Unpacking the effects of governance on the activities of MNCs: Evidence from U.S. imports

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Abstract

Multinational corporations are the dominant actors in international trade; their production strategies involve a complex set of activities in multiple locations around the world. Democratic governance affects MNCs' investment and procurement strategies. Yet democracy is a multidimensional phenomenon; to assess its impact on the sourcing strategies of MNCs we need to simultaneously look at how those institutions affect firms' incentives to trade with related parties or at arms' length. The decision to integrate production is motivated by firms' sensitivity to holdup problems associated with their sourcing strategies. As holdup concerns increase firms are likely to value more strongly those institutional features in partner countries affecting the enforceability of contracts. Using U.S. Census data we evaluate the effect of democratic governance on both the presence of US MNC affiliates abroad and the share of related party to total trade. We rely on indices of democratic governance from different sources, which allow us to isolate the two main institutional features affecting investment and contractual risks: liberal democratic practices, and the strength and independence of the judiciary. Aggregate measures of democratic governance conflate these effects. We find that democratic governance is positively correlated with MNC presence, but negatively correlated with the extent to which MNCs procure from its affiliates. We provide evidence that this effect is driven by contract enforcement and judicial independence, and is stronger for less contract-intensive activities. Institutional crises affecting the judiciary, on the other hand, have a stronger impact on related party trade, particularly in sectors with contract-intensive activities.

Keywords: foreign direct investment, intrafirm trade, outsourcing, contract enforcement, political institutions

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1 Introduction

Firms increasingly "offshore" the production of parts, components and other inputs to businesses overseas, exploiting differences in relative prices across countries (Helpman, 1984; Hanson, Mataloni, and Slaughter, 2005). Multinational corporations (MNCs) stand out as the central actors in the current era of globalization of production. Cross-border transactions of intermediate inputs, goods and services are by and large performed by multinational firms. Over eighty percent of U.S. imports, for instance, are mediated by multinational corporations, and fifty percent of U.S. imports are classified as intrafirm trade (Bernard, Jensen, and Schott, 2009). MNCs invest abroad to exploit relative differences in factor and input prices, or to service local markets; and MNCs also engage in trade with non-related suppliers. Sourcing inputs and final goods from abroad are a function of two concomitant decisions: whether to import from related parties (intrafirm trade), which requires setting up a subsidiary abroad, a process usually defined as vertical foreign direct investment, or whether to import from third parties (arms' length trade).[1] These sourcing choices, in turn, are affected by changing conditions abroad. In this paper we focus on a specific set of political conditions: institutional development in foreign countries resulting in better contract enforcement and good governance.

We argue that given the prominent role of multinational firms in global trade, understanding how institutions abroad affect sourcing choices and the volume of imports requires analyzing trade and investment under a common theoretical framework. Firms trading in the global economy have to identify potential suppliers and enter into contractual relationships of different levels of complexity with them. Firms, usually the most productive ones, could choose organize those transactions under a common governance structure. The choice

[1]Vertical FDI precedes intrafirm trade, as headquarter firms establish an ownership interest in foreign affiliates from which they subsequently import. See Pinto and Weymouth (2016).

to procure from independent suppliers or from affiliated parties, which requires investing abroad, is affected by fixed costs associated with setting up an affiliate, the variable costs of production, and a myriad of transaction costs. Depending on the relative incidence of these different costs on their bottom line firms may choose to establish a subsidiary abroad for production purposes; in other cases, it is more cost effective to import from unaffiliated suppliers. Uncertainty and risk play an important role in procurement and investment decisions. One source of risk results from the potential of opportunistic behavior –or hold up– by partners and suppliers. To mitigate this holdup problem firms may choose to internalize production, by setting up an affiliate abroad. Setting up an affiliate, in turn, subjects firms to another source of holdup associated with political risk (Henisz, 2000).

Our argument draws on recent theoretical and empirical contributions in international economics literature, which identify firms as the central actors in international trade (Helpman, 2006; Bernard et al., 2007; Helpman, Melitz, and Yeaple, 2004), as well as on the classical transaction costs literature, which emphasizes on the hurdles associated with defining, monitoring and enforcing economic transactions (Coase, 1937; Williamson, 1985; Hart and Moore, 1990). The combination of these two literatures provides a powerful framework for analyzing firms' decisions to procure goods and services in the market or to internalize those transactions. Under that theoretical prism we revisit the debate on the effect of institutions on the determinants of foreign investment and sourcing choices of U.S. firms. Institutional development is likely to affect sourcing decisions by lowering the expected costs associated with political risk in partner countries (Jensen, 2003; Li and Resnick, 2003; Jensen et al., 2012; Wellhausen, 2015; Johns and Wellhausen, 2016). Yet good governance—in the form of rule of law and better contract enforcement—creates tradeoffs between direct investment and arms' length procurement abroad.

We argue that when assessing potential holdup problems associated with their sourcing strategies, firms place different weights on institutional characteristics of partner countries that reduce political risk. Better institutions would result in lower costs to investing

abroad. Yet, when deciding whether to source from a related party or at arms' length firms are more likely to be affected by the functioning of the judiciary and enforceability of contracts, one of the several dimensions associated with institutional development (Staats and Biglaiser, 2012; Jensen et al., 2012). Better institutions in this regard lower the need to set up and maintain an affiliate abroad, as arms' length transactions are more secure.

To illustrate our argument consider the role of institutions affecting property rights protection, one of the prominent attributes of good governance. Securing property rights through contract enforcement reduces the risk of investing abroad (Jensen, 2003; Li and Resnick, 2003). At the same time better contract enforcement reduces the the risks of contracting out with third parties. Hence, better contract enforcement and property rights protection enviroment makes investment more likely; yet better contract enforcement makes arms' length transactions more cost effective, reducing the incentives to invest abroad as firms can now contract out a larger number of inputs and intermediate goods. The tradeoff varies with the contract intensity of the sourcing activities: in high contract intensive sectors, where the incompleteness of contracts raises firms' sensitivity to the hold up problem, better contract enforcement would be a stronger determinant of entry into the foreign market, but have a more limited impact on the intensity of intrafirm trade. At lower levels of contract intensity, on the other hand, we should expect better contract enforcement to result in a increasing reliance in arms' length trade. These tradeoffs have been overlooked in the extant literature, which analyzes trade and investment in isolation, and hence misses the substitution effect between intrafirm and arms' length procurement.

Using data on democratic governance from different sources we identify the three main components of democracy that are likely to affect investment risk: electoral competition; liberal democratic practices; and rule of law and contract enforcement. Previous research conflates these dimensions by relying on aggregate measures of governance. We evaluate the effect of these different dimensions of governance on the presence of U.S. MNCs and on the intensity of intrafirm and arms' length imports as recorded in U.S. Census data.

The data allow us to test for affiliate presence and intensity of trade related activities while controlling for industry characteristics that may also be associated with FDI and intrafirm trade. Moreover, the structure of the U.S. Census data allows us to disaggregate by contract intensity of the activity where the exchanges occur, and isolate the effect of institutional conditions such as better contract enforcement on these different activities. The Census data on trade activity is an improvement over alternative sources used in the empirical literature on the political economy of foreign investment, which relies on aggregate investment flows and stocks derived from balance of payments statistics (Kerner and Lawrence, 2014).

We find that aggregate measures of democratic governance are indeed positively correlated with MNC presence. The effect, however, is driven by sectors with "contract-intensive" investments, where firms have a stronger incentives to internalize transactions. We also find that aggregate measures of democratic governance are negatively correlated with the extent to which MNCs procure from its affiliates, but this effect is weaker. We provide evidence that this effect is driven by liberal democratic governance and by better contract enforcement, which are central determinants of trade and investment decisions. The positive impact of the contract enforcement environment on intrafirm trade weakens in more contract-intensive activities. The results are robust to the inclusion of country and year fixed effects, which control for annual changes to the host country political and economic environment. Using a subsample of data on trade between the U.S. and its Latin American partners we further explore the impact of institutional conflict affecting the strength and independence of the judiciary. We find that institutional conflict is negatively associated with MNC affiliate presence and with the volume of U.S. imports. The marginal effect of judicial crises is stronger for intra-firm trade, particularly in the most contract-intensive activities. The net effect is reflected in lower shares of intrafirm imports from countries experiencing institutional crises.

The paper proceeds as follows. The next section places our paper in the literature, develops our theoretical framework and derives testable hypotheses. We then introduce the

data and our empirical strategy, and report the results of our empirical models of vertical affiliate presence and intrafirm trade flows. The final section concludes.

2 Institutional determinants of intrafirm trade

Recent technological and political developments have created incentives for global integration of production strategies. Lower barriers to trade, reduced transportation and communication costs, enable firms to break down their production processes and expand their sourcing strategies from foreign countries (Helpman, 1984; Baldwin, 2006). While economic incentives for offshoring production are well-understood, they are not able to explain all of the intra-industry and temporal variance in firms' global production activities.

