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COURTS AND RELATIONAL CONTRACTS

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ABSTRACT

Post-communist countries offer new evidence on the relative importance of courts and relationships in enforcing contracts. Belief in the effectiveness of courts has a significant positive effect on the level of trust shown in new relationships between firms and their customers. Well-functioning courts also encourage entrepreneurs to try out new suppliers. Courts are particularly important when specific investments are needed for a relationship to develop. While relationships can sustain existing interactions, workable courts help new interactions to start and develop.

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1. Introduction

Contracts are maintained both by invoking the law and through the incentives that come with interfirm relationships. When firms have ongoing dealings, the relationship itself can induce cooperation – the sanction for any deviation being the breaking off of the relationship and the cessation of the gains from trade. Where legal institutions are weak, bilateral relationships can substitute for the courts in supporting contracting. Relational contracting is strengthened if it is embedded in a social system, with third parties both helping to match the trading partners initially and joining in the sanctioning in the event of a breach of contract (Ellickson 1991, Greif 1993, Greif, Milgrom, and Weingast 1994). But where courts function, what is the role of relational contracting? And when relational contracting is effective, what do courts add?

Anecdotal evidence from the United States, in Macaulay's classic 1963 paper, shows that, even under an effective legal system, contracting relies not just on the courts but also on interfirm relationships (see also Galanter, 1981, Williamson, 1983, 1994). Relational contracts have an advantage over the courts in that the participants may have better information than any third party. A disadvantage of relational contracts, on the other hand, is that they might cause firms to stick with established relationships rather than working with new, untried partners, thereby creating barriers to entry. In this paper we quantify the relative role of the courts and relationships in supporting contracting between firms, and measure the role of the courts in lowering the entry barriers that relational contracting can give rise to.

An experiment in the interaction between the courts and relational contracting is offered by the transition of formerly planned economies of Eastern Europe and the former Soviet Union. The governments in these countries have attempted to build market-oriented legal systems to replace the bureaucratic controls of the old planned economy. At the same time, firms have been entering and developing new relationships among themselves, replacing the networks that broke down with the end of the planned economy (Blanchard and Kremer, 1997, Roland and Verdier, 1999). These countries have functioning but relatively weak court systems; cross-country indicators suggest that their courts are worse than in most developed countries but better than those in very poor countries. There is considerable variation both across and within our sample countries—Russia, Ukraine, Poland, Slovakia, and Romania—in the extent to which entrepreneurs believe the legal system can be used to enforce contracts. We use this variation to

examine how the courts affect contracting. We have three sets of results. First, relational contracting is the main form of contractual assurance for the firms in our sample; we empirically identify conditions under which relational contracting is effective. Second, entrepreneurs who say the courts are effective have measurably more trust in their trading partners, but the effect is mainly with new partners, not longstanding ones. Third, transaction costs are lower when courts are effective than when firms must rely solely on relational contracts, and firms are more likely to seek out new trading partners.

We distinguish two roles of the courts. A simple role is helping ensure bills are paid. A more complex role arises where the quality of goods is hard to verify and specific investments are needed. For such transactions, the courts can serve to clarify the parties' responsibilities in the event of a dispute, thus facilitating their day-to-day interactions and reducing the likelihood that disputes will arise. We find clear evidence that the courts are providing the former service, and some evidence that they are providing the latter.

Our bottom line, then, is that while informal relationships are the main basis for our firms' contracting, the formal institutions also foster contracting. Firms can have productive interactions even when the courts cannot be used to enforce contracts; but workable courts encourage firms to take on new partners. It is by making it easier for new firms to enter that having workable courts improves on relational contracting and boosts overall productivity. The courts are serving to foster efficient transacting even though, by comparison with those of Western Europe or the United States, they are quite imperfect.

2. Summary of Results

Firms' characteristics, and the actions they take, are difficult for other firms to observe (Wilson, 1985). A customer might or might not be dependable in paying its bills. A supplier might or might not be competent to produce goods of an acceptable quality and on time, and even if competent might or might not have incentives to do so. A firm can learn about its potential customers' and suppliers' reliability by making inquiries via a trade association, a social network, or other firms in the same line of business. It also learns about its trading partners through its experience in dealing with them. A firm can give a trading partner an incentive not to renege on a deal either by a legally enforceable contract (provided the legal institutions exist and the actions

in question are verifiable) or by the prospect that acceptable performance will be rewarded with profitable future business.

We examine relational contracts in a set of seller-buyer relationships and investigate the level of trade credit offered to customers. To offer trade credit is to trust that it will be repaid. Our survey ascertains how much firms trust each other in ongoing relationships. The questions about both beliefs and actions in our survey are straightforward, easy to translate, and contain important consistency checks. The survey methodology is designed to be replicable in both developing and developed countries.

We find that relationships are the basis of most of the transactions between firms (Sections 3 and 4). Entrepreneurs say disputes with trading partners are usually settled without third-party assistance. Relationships particularly support trade credit when the seller has obtained prior information about the customer. Having obtained information about the customer from other manufacturers is associated with about 15% more of the bill being paid with delay. If a family member or friend is the customer, about 15% more of the bill is paid with delay. We provide some new evidence that relational contracting operates after the two firms have had some experience in dealing with each other. Trust develops quickly. Customers pay 12 percentage points more of their bill on credit after only two months of trading. We also confirm that trade associations sometimes help with contracting. Those firms belonging to trade associations that provide information or arbitration services (about one-third of the sample) grant 4% more trade credit.

These results on interfirm relationships corroborate results from other countries with inadequate legal systems, such as Ghana and Vietnam (Fafchamps 1996, McMillan and Woodruff 1999b). More novel is our finding that the courts have a perceptible effect on the level of trust in relationships with customers. Our first main result is that entrepreneurs who say the courts are effective grant 5% more trade credit on average. More specifically, however, belief in the courts has a significant effect on trade credit for new relationships but does not appear to have any effect in longer lasting relationships. With trading partners with whom they are unfamiliar, firms rely on the courts, but with customary trading partners it is the relationship that shapes the transactions.

Helping to ensure bills are paid is a straightforward role for the courts. A more subtle way in which the courts can underpin transacting is in helping to ensure that the goods delivered are of adequate quality and in allowing specific investment to be undertaken. This presumes a higher level of sophistication in the courts, but it also places more stress on interfirm relationships. The characteristics of the goods exchanged are usually more easily checked by the buyer and seller than by a court. Where goods are complex and assets are specific, therefore, ongoing relationships are still more needed than where the only issue is that bills get paid. For such transactions, the parties have an added incentive to preserve continuity and to resolve disputes by themselves. Even in countries with well functioning legal systems, disputes typically reach the courts only when a relationship has come to an end (Macaulay, 1963; Galanