investment in that country, because where investor protection is stronger, investors could finance local entrepreneurs without requiring the intervention of a foreign firm. Antràs et al. (2009) then report that American firms held a

larger share of their affiliates abroad where investor protection was weaker. Bris and Cabolis (2008) study sample of individual mergers. They find that mergers in which the acquirer comes from a country with better investor protection result in larger premia as compared to similar domestic acquisitions.

2.2 Trust

Trust can be defined as the willingness to make oneself vulnerable to another person's actions, based on beliefs about that person's trustworthiness (Bohnet 2008). The notion that it may have sizeable economic effects goes back at least to the groundbreaking works of Arrow (1972), Coleman (1988) and Putnam (1993). Its potential impact on economic growth was discussed by Putnam (1993) or Helliwell and Putnam (1995), and supported by the findings of Knack and Keefer's (1997) influential econometric work.

Arrow (1972) underlined that most transactions involved "an element of trust", especially if they were carried out over a period of time. This applies precisely to investment, and to FDI in particular. More specifically, Knack and Keefer (1997) argue that agents in more trustworthy societies have to devote fewer resources to making sure that they are not being exploited in transactions. Contracting is easier, and monitoring less necessary, in such societies. Zak and Knack (2001) incorporate that notion in a general equilibrium model that allows determining the determinants and growth impact of trust. In addition, because trust reduces the cost of information, it may not only increase the quality but also the quantity of information. As Dearmon and Grier (2011) remark, firms know about a larger variety of investment opportunities and may more accurately assess their chance of success in a trusting society. In a nutshell, higher levels of social trust reduce transaction costs, and because investment is less risky and less costly, it should be larger in more trusting countries.

One may also conceive indirect effects of trust on foreign investment. One such indirect effect runs through public infrastructures. FDI has been repeatedly found to be sensitive to the quality of infrastructure, for instance by Mody and Srinivasan (1998) and Sekkat and Veganzones-Varoudakis (2007). Putnam (1993) found that regional governments in the more-trusting parts of Italy provided public services more effectively than do those in the south, a region that is considered less trusting. As a result, countries with higher level of social trust should be more attractive to foreign investors, because they provide better infrastructure. By a similar token, Knack and Keefer (1997) argue that the policy announcements of public officials are more credible in high-trust countries, taking promises that a nominal exchange rate will remain fixed or that tax legislation will not be rapidly amended as examples. Again, such credibility should attract foreign investors.

From an empirical point of view, a positive impact of trust on total investment was reported in the original contributions of Knack and Keefer (1997) and Zak and Knack (2001). More recently, Dearmon and Grier (2011) found that higher trust leads to more physical and human capital accumulation. However, those findings pertain to the overall investment rate, not to FDI specifically.

To our knowledge, the only direct evidence of an impact of trust on FDI is provided by Guiso et al. (2009), who observe that bilateral trust between two countries results in more bilateral foreign direct investment. They do not, however, consider the impact of generalized trust on overall FDI inflows, as we do. The two notions are conceptually different. Bilateral trust measures how agents from one country perceive the trustworthiness of another country. It may reflect the affinity of the nationals of the two countries, without assessing their general trustworthiness. Trust measures how agents from one country perceive their own trustworthiness. At the aggregate level, trust and trustworthiness are approximately the same. Bjørnskov (2007), points out that this is due to the fact that a country's citizens cannot have systematically biased beliefs about the trustworthiness of their fellow citizens. Such a bias

seems implausible, especially as most national trust scores are stable over time. They thus tend to reflect long-run equilibria. Those conclusions are in line with the findings of the literature on trust responsiveness surveyed in Bjørnskov (2007/2010).

2.3 The interaction of trust and formal incentives

The previous two subsections discussed the independent impact of formal rules and trust on FDI. This paper's presumption is that the two most likely interact. The question, however, is how they do. Namely, they can be either substitutes or complements.