Democratic governance in partner countries is likely to affect MNCs' investment and procurement strategies. Yet democracy is a multidimensional phenomenon; how we measure democracy influences the direction and intensity of these effects. Different attributes of democratic governance have differential effects on investment and contractual risk. Enlarging the franchise, for instance, motivates elected officials to cater to broader interests, but could reduce incentives to save and invest. Protection of property rights, on the other hand, promotes investment, but also renders arms' length transactions more secure, making investing abroad less cost effective. Hence, to assess the impact of political institutions on the sourcing strategies of MNCs we need to simultaneously look at how those institutions affect firms' incentives to trade with related parties or at arms' length.

Political economy explanations of FDI examines how political conditions abroad affect the risks associated with foreign investment (Henisz, 2000; Jensen, 2003; Li and Resnick, 2003; Jensen, 2008; Pinto and Pinto, 2008; Jensen et al., 2012; Pinto, 2013; Wellhausen, 2015). Much of this work highlights the fixed costs of establishing and managing an affiliate abroad, and the ways in which strong institutions help to secure those investments against expropriation. Among the institutional features conducive to investment, the literature

focuses on democratic constraints on the executive and property rights in reducing investment risk (Li and Resnick, 2003; Jensen, 2003, 2008; Wellhausen, 2015).[2] While these contributions provide important insights on the effect of institutions on the location of foreign direct investment, they cannot account for changes in the extent to which firms rely on related party or arms' length trade.[3]

Theoretical and empirical developments aimed at explaining the boundaries of the firm in the global economy would suggest a more ambiguous prediction about the role of politics on sourcing decisions (Helpman, 1984; Melitz, 2003; Helpman, Melitz, and Yeaple, 2004; Helpman, 2006; Bernard et al., 2007). Better contract enforcement, for instance, would make arms' length transactions more secure, leading to lower intrafirm trade shares (Grossman and Rossi-Hansberg, 2008; Bernard et al., 2010). Thus, while better quality institutions reduce the costs of setting up an affiliate, they may lower transaction costs and make arms' length trade more appealing, resulting in lower intrafirm trade shares. This ambiguity has been overlooked in the literature (Pinto and Weymouth, 2016).

The focus on firms highlights the importance of analyzing the role of contract enforcement on the transactions involved in trade and investment activities. We combine the insights of the trade theoretic literature with conjectures associated with the transaction costs literature (Coase, 1937; Williamson, 1985). A long line of research in this tradition examines how the inherent incompleteness of contracts and the relationship-specificity of investments shape the costs of transacting on markets as opposed to within the boundaries of the firm. Vertical FDI implies incurring in costs associated with setting up and managing

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tingency, exacerbating tradition holdup problems (Coase, 1937; Williamson, 1985; Grossman and Hart, 1986; Hart and Moore, 1990). Vertical integration may reduce the risk of holdup, when unforeseen contingencies arise. Incomplete contracting would, thus, have important implications for firm offshoring choices (Antràs, 2003), and may help explain the differential effect of institutional development on the degree to which firms rely on arms' length or related party trade as their sourcing choice.

2.1 Contract intensity, contract enforcement, and sourcing choices

Cross-border transactions of intermediate inputs, goods and services are by and large performed by firms. These firms have to identify potential suppliers and enter into contractual relationships of different levels of complexity with them. The choice to procure from independent suppliers or from affiliated parties, which requires investing abroad, is affected by fixed costs of setting up the affiliate, the variable costs of production, and a myriad of transaction costs. Uncertainty and risk affect these costs, and hence play an important role in procurement and investment decisions. One source of risk results from the potential of opportunistic behavior –or hold up– by partners and suppliers. To mitigate this holdup problem firms may choose to internalize production, by setting up an affiliate abroad. Setting up an affiliate, in turn, subjects firms to another source of holdup associated with political risk (Henisz, 2000). Political risk, thus, plays an important role in the choice to setup an affiliate abroad. Institutional development affects the political risk profile faced by MNCs, making investing abroad more appealing.

The most productive firms are able to afford the extra costs of setting up a vertical subsidiary abroad. Under certain circumstances productive and less productive firms alike find it more cost effective to import from unaffiliated suppliers. Conditions affecting the costs of setting up and managing an affiliate and the costs of procuring and enforcing contracts can affect the value of choosing to import from a related party or from a third party. Hence,

we argue that the effect of institutional development, advanced in the extant literature, is more likely to operate primarily on the probability that a vertical affiliate will be present, a pre-requisite for intrafirm trade. Yet good quality institutions may reduce the incentives to source from related parties since arms' length contracts become more enforceable. Firms operating in contract-intensive activities prefer to integrate vertically abroad, which explains why intrafirm trade shares are higher in those sectors (Nunn and Trefler, 2013). More reliable contract enforcement institutions in partner countries, on the other hand, will result in lower reliance on related party trade, particularly for activities in less contract intensive sectors (Bernard et al., 2010): independent firms are able to sell to the U.S., and even MNC and their affiliates source some of their activities locally potentially leading to higher sales back to the U.S.. Identifying this tradeoff is our central contribution: in order to assess the impact of political institutions on the sourcing strategies of MNCs we need to simultaneously look at how those institutions affect firms' incentives to trade with related parties or at arms' length.

Given that transaction costs play a central role in sourcing decisions –including vertical investment and the extent to which sourcing transactions are internalized– firms are likely to place a higher weight on institutional features affecting the enforceability of contracts. Hence we can explore the effect of institutional development on U.S. trade and investment by looking at the composition of imports. Aggregate measures of democratic governance conflate these effects. Political instability, on the other hand, is likely to affect sourcing decisions by disrupting economic activity in partner countries. Attacks on the courts increase uncertainty about contract enforceability, reducing incentives to expand production and investment. MNC affiliates are more likely to be sensitive to this source of uncertainty affecting property rights' protection and contract enforcement created by institutional crises. This uncertainty results in delays in investment decisions and potentially the pull out from the foreign market by MNCs, resulting in a drop in sales to the U.S., particularly in less contract intensive activities.

In the next section we present three hypotheses derived from this theoretical framework. In the empirical section of the paper we use U.S. Census import data, which discriminate between arms' length and related party trade, to evaluate the effect of democratic governance on both the presence of US MNC affiliates abroad and the share of intrafirm to total trade. We rely on indices of democratic governance from different sources, which allow us to isolate the two main institutional features affecting investment and contractual risks: liberal democratic practices, the strength and independence of the judiciary, and institutional crises.

2.2 Empirical implications

We argued that the quality of political institutions in partner countries has dissimilar effects on affiliate presence and on MNC activities, which are reflected on the level of imports that occur within vertically integrated firms. Institutional development mitigates political risk, making investing abroad more appealing. The effect should be stronger for firms operating in sectors where the specificity of investment is high, and contracts are incomplete and harder to enforce. In the empirical section we explore the following empirical implication of this link:

Hypothesis 1: Better contract enforcement in a partner country increases the probability of the presence of an affiliate; the effect scales with contract intensity of the sector.

Better contract enforcement is also likely to mitigate the risks of contracting out with third parties. Yet better contract enforcement and judicial independence can result in lower reliance on related party trade, as contracts become more secure and enforceable, mitigating the need to incur in the costs of setting up and managing affiliates abroad. Hence institutions that result in better contract enforcement make arms' length transactions relatively more cost effective, and reduce the incentives to invest abroad as firms can contract out a larger number of inputs and intermediate goods.

Hypothesis 2: Better contract enforcement in partner countries lowers the proportion of related party to total imports from that country.

The tradeoff identified in Hypothesis 2 is likely to be stronger in exchanges involving contract intensive activities, where firms are sensitive to hold up concerns and problems associated with incompleteness of contracts. Institutional features associated with independence of the judiciary and better contract enforcement are likely to be more beneficial to firms operating in activities that rely more heavily on relation-specific investments and transactions of inputs where contractual concerns loom large, leading to the following empirical implication:

Hypothesis 3: The impact of contract enforcement on the share of related party to total imports scales with the contract intensity of the sector.

We further explore an additional proposition regarding the impact of institutional crises on the enforceability of contracts, which will be reflected in a drop in vertical investment and sales, particularly high contract intensity. Our empirical strategy relies on highly disaggregated industry-level trade data from the U.S. Census Bureau. The Census Bureau records for all U.S. merchandise trade whether parties conducting trade transactions are related or not.[4] Exploiting this fine grained industry-level import data allows us to analyze how institutional features in partner countries interact with industry characteristics to shape firms' offshoring decisions (Jensen, Quinn, and Weymouth, 2015; Pinto and Weymouth, 2016). These data provide an advantage over the sources used in published work on MNCs' activities, which is constrained to some degree by its reliance on aggregate FDI flows derived from balance of payments statistics (Kerner and Lawrence, 2014).

[4]The U.S. is one of the few countries to differentiate between related party and arms'-length transactions. See Bernard et al. (2010) and Nunn and Trefler (2013).

3 Empirical Strategy

To analyze the impact of domestic institutions in partner countries on U.S. sourcing strategies (including affiliate presence, related party imports, and arms' length imports), we follow the literature on the boundaries of firms. The disaggregated import data provided by the U.S. Census Bureau (2002-2014) allows us to analyze the affiliate presence and imports by sectors (NAICS four-digit industry level). We expand on Pinto and Weymouth (2016) to test the impact of different components of democratic governance across sectors, which we characterize in terms of contract intensity of their activities. We first assess the effect of institutional development on vertical affiliate of the MNC—also known as the extensive margin of trade—which is a pre-requisite for related party imports. Using Census data we create a dummy variable taking the value of 1 if positive U.S. intrafirm imports in industry i from country j, and 0 otherwise (Bernard et al., 2010). Next, we analyze the impact of institutional development on the share of the intrafirm to total imports in industries in which vertical affiliates are present. Our empirical specification regresses measures of vertical affiliate presence and intrafirm import shares from industry i originating in country j in year t on country-level characteristics X_j, industry-level contract-intensities Z_i.

$$Y_{ijt} = \beta_i + \sigma_j + \tau_t + \alpha X_{jt} + \beta Z_{it} + \epsilon_{ijt}. \tag{1}$$

We fit logistic models to assess the association between political institutions and vertical affiliate presence, and a multilevel regression panels for the intrafirm to total import shares. All models include country, year and sector fixed effects to control for unobservable characteristics of the units, and common shocks. To assess the interactive effect of institutions and contract intensity, we include the term $X_j \times Z_i$, and fit a random effects model, where $\beta_i = \beta + u_i$:

$$Y_{ijt} = \beta_i + \sigma_j + \tau_t + \alpha X_{jt} + \beta Z_{it} + \gamma(X_{jt} \times Z_{it}) + \epsilon_{ijt}. \tag{2}$$

Our main independent variables capturing institutional development are from the Varieties of Democracy (V-Dem) project (Coppedge et al., 2015), database version 6.2. We use V-Dem's measure of liberal democracy in addition to the usual Polity index of democracy. Our theoretical expectations suggest that a measure of political institutions that emphasizes aspects more pertinent to the enforcement of contracts between parts would better capture foreign trade dynamics. Therefore, it seems reasonable to use a measure of liberal democracy, as it focuses on "constitutionally protected civil liberties, strong rule of law, an independent judiciary, and effective checks and balances that, together, limit the exercise of executive power" (Coppedge et al., 2015, 47).

To isolate the effect of contract enforcement and of the independence of the judiciary we use two of the components of the V-Dem index of liberal democracy: a measure transparent legislation and predictable enforcement, and a measure of judicial strength. The V-Dem project uses a Bayesian latent variable model to generate cross-national and cross-temporal data from expert surveys (Pemstein et al., 2015). The measures of predictable law enforcement is coded from experts' responses to the following question: "Are the laws of the land clear, well-publicized, coherent (consistent with each other), relatively stable from year to year, and enforced in a predictable manner?" The judicial strength variable is an index measuring the extent to which the courts acts in an independent fashion, the executive respects the constitution, and the executive complies with higher and lower court rulings (Coppedge et al., 2015). We contrast these indices of contract enforcement and judicial constraints to traditional aggregate measures of democratic governance from the Polity project. Using the measures of predictable law enforcement and judicial overview allows us to test on the dimension of institutional development that is likely to affect contract enforcement and rule

of law, as opposed to electoral institutions. The disaggregate measures are better proxies of contract enforceability on which our argument is based. Controls variables including GDP and GDP per capita are from the Penn World Table Database. We enter them into the estimations in natural log form. Table 1 presents summary statistics.

Table 1 about here

3.1 Institutional Determinants of Vertical Affiliate Presence

As discussed above, import decisions are the result of two concomitant choices: whether to source from a related party or from third parties. These sourcing choices are documented in U.S. Census import data. We hypothesized that institutions can affect sourcing choices in different ways, which affect the share of imports where seller and buyer are related: better enforcement makes investing abroad more likely by reducing investment risk; at the same time better enforcement makes arms' length transactions more secure. Assessing the impact of institutional development abroad on sourcing choices requires analyzing the relationship between institutions and vertical FDI, and the impact of institutions on the volume of intrafirm trade. To test for the first link, we fit logistic models where the dependent variable is a dummy of vertical affiliate presence in a country and industry. Table 2 shows the results from these models using a sample for the years 2002 to 2014 for which the Census data is available. Model 1 suggests that democracy measured using the Polity "regime" score is associated with a higher probability of presence of foreign affiliates, consistent with Pinto and Weymouth (2016). In Model 2 we replace Polity for the measure of liberal democracy from V-Dem, which seems to be unrelated with the presence of affiliates; a similar result is obtained when using a measure of Transparent laws with predictable enforcement (Model 3).

Table 2 about here

Next, we analyze the empirical content of hypothesis 2, namely whether the impact of democratic governance varies across sectors. Consistent with Pinto and Weymouth (2016) columns 4 and 5 show that sectors characterized by higher levels of contract intensity are more sensitive to the quality of democratic institutions. In model 4 we use the Polity score, whereas in model 5 we use the V-Dem liberal democracy measure and in model 6 we use the V-Dem measure of Transparent laws with predictable enforcement. The results suggest that the measure of liberal democracy is more strongly correlated with affiliate presence, and that the effect scales with contract-intensity, captured by the measure developed by Nunn (2007). Figure 1 presents the marginal effect of Polity 2 on vertical affiliate presence along the range of contract-intensity, with 90 percent confidence intervals based on model 4 in Table 2. The effect is indistinguishable from zero up in sectors in the lower third of the distribution of the measure of contract intensity. Figure 2, showing the marginal effects of liberal democracy in model 5, and Figure 3 showing the marginal effects of law enforcement, respectively, turn significant along the contract intensity being negative and significant while contract intensity is lower than .35, and becoming positive for sectors with higher contract intensity. Compared to Pinto and Weymouth (2016), the measure of liberal democracy, and in particular, the measure of law enforcement seem to have a stronger impact on the presence of foreign affiliates than the aggregate democracy score from Polity, which shows a modest effect, reflected in figure 1

Figures 1, 2, and 3 about here

Additionally, to explore the substantive effect of government institutions on MNC sourcing strategies, Figure 4 shows the predicted probabilities of affiliate presence along the level of law enforcement at the lowest and highest level of contract intensity. The predicted probability for an vertical foreign investment at the highest level of law enforcement is more than twice higher for contract-intensive sectors than for those with characterized for low contract intensity.

3.2 Institutions, Contract Enforcement and Intrafirm Trade

In Table 3 we analyze the impact of democratic governance and contract enforcement on the share of related party imports to total imports in sectors with positive affiliate presence. We fit multilevel regressions with fixed effects for countries and years, and random effects for industry. The samples used in Table 3 include data from 2002 to 2014. Model 1 shows that the Polity measure of democracy is negatively associated with related party imports, but the relationship is not statistically significant at conventional levels. In Model 2 we replace the Polity measure of democracy for the V-Dem measure of liberal democracy; in Model 3 we use the measure of transparent laws with predictable enforcement. The results in model 2 and 3 are negative, consistent with hypothesis 2, yet the relationship is not statistically significant.

Table 3 about here

We move next to analyze whether the impact of better contract enforcement varies across sectors depending on the contract intensity of the transactions involved, as predicted in hypothesis 3. To test this prediction we add the measure of contract intensity derived by Nunn (2007), and interact this variable with different measures of institutional development. Column 4 shows that the Polity does not seem to affect the share of related party trade in contract intensive industries. Figure 5 shows no effects of political institutions measured as Polity scores. Figure 6 liberal democracy conditioned on affiliate presence, shows a positive although no significant effect across the lowest levels of contract intensity sectors, up to a level of .33 in the contract intensity scale. After that point, the relation is negative, and become significant the 90% confidence intervals at .7 in the contract intensity scale. This result is very similar in the direction and coefficient while using the measure of Law enforcement and predictable laws as Figure 7 shows. Substantively, as contract intensity of a particular sector increases, the effect of law enforcement on intrafirm imports decreases as it is shown in the adjusted predictions shows in Figure 8.

Taken together our results that institutions associated with democratic governance have differential effects on sourcing activities. Better contract enforcement seem to reduce the costs of establishing and managing affiliates; this effect is stronger for sectors with higher contract intensity activities. When MNCs are present in partner countries, in the other hand, better institutions and governance is positively correlated with higher shares of related party trade in sectors with lower contract intensity in sectors.

Figures 5, 6, 7, and 8 about here

3.3 Institutional Crises and sourcing activities

To evaluate the empirical content of our conjecture that the strength and independence of the judiciary are the central institutional features affecting sourcing strategies, we introduce a measure of inter-branch institutional crises. This variable is obtained from the Institutional Crisis in Latin America (ICLA) database, and is available for a subsample of 18 countries in Latin America until 2008 Helmke (2015).