2.3.1 Substitutes

The notion that trust could substitute formal laws rests on the presumption that it basically solves the same problems of opportunism, moral hazard, and collective action as formal rules. If the government is unable or unwilling to back property rights or contracts, then agents will have to rely on informal mechanisms. Trust is therefore a palliative, and will therefore allow transactions that are not protected by formal rules. Knack and Keefer (1997) and Zak and Knack (2001) apply this line of reasoning to investment. Guiso et al. (2004) apply it to financial transactions. Steer and Sen (2010) observe that Vietnamese entrepreneurs are constrained to resort to informal mechanisms because of the absence of a well-functioning legal system.

The substitutability of trust and formal norms can operate in the other direction. Dearmon and Grier (2011) thus remark that in trusting environments, the need for minute contracts and the probability of litigation are reduced. Trust thereby allows economizing on formal rules. Higher trust should therefore result in efficiency gains, leading to more investment.

If trust and formal rules are substitutes, then the marginal impact of one should be smaller if the other is large. This is what Guiso et al. (2004) observe in Italy, where they find that the marginal effect of social capital is larger in regions where legal enforcement is weaker. Similarly, Dearmon and Grier (2011) find that institutional reforms are less effective at promoting investment in countries with high levels of trust.

2.3.2 Complements

The possibility for trust and formal determinants of FDI to be complements appears because trust is a component of what Tabellini (2008) refers to as generalized morality. As Arrow (1972) pointed out, trust, therefore, not only reflects the average likelihood that people abide by informal contracts, but also the way in which nationals of a country abide by the formal laws and regulations of their country. Algan and Cahuc (2009) also use trust as a measure of civic virtue.

Dixit (2009) fleshes out the complementary of formal and informal rules. He remarks that two conditions must be met for a law to be effective. Firstly, citizens must expect that the government will succeed in enforcing the law. Secondly, citizens must expect that others will abide by the law. Both are related to civic virtue and trust. The first point is a restatement of Knack and Keefer's (1997) argument that government officials in societies with higher trust are perceived as more trustworthy. The second point is a direct implication of trustworthiness.

An alternative theoretical argument is provided by Bjørnskov (2011). He sets up a formal model where a civil servant considers whether he/she should accept a bribe to grant a license. Accepting the bribe increases the civil servant's income, but entails a fix moral cost and a positive probability to get caught. To determine the minimum bribe that he/she will accept, the civil servant weights the certain moral cost of taking a bribe, against its expected benefit, which increases with the probability of not getting caught. The minimum bribe is then an increasing function of the ratio of the moral cost of taking a bribe to the probability of not getting caught. On the one hand, more virtuous civil servants, who face a larger moral cost,

can only be bribed with a large bribe. On the other hand, the size of the bribe can decrease when the probability to get caught decreases. The outcome of the model is, therefore, that the propensity to take a bribe is a function of both a formal institution, the probability to get caught when taking a bribe, and an informal institution, morality, that directly relates to trust. More to the point, raising the moral cost of taking a bribe increases the marginal impact of increasing the probability to catch corrupt civil servants, because it decreases the benefit of the bribe relative to the certain moral cost of taking it. The model thus suggests that trust and formal institutions can be complements.

What the above arguments imply is that if a formal regulation designed to attract FDI is implemented, it may have a larger effect in a society with higher trust. Conversely, the positive impact of trust on FDI is bound to be larger if formal regulations are FDI-friendly, because citizens will abide by FDI-friendly rules, as opposed to FDI-unfriendly rules. As a result, trust and formal regulations will be complements.

To our knowledge, the only evidence of a positive interaction between trust and formal regulation is provided by Bjørnskov (2011), who observes that legal quality and trust are complements in reducing corruption. We are in particular aware of no such test pertaining to FDI. The next section describes how we provide one.