Using the ICLA data we create a dichotomous variable takes the value of 1 for any year when the executive challenges the composition or independence of the courts. [5] As stated by the author "such crises can simply involve the survival in office of pivotal political actors, i.e., the president, or, more abstractly, may refer to changing the median voter in the court or the legislature" (Helmke 2015, Ch. 2, 2). The database reports 44 attacks against the courts 33 of them initiated by the executive and 11 by the legislature. This operationalization allows us to differentiate inter-branch crises that do no affect the judiciary or the rule of law such as those targeting the executive or the legislature. We expect MNC affiliates, especially those in contract-intensive sectors, to be more sensitive to institutional crises affecting the judiciary, independent of the level of domestic institutional development.

[5] Similar results are achieved when we aggregate executive and legislative challenges against the judiciary

Since the main interest of this study is to assess the conditional effect of institutional crises on sourcing activities in different sectors of the economy, we include an interaction between the judicial crisis dummy and Nunn's measure of contract intensity. In Model 1 in Table 4 we use the share of intrafirm imports to total imports as the dependent variable. As in the previous tests, we present the differences across two dimensions of institutional development: aggregate measures of democracy (Polity scores), and inter-branch crises targeting the judiciary. Model 1 shows that the Polity score has a negative impact on the share of intrafirm trade, but the coefficient is non-statistically significant, except for Ln armslength trade in model 4.

Table 4 about here

Similarly model 2 shows no effect of institutional crisis, in which the judiciary is targeted by the executive, on the share of related party to total imports. Figure 9 further shows that when judicial independence is challenged, the share of intrafirm trade falls, but only in contract intensive sectors. To further probe this result we disaggregate the dependent variable into its two components: the volume of arms' length imports (in natural log) and the volume of related party imports (also in natural log). Results are presented on Table 4: Models 4–6 show that institutional crises affecting the strength and independence of the judiciary decreases the volume of arms' length trade in contract intensive sectors as it is shown in Figure 10. Models 7–9 reproduce the previous tests using the volume of related party trade as the dependent variable. As contract intensity increases, the negative marginals of the effect of institutional crises on related party trade (Models 7–9) are stronger than the marginals for arms' length trade (Models 4–6). Figure 11 present these results in graphical form for the interactive models 6. Finally, Model 10 analyzes whether institutional crises affect the probability that a vertically integrated affiliate will be present. Figure 12 shows that the effect of institutional crisis targeting the judiciary is in the expected direction, crises reduce incentives to invest, but the coefficient does not attain statistical significance.

In combination these results suggest that institutional crises have a strong negative impact on the presence and activity of U.S. MNCs, particularly in sectors characterized by high contract intensity.

Figures 9, 10, 11 and 12 here

4 Conclusion

The offshoring of production is a defining feature of globalization, and a controversial political topic. Yet the ways in which the political conditions in host countries influence the location and intensity of global production has received scant academic attention. In this paper, we have attempted to fill the void by examining trade between multinational corporations and their global affiliates–intrafirm trade–to better understand the political determinants of vertical FDI and the global fragmentation of production.

Our paper both complements and extends the literature on international trade and investment by examining the political forces that shape global production networks. We develop an argument aimed at explaining the impact of institutional quality on the sourcing strategies, including trade and investment, of U.S. firms. Trade and investment decisions are highly coupled in the current era of globalization. The analysis of the effect of institutions on economic activities should simultaneously look at how those institutions affect firms' incentives to trade with related parties or at arms' length, as any condition affecting the cost of trading has an impact the relative value of setting up a vertical affiliate abroad. Using U.S. Census data on related party imports we are able to test the effect of democratic governance on both the presence of US MNC affiliates abroad and the share of intrafirm to total trade, capturing the most relevant sourcing choices.

We also argued that among the many dimensions associated with democratic governance, firms are more likely to be sensitive to the enforceability of contracts and rule of law.

We rely on indices of democratic governance from different sources, which allow us to isolate the two main institutional features affecting investment and contractual risks: liberal democratic practices, and the strength and independence of the judiciary. Aggregate measures of democratic governance conflate these effects.

Our preliminary results suggest that democratic governance is indeed positively correlated with the presence of a vertical affiliate of U.S. MNCs abroad. Yet democratic governance also seems to be negatively correlated with the extent to which MNCs procure from its affiliates. The evidence suggests that this effect is driven by contract enforcement and judicial independence, and is stronger in less contract-intensive activities. Finally, using a subsample of Latin American countries we produce evidence that U.S. MNC affiliates seem to be sensitive to institutional crises where the executive or legislative branches undermine the strength and independence of the judiciary. These type of institutional uncertainty affects MNC presence and the volume of elated party trade, particularly in sectors with contract-intensive activities.

Table 1: Summary Statistics

Variable	Obs	Mean	td. Dev.	Min	Max
Affiliate Presence	180,753	0.436	0.496	0	1
Intrafirm Imports share	121,215	22.558	30.156	0	100
GDP (log)	168,202	11.591	1.885	5.817	16.658
GDP per capita (log)	168,202	9.153	1.139	6.021	12.003
Polity 2	167,022	4.803	5.878	-10	10
V-Dem Liberal democracy	171,329	0.653	0.241	0.031	0.981
V-Dem Law enforcement	171,329	0.955	1.361	-2.642	4.293
ICLA Court crisis	13,111	0.102	0.303	0	1
Contract Intensity	172,998	0.505	0.205	0.106	0.979
OECD	180,753	0.153	0.360	0	1

Table 2: Determinants of Vertical Affiliate Presence, 2002-2014

	M de 1	M de 2	M de 3	M de 4	M de 5	M de 6
GDP	-0.165	-0.116	-0.111	-0.146	-0.083	-0.065
	(0.132)	(0.136)	(0.136)	(0.142)	(0.146)	(0.147)
GDP e ca a	0.381***	0.297**	0.283**	0.402***	0.310**	0.278**
	(0.126)	(0.125)	(0.126)	(0.136)	(0.136)	(0.137)
OECD	0.079	0.106*	0.103*	0.075	0.104	0.099
	(0.059)	(0.060)	(0.061)	(0.061)	(0.064)	(0.065)
P	0.016***			-0.029*		
	(0.004)			(0.017)		
V-De L be a de c ac		0.047			-1.602***	
		(0.127)			(0.437)	
V-De e ce e			0.020			-0.281***
			(0.019)			(0.073)
C ac I e				1.139**	-0.474	1.062*
				(0.563)	(0.706)	(0.569)
P C ac I e				0.089***		
				(0.031)		
V-De L be a de c ac C ac I e					3.169***	
					(0.815)	
V-De e ce e C ac I e						0.612***
						(0.138)
Ob e a	161443	159216	159216	154611	152480	152480
R- a ed	0.314	0.316	0.316	0.332	0.335	0.335
N. NAICS c e	109	109	109	104	104	104

Note: The dependent variable is dummy variable equal to 1 if there are positive related-party imports at the 4-digit NAICS industry for all country-industry pairs with positive imports; 0 otherwise. A constant is estimated but not reported. Unless otherwise stated, fixed effects by country and year, robust standard errors, adjusted for clustering at the 4-digit NAICS, are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 3: Determinants of Intrafirm Imports Shares, 2002-2014

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
GDP (log)	-5.686**	-7.518***	-7.637***	-5.886**	-7.945***	-8.122***
	(2.511)	(2.616)	(2.620)	(2.633)	(2.744)	(2.748)
GDP per capita (log)	7.201**	8.510***	8.705***	7.974***	9.616***	9.847***
	(2.805)	(2.901)	(2.910)	(2.939)	(3.040)	(3.050)
OECD	2.317**	2.578**	2.572**	2.576**	2.853**	2.855**
	(1.070)	(1.137)	(1.137)	(1.103)	(1.172)	(1.172)
Polity2	-0.136			-0.047		
	(0.087)			(0.106)		
V-Dem Liberal democracy		-1.128			5.845*	
		(2.820)			(3.218)	
V-Dem enforcement			-0.346			0.811*
			(0.377)			(0.441)
Contract Intensity				18.376***	27.411***	20.651***
				(4.931)	(5.260)	(4.942)
Polity x Contract Intensity				-0.146		
				(0.105)		
V-Dem Liberal Democracy x Contract Intensity					-13.315***	
					(2.468)	
V-Dem enforcement x Contract Intensity						-2.154***
						(0.390)
Observations	74262	71946	71946	70367	68150	68150
Naics	109	109	109	104	104	104
ICC Naics	.1488315	.149478	.1495083	.1192309	.1205073	.1204389
Akaine Inf. Crit.	700799.2	678921.7	678921	665268	644288.3	644286.5
Bayesian Inf. Crit.	702282.8	680455.4	680454.7	666761.3	645831.2	645829.4

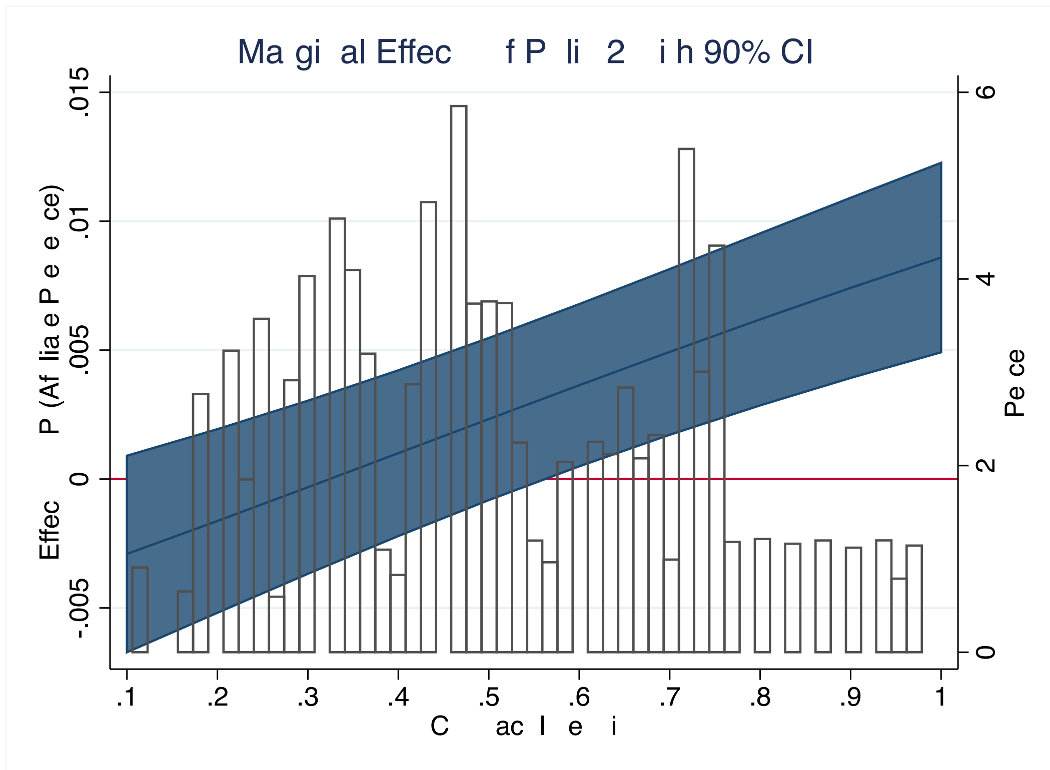
Note: The dependent variable is the share of related party imports to total imports for all country-industry pairs with positive related-party imports, 2002-2014. The model are multilevel regression with fixed effects for country-year and random effects at the 4-digit NAICS. A constant is estimated but not reported. Standard errors are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 4: Institutional Crises and Vertical Imports in Latin America: 2002-2008

	Intrafirm trade share			Ln arms'length trade			Ln related party trade			Aff. Presence
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
GDP (ln)	-77.939***	-74.013***	-73.269***	-2.231	-3.016	-2.549	-3.546	-4.362	-4.012	-0.430
	(24.779)	(24.028)	(25.004)	(1.883)	(1.824)	(1.877)	(3.112)	(3.084)	(3.187)	(1.524)
GDP per capita (ln)	70.798***	65.726***	65.313**	1.761	2.475	1.958	3.608	4.448	4.261	-1.083
	(24.987)	(24.135)	(25.290)	(1.900)	(1.856)	(1.913)	(3.066)	(2.998)	(3.087)	(1.489)
Polity	-0.833			0.151**			0.127			
	(0.830)			(0.064)			(0.083)			
Court Crisis		-0.874	6.178**		0.043	0.690**		0.061	1.782***	0.125
		(0.939)	(2.420)		(0.060)	(0.277)		(0.103)	(0.414)	(0.185)
Contract Intensity			16.328***			-2.247***			-1.028	0.855
			(4.388)			(0.780)			(0.852)	(0.653)
Institutional Crisis x			-14.406***			-1.333**			-3.452***	-0.213
Contract Intensity			(4.227)			(0.538)			(0.765)	(0.359)
Observations	10889	10889	10393	10777	10777	10296	7359	7359	7004	12611
R-squared	0.1473	0.1473	0.1615	0.2998	0.2997	0.3278	0.3459	0.0.3458	0.361	0.163
N. NAICS clusters	107	107	103	107	107	103	107	107	103	104

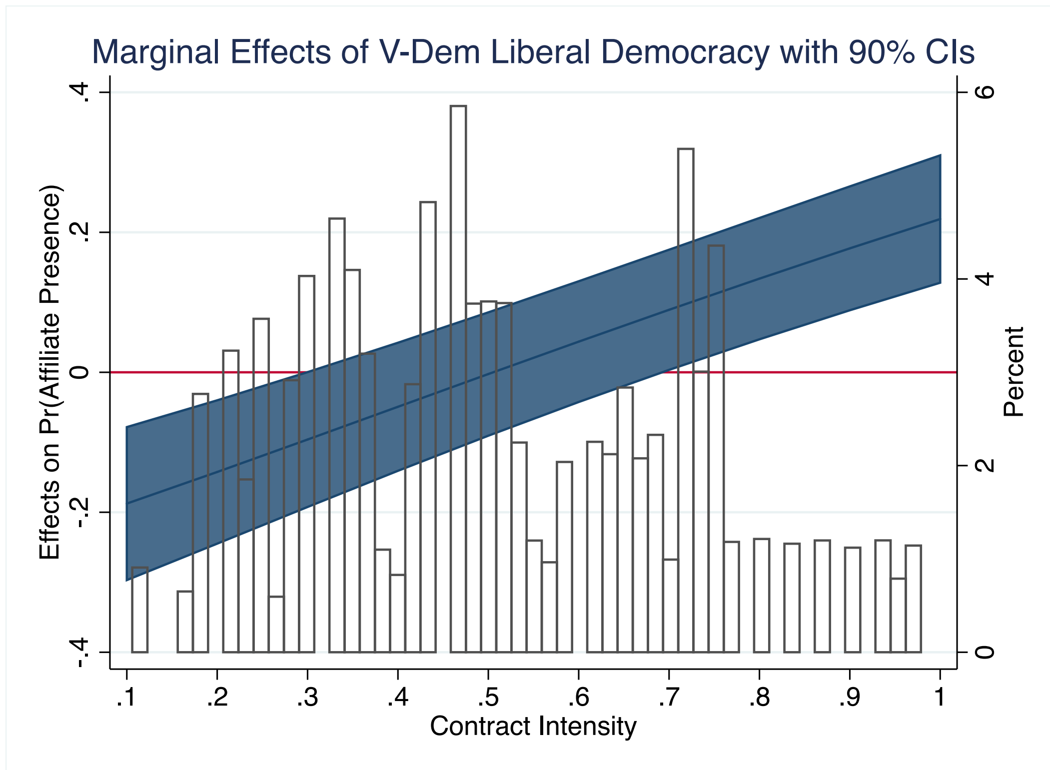
Note: The dependent variable in models 1-9 is the share of related party imports in total imports for all country-industry pairs with positive related-party imports, 2002-2008. In model 10, the dependent variable is a dummy variable equal to 1 if there are positive related-party imports at the 4-digit NAICS industry for all country-industry pairs with positive imports; 0 otherwise. A constant is estimated but not reported. Robust standard errors, adjusted for clustering at the 4-digit NAICS, are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Figure 1: Effect of Polity on Affiliate Presence



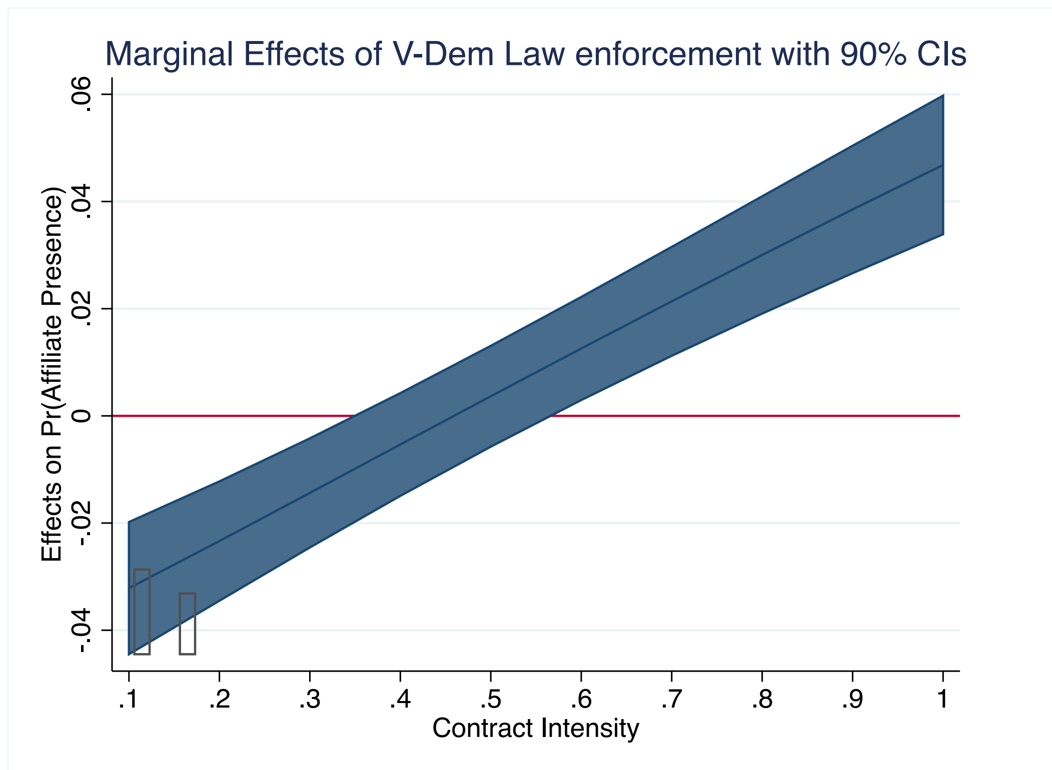
Average marginal effects and 90% confidence intervals, derived from estimates in Table 2, model 4.