3. Empirical Analysis

The specifications used in empirical studies of the determinants of FDI differ. Differences relate both to control variables and their definitions (nominal versus real measures and levels versus growth rates). A basic specification relates FDI to GDP, per capita GDP and the growth rate of GDP (UNCTAD 1998). The literature shows that, in addition to these variables, FDI inflows to countries are determined in part by the size of domestic and accessible foreign markets (Lucas 1993), sound economic policies (Blomström and Kokko 1997), infrastructure (Wheeler and Mody 1992), political/institutional security (Wei 2000; Henisz 2000) and human capital (Borensztein et al. 1998). Studies on Arab countries confirm the relevance of these factors for the region. Sekkat and Veganzones-Varoudakis (2007) confirm the importance of openness, infrastructure and human capital availability and sound economic and political conditions in increasing countries attractiveness with respect to FDI, especially in the manufacturing sector. Méon and Sekkat (2004) conclude that political risk and specific aspects of governance (corruption, government effectiveness and the rule of law) do much to explain the limited FDI performance of the region. Drawing on this literature we use the following specification:

$$\text{Log}(FDI_{it}) = \beta_{0i} + \beta_1.\text{Log}(GDP_{it}) + \beta_2.\text{GDP Growth}_{it} + \beta_3.\text{Log}(\text{GDP per capita}_{it}) + \beta_4.\text{Log}(\text{Infrastructure}_{it}) + \beta_5.\text{Log}(\text{School}_{it}) + \beta_6.\text{Log}(\text{Openness}_{it}) + \beta_7.\text{Log}(\text{Institutions}_{it-1}) + \eta_{it} \quad (1)$$

where:

FDI_{it} is Foreign Direct Investment inflows (in current $US) to country *i* in year *t*;

GDP_{it} is GDP (in current $US) of country *i* in year *t*;

$GDP\ Growth_i$ is real GDP growth (in %) of country *i* in year *t*;

$GDP\ per\ capita_{it}$ is per capita GDP (in real $US) of country *i* in year *t*;

$Infrastructure_{it}$ refers to paved roads (in % of total roads) in country *i* and year *t*;

$School_{it}$ is the primary school enrollment ratio (% gross) in country *i* and year *t*;

$Openness_{it}$ refers to the freedom to trade internationally in country *i* and year *t*;

$Institutions_{it-1}$	refers to the relevant index of formal institutions in country *i* and year *t*;
β_{0i}	is country *i*'s fixed effect;
η_{it}	is the error term.

GDP is introduced to take account of the differences in countries' sizes. The other explanatory variables are in real terms. The relationship between per capita GDP and FDI is debated in the empirical literature (Asiedu 2002). For instance, Schneider and Frey (1985) consider GDP per capita as reflecting the wealth of the resident of the host country and then demand effectiveness. The expected sign of the corresponding coefficient is, therefore, positive. In contrast, Edwards (1991) interprets GDP per capita as the inverse of the return on capital in the host country. Then the coefficient of GDP per capita in the FDI equation is expected to be negative. A higher real per capita income is supposed to decrease the attractiveness of FDI. The growth rate of GDP reflects the dynamism of the host country and its future market size. An increase in this growth rate characterizes a dynamic economy which may be more attractive for investors. We therefore also control for GDP growth.

While the GDP related variables are standard in the literature and all have well-established definitions, there are many indicators of the other explanatory variables that can be used. In the case of openness and institutions, we used the literature findings to select among possible indicators. For the human capital indicator, we just selected those giving the best quality of the fit (as measured by the Adjusted R^2). Given the definition of the explanatory variables, all coefficients (except the fixed effects and β_3) are expected to be positive.

For infrastructure we used the percentage of paved roads in total roads. Some authors use telephone lines per 1000 inhabitants to explain FDI. The problem with using this variable to explain FDI is that one cannot separate causes from effects. Many of the countries under consideration have privatized their telecom sector and sold some parts of it to foreigners. In this case, the causal interpretation is not clear. It might be that FDI caused the number of phones (especially mobiles) to increase and not that phones attract FDI. Moreover, when one looks at the data, the series of phone numbers is exploding, increasing from 0 to several millions over ten years or so. Even when divided by population, the variable poses problems during estimation.