Figure 2: Effect of V-Dem Liberal Democracy on Affiliate Presence



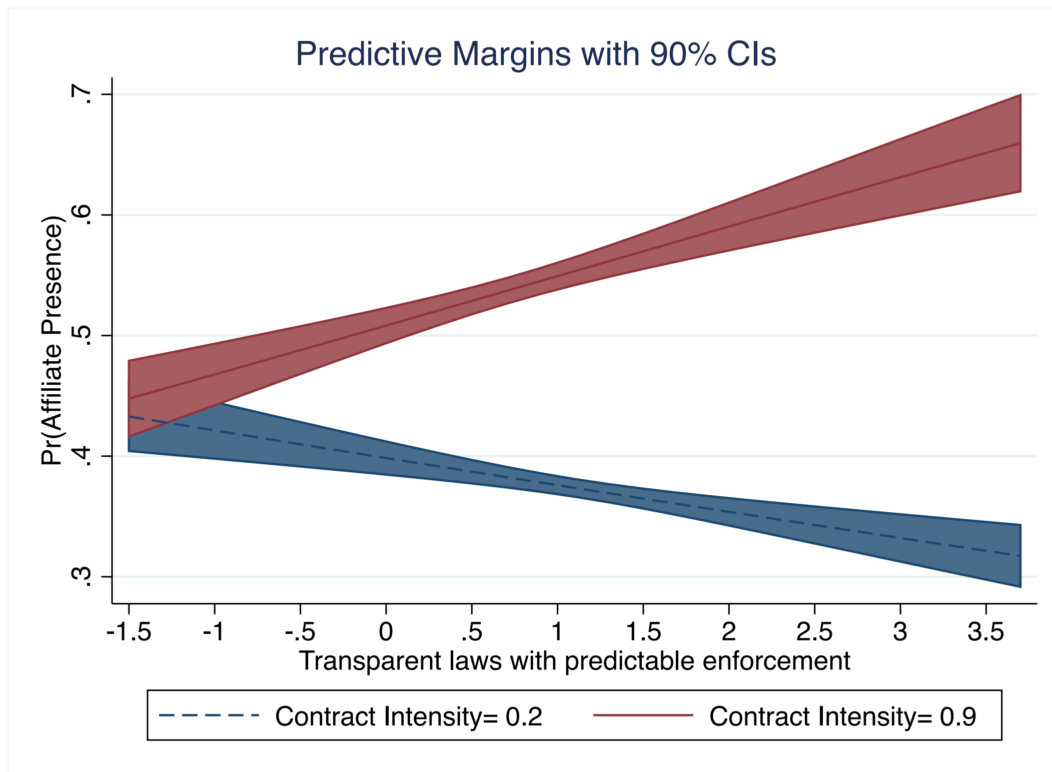
Average marginal effects and 90% confidence intervals, derived from estimates in Table 2, model 5.

Figure 3: Effect of V-Dem Law Enforcement on Affiliate Presence



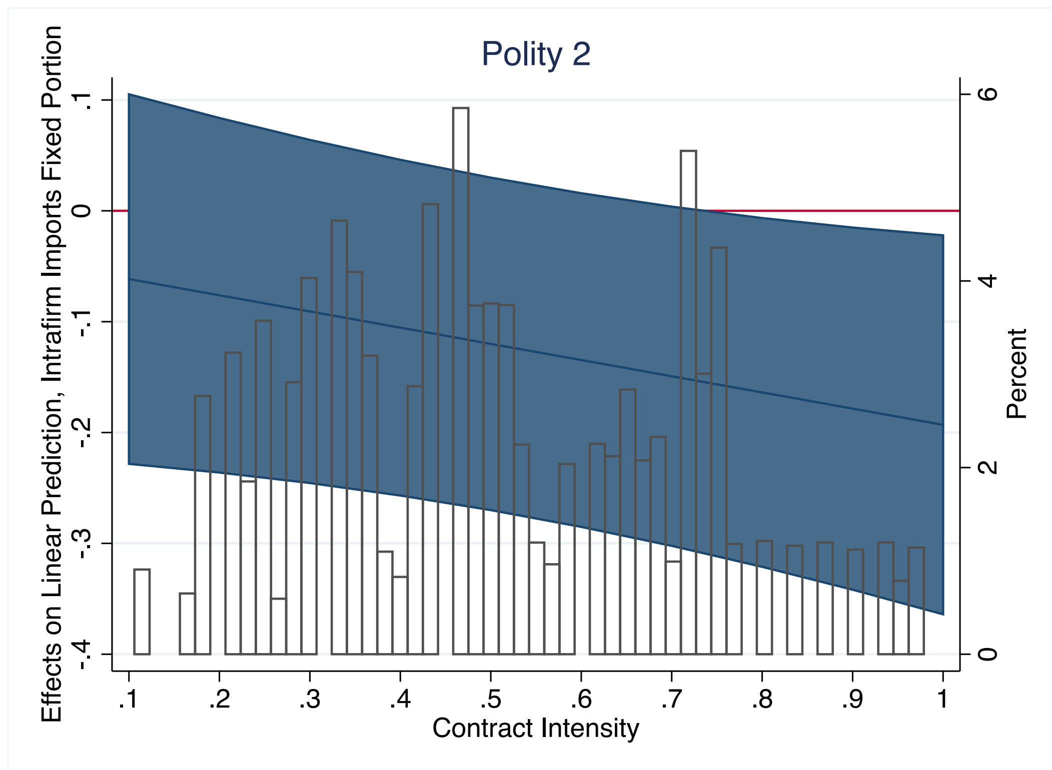
Average marginal effects and 90% confidence intervals, derived from estimates in Table 2, model 6.

Figure 4: Effect of V-Dem Law Enforcement on Affiliate Presence



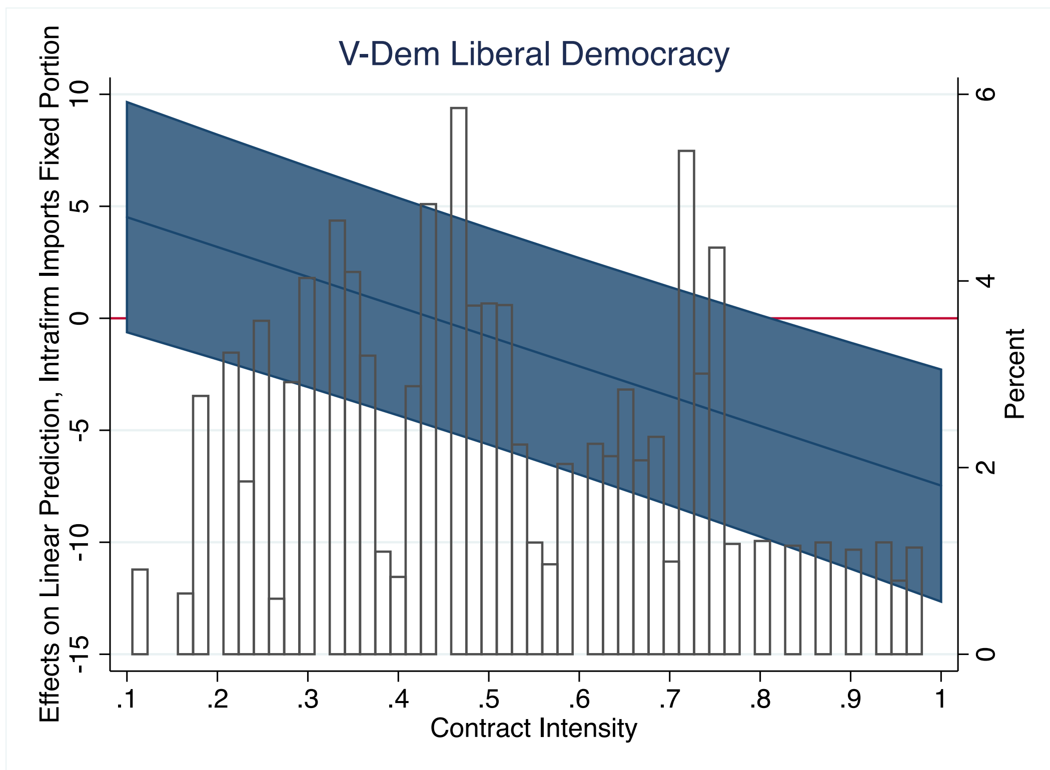
Predicted Probabilities for Affiliate Presence and 90% confidence intervals, derived from estimates in Table 2, model 6.