The traditional indicator of openness (i.e. exports plus imports divided by GDP) is likely to depend on FDI, which makes it endogenous and not suitable as an explanatory variable. This is why some economists constructed alternative indicators of openness. An openness index provided by Sachs and Warner (1995) combines information on tariff and non-tariff barriers, the Black Market Premium and the control on exports. Another indicator due to Frankel and Romer (1999) is calculated as the ratio of imports plus exports to GDP from which the "Natural Trade Openness" of the economies is deduced. The "Natural Openness" is estimated using a simple gravity model taking into account the size and the distance of the markets of the countries concerned. Sometimes exports of oil and mining products are also deduced. However, these indicators are available only up to the mid-1990s. It is beyond the scope of the present work to extend them to 2009. We, therefore, use the indicator of openness published by Economic Freedom Network (Gwartney et al. 2010) called "Freedom to trade internationally". It is available annually since 2000 and each 5 years since 1970 and covers around 140 countries.

To assess the impact of the quality of institutions, we use alternative indices. The first one assesses the "investment profile" of a country. It is published by the PRS Group in the International Country Risk Guide (ICRG). The index is the sum of three basic indices assessing three distinct dimensions of the formal environment of FDI: contract viability,

profit repatriation, and payment delays. It ranges from zero to 100, higher values indicating a better environment. The second index is more specifically meant to assess the formal protection against the misbehavior of directors that a country offers investors. It appears in the Doing Business database published by the World Bank, and comes from a survey of corporate and securities lawyers. More precisely, it focuses on the position of people who can approve related-party transactions, whether immediate disclosure of the transaction to the public, the regulator or the shareholders is required. The index ranges from 0 to 10, with higher values indicating greater disclosure.

All the variables are drawn from the World Development Indicators except openness and institutions.

To test whether formal and informal rules interact, we complement the previous specification by the following one:

$$\text{Log}(FDI_{it}) = \beta_{0i} + \beta_1.\text{Log}(GDP_{it}) + \beta_2.\text{GDP Growth}_{it} + \beta_3.\text{Log}(\text{GDP per capita}_{it}) + \beta_4.\text{Log}(\text{Infrastructure}_{it}) + \beta_5.\text{Log}(\text{School}_{it}) + \beta_6.\text{Log}(\text{Openness}_{it}) + \beta_7.\text{Log}(\text{Institutions}_{it-1}) + \beta_8.\ \text{Log}(\text{Trust}_i) + \beta_9.\text{Log}(\text{Institutions}_{it-1})*\text{Log}(\text{Trust}_i) + \eta_{it} \quad (2)$$

Trust is the standard trust index. It is simply the share of survey respondents in a country who reply affirmatively to the standard question "In general, do you think most people can be trusted?" which has been asked in a number of surveys since the late 1950s. The trust data employed in this paper essentially derives from the five waves of the World Values Survey (Inglehart et al. 2004), but are supplemented by data from the 1995 and 2003 LatinoBarometro, the 2001-2004 Asian and East Asian Barometers, the 2001-2007 AfroBarometer and the 2002-2004 Danish Social Capital Project.[1] We consider that social trust does not vary significantly in the medium term. Indeed, Bjørnskov (2007) suggests that social trust scores, in general, are very stable over time. Moreover, Uslaner (2008), Guiso et al. (2008), and Tabellini (2008) document a strong correlation between present day trust levels of second and third generation immigrants in the US and that of their family's country of origin. While some countries are only observed in one period, others are observed in several waves of each survey. For the latter, we averaged all available observations.

By interacting formal institutions and trust, we let the marginal impact of formal institutions be a linear function of trust, and vice versa.[2] Moreover, the sign of the coefficient of the interaction term, β_9, will signal the nature of the relation between the two variables. If, as expected, the coefficient of institutional quality, β_7, is positive, then a positive β_9 will signal that formal institutions and trust are complements. If β_9 is negative, then they will be substitutes.

4. Empirical Results

In this section, we display the results of our empirical exercise. The sample covers the 1984-2009 period and 30 countries with ICRG, and the 2006-2009 period and 28 countries with the Doing Business index. We start with the result of a baseline model estimating the direct effect of formal regulations on FDI inflows. We then move to the more general model where the effect of formal rules is allowed to interact with trust.

4.1 Baseline findings

Table 1 displays the estimates of the first model. The first two columns use the investment profile index of the ICRG report as the measure of formal institutions. The last two replace it

[1] We thank Christian Bjørnskov for letting us use his collection of data.

[2] From (2), one can easily show that $\frac{\partial Log(FDI_{it})}{\partial Institutions_{it-1}} = \beta_7 + \beta_9 Trust_i$.

by the investor protection index of the Doing Business database. Each model was first estimated using a panel model with fixed country effects, then with GMM.

The F-tests reported in columns (1.1) and (1.3) in the lower panel of Table 1 confirm that fixed effects were necessary in panel estimations with country effects. The over-identification tests show that the GMM estimate is not biased with the ICRG indicator but it is with the Doing Business indicator. In general, the adjusted R^2 are reasonably large, which is usually the case in fixed effects models. Control variables are intuitively signed or insignificant at accepted levels of statistical significance. Namely, whenever significant, the coefficient of GDP is positive. Larger countries therefore attract more FDI. The coefficient of openness is significantly positive in column (1.1) but significantly negative in column (1.3). Although we have no ready explanation for those conflicting results, one may remark that the latter is only significant at the ten-percent level while the former is significant at the one-percent level. Another surprising result appears in column (1.4), where the coefficient of openness is negative and significant at the ten percent level. All other coefficients are statistically insignificant.

We can now turn to the key variables of interest, namely the investment profile and investor protection. In columns (1.1) and (1.2), the coefficient of the investment profile index is strongly significant, at the one percent level of significance, and positive, with both fixed effects and GMM. Contract viability, an easy repatriation of profits, and short payment delays are therefore conducive to larger FDI inflows. The results obtained with the investor protection index are more puzzling, because their impact is statistically insignificant. However, this finding may be due to the fact that the relation is non-linear. We directly test this presumption in the next section.

4.2 Results of the interaction model

The results of the estimations of models where formal regulations are interacted with trust are reported in Table 2. In the first column, the measure of formal institutions is the investment profile index. In the second column, the investment profile is replaced by the investor protection index of the World Bank.

In both columns, the nul hypothesis of no over-identifying restrictions cannot be rejected at standard levels of significance. Both models are therefore correctly identified. In both specifications, the adjusted R^2 increases with respect to the corresponding specification without the interaction term of Table 1. This can be interpreted as evidence of the relevance of models where formal rules are interacted with trust.

In both regressions, the coefficient of GDP is positive and significant at the one percent level, and the coefficient of GDP per capita is negative and significant at the five percent level or beyond. The results for other control variables are more mixed. GDP growth exhibits a negative coefficient at the five-percent level in column (2.1) but is statistically insignificant in column (2.2). Openness appears statistically significant at the one percent level and significant in the second column but not in the first one. Finally, infrastructure is insignificant in the first column, but significantly negative in the second one, which is surprising.

We can now turn to the coefficients of interest, namely those of institutions, trust, and their interaction. In both columns, the coefficients of the level of institutions is positive and significant beyond the one percent level of significance. Moreover, the coefficient of trust is also positive in both columns. It is significant at the five-percent level in the first column and significant beyond the one percent level in the second one. Taken together, those results imply that the quality of both formal and informal institutions is conducive to larger FDI inflows. This is first time evidence of a positive effect of trust on FDI inflows.

Most of all, the key result of Table 2 is provided by the sign of the coefficient of the interaction terms between formal and informal institutions. In both columns, that coefficient is negative and significant beyond the five percent level of confidence. In other words the interaction of formal and informal institutions is negative.[3] To understand the meaning of that negative coefficient, one must recall that the marginal effect of formal institutions is equal to the coefficient of formal institutions, which is positive here, plus the trust index multiplied by coefficient of the interaction term, which is negative. Therefore, the marginal impact of formal institutions is larger for smaller values of trust. This is evidence that formal institutions are less necessary when social trust is high.