Figure 5: Effect of Polity on Intrafirm Imports Shares



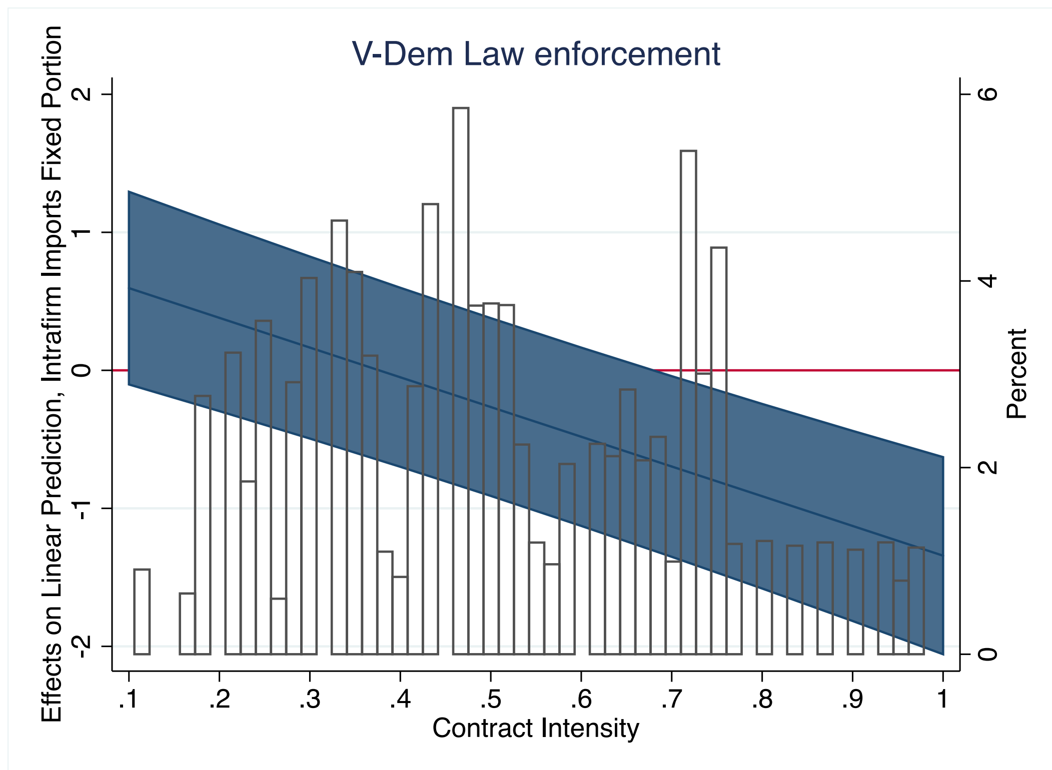
Average marginal effects and 90% confidence intervals, derived from estimates in Table 3, model 4.

Figure 6: Effect of V-Dem Liberal Democracy on Intrafirm Imports Shares



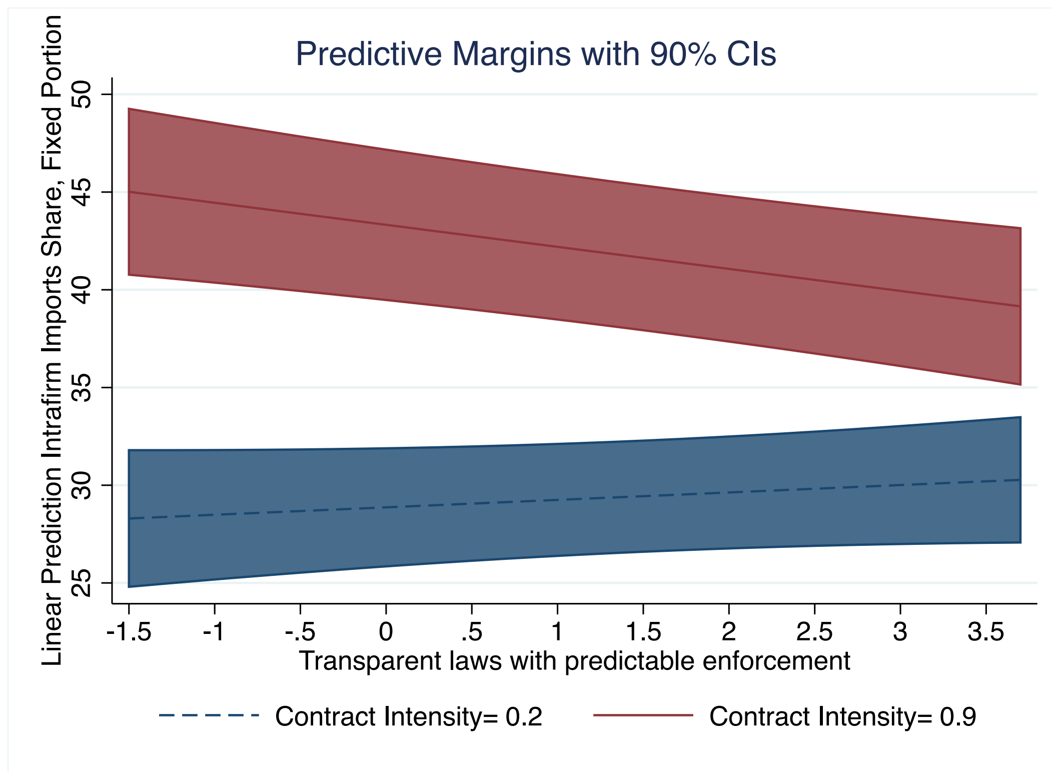
Average marginal effects and 90% confidence intervals, derived from estimates in Table 3, model 5.

Figure 7: Effect of V-Dem Law Enforcement on Intrafirm Imports Shares



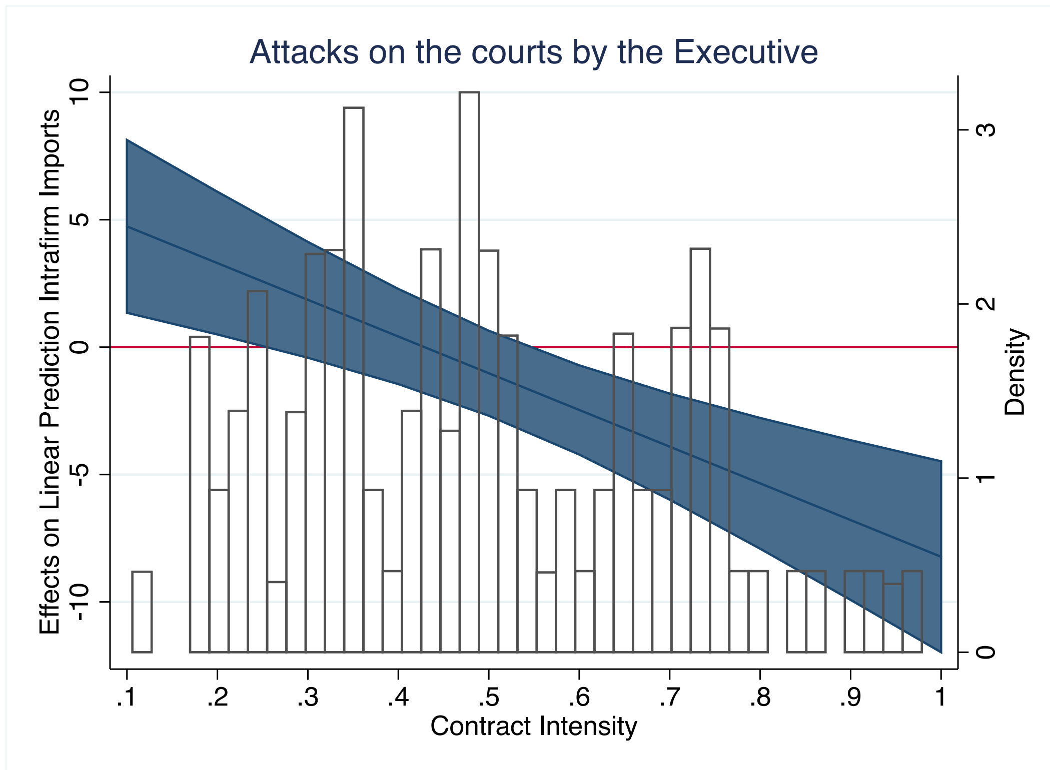
Average marginal effects and 90% confidence intervals, derived from estimates in Table 3, model 6.