By the same token, the marginal impact of trust is the sum of the coefficient of trust, which is positive, and of the index of formal institutional quality multiplied by the coefficient of the interaction term, which is still negative. Accordingly, the marginal impact of trust will be smaller the higher the quality of formal institutions.

Taken together, those results therefore mean that in an informal institution, trust can substitute for the quality of formal institutions, and vice versa. Our results are therefore evidence that formal and informal institutions are substitutes when it comes to attracting foreign direct investment.

5. Concluding Comments

In the paper, we have analyzed the impact of formal regulations protecting foreign investors on inflows of foreign direct investment. We confirmed that those regulations can indeed contribute to increasing FDI inflows. We complemented those first results by analyzing the interaction of formal regulations with key informal institutions' generalized trust. We found that trust had an independent positive impact on FDI. Accordingly, countries with a culture of trust and trustworthiness are more able to attract foreign investors. Most of all, we found evidence that trust can be a substitute to formal FDI-friendly regulations. It means that countries with high-level of generalized trust may be as attractive as countries with better formal regulations but less trust. Put differently, countries with high trust and willing to attract FDI may economize on formal regulations because they can rely on their nationals' trustworthiness. The corollary of that result is that countries with low social trust willing to attract FDI should design their formal regulations with particular care.

[3] To summarize those results using the notations of equations (2), they mean that β_7 is positive while β_9 is negative.

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Table 1: Baseline Results

	(1.1) FE	(1.2) GMM	(1.3) FE	(1.4) GMM
Constant		-1.427		17.325
		(0.330)		(2.066)
GDP	1.310	0.761	-1.255	0.711
	(7.641)	(10.430) ***	(1.035)	(5.550)
	***			***
GDP Growth	1.066	-39.938	9.436	28.241
	(0.745)	(1.900)	(3.776)	(2.522)
		*	***	**
GDP per capita	0.506	-0.874	4.851	1.150
	(1.158)	(3.599) ***	(1.303)	(4.118)
				***
Infrastructure	-0.279	0.017	2.208	-0.298
	(0.871)	(0.070)	(0.698)	(1.434)
Schooling	0.956	0.357	1.208	-4.245
	(2.138)	(0.373)	(0.402)	(2.471)
	**			**
Openness	2.029	-1.165	-6.857	-1.779
	(5.351)	(1.063)	(1.927)	(1.597)
	***		*	
Investment profile $_{t-1}$	0.559	6.697		
	(3.472)	(5.562)		
	***	***		
Investor protection $_{t-1}$			0.271	-0.099
			(0.607)	(0.110)
Fixed effect test-P value	0.00		0.00	
Over-identifying restrictions (P-value)		0.232		0.004
Adjusted R-squared	0.82	0.25	0.95	0.51
Number of observations	462	462	73	73

Notes: Absolute t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 2: Interaction of Formal Regulations and Trust (GMM)

	(2.1)	(2.2)
Constant	-45.690	0.589
	(2.686) ***	(0.051)
GDP	0.725	0.765
	(6.768) ***	(4.924) ***
GDP Growth	-0.765	0.051
	(2.285) **	(0.506)
GDP per capita	-0.848	-1.010
	(2.062) **	(1.946) *
Infrastructure	-0.204	-0.990
	(0.239)	(2.387) **
Schooling	2.678	-1.773
	(1.423)	(0.907)
Openness	2.320	7.516
	(1.555)	(3.370) ***
Trust	1.686	0.370
	(2.274) **	(3.875) ***
Investment profile $_{t-1}$	21.508	
	(2.339) **	
Investment profile $_{t-1}$*Trust	-0.834	
	(2.348) **	
Investor protection $_{t-1}$		4.628
		(4.596) ***
Investor protection $_{t-1}$*Trust		-0.197
		(3.649) ***
Test of over-identifying restrictions (P-value)	0.26	0.14
Adjusted R-squared	0.28	0.61
Number of observations	417	70

Notes: Absolute t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1.