Figure 8: Effect of V-Dem Law Enforcement on Intrafirm Imports Share



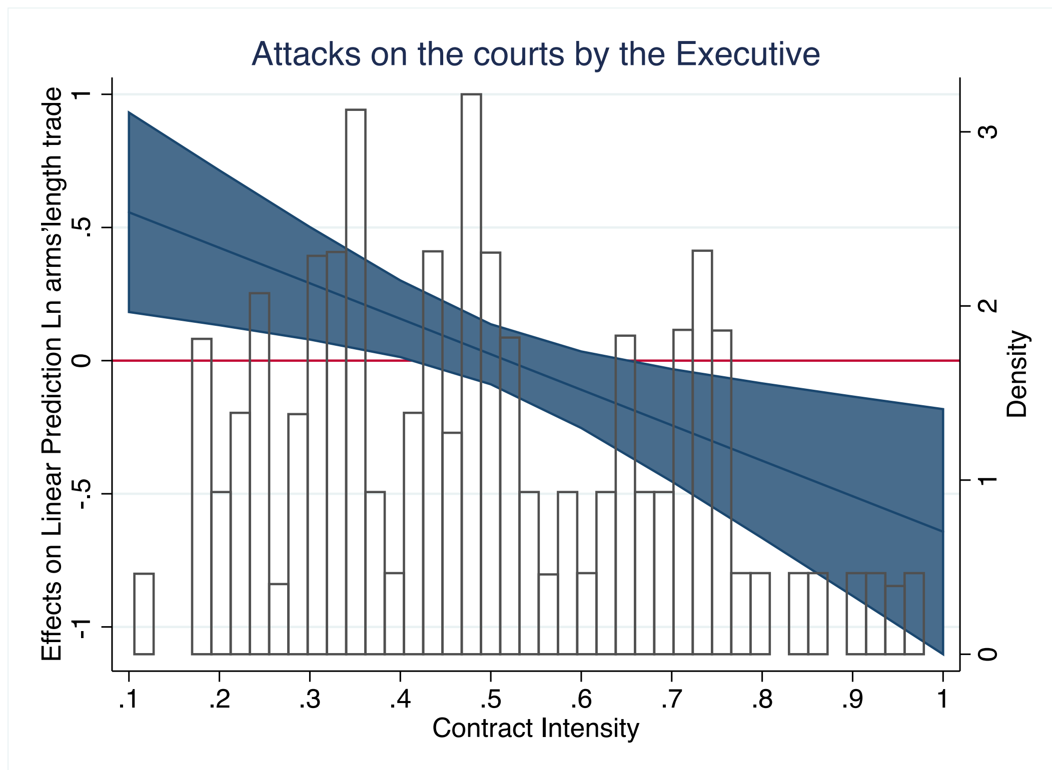
Linear Prediction of Intrafirm Imports Share and 90% confidence intervals, derived from estimates in Table 3, model 6.

Figure 9: Effect of institutional crisis in Latin America on Intrafirm Imports



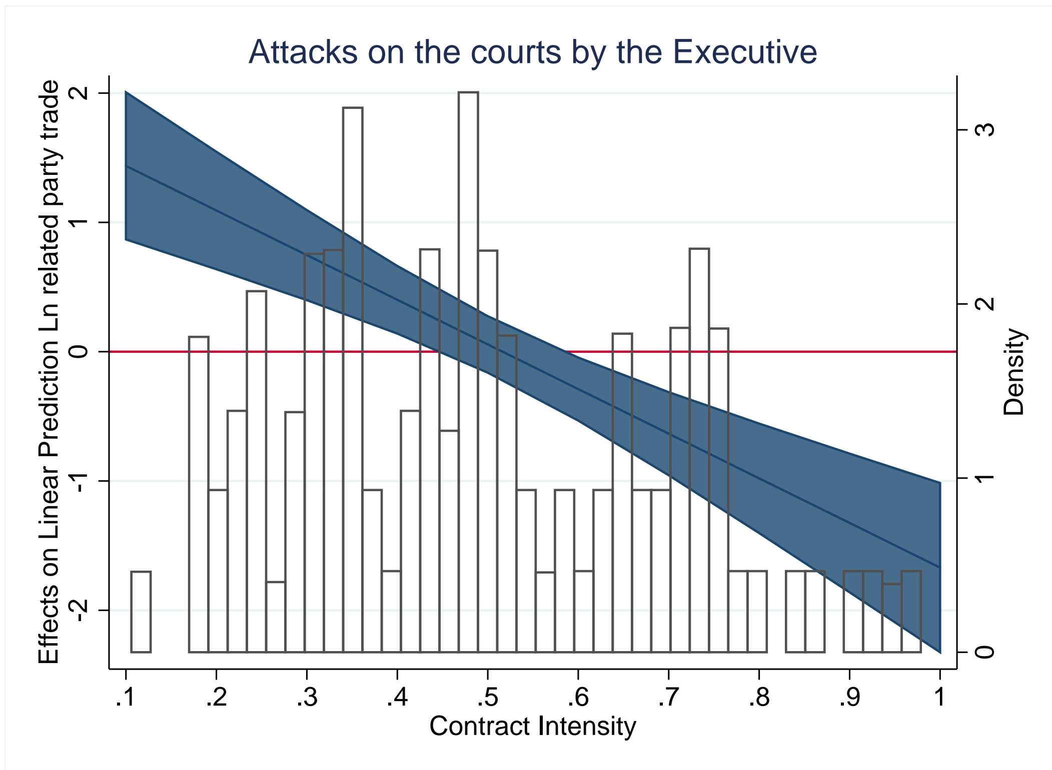
Average marginal effects and 90% confidence intervals, derived from estimates in Table 4, model 3.

Figure 10: Effect of institutional crisis in Latin America on Ln Arms' Length Imports



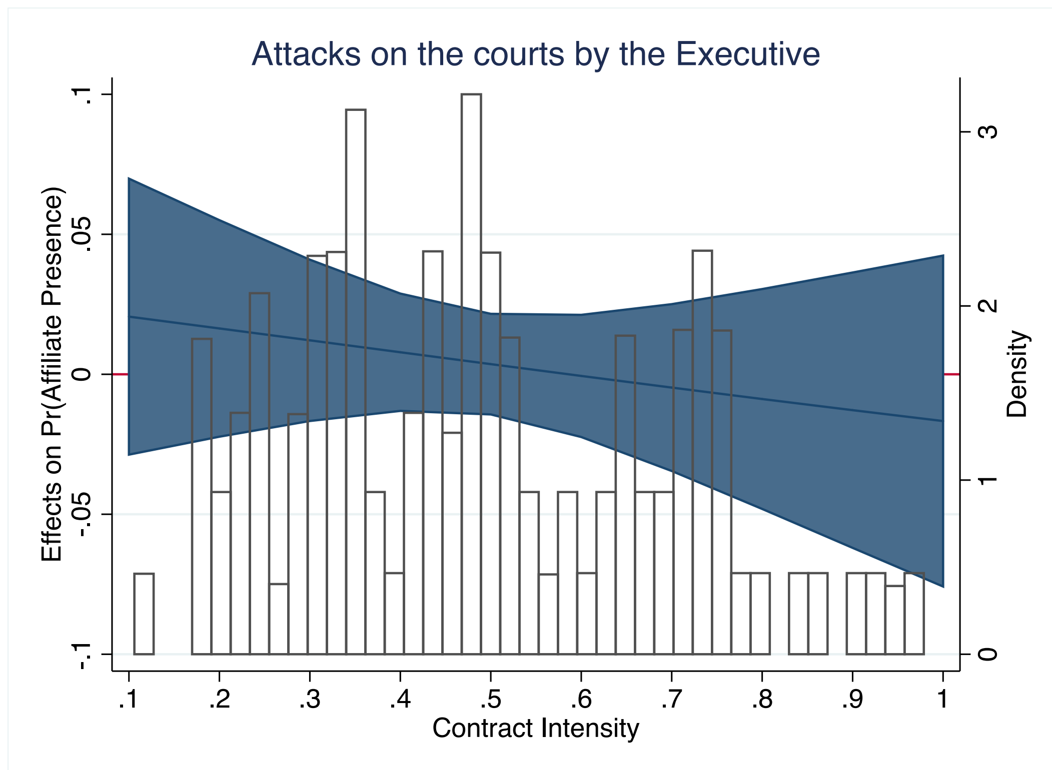
Average marginal effects and 90% confidence intervals, derived from estimates in Table 4, model 6.

Figure 11: Effect of institutional crisis in Latin America on Ln Related Parties Imports



Average marginal effects and 90% confidence intervals, derived from estimates in Table 4, model 9.

Figure 12: Effect of institutional crisis in Latin America on Affiliate Presence



Average marginal effects and 90% confidence intervals, derived from estimates in Table 4, model 10.

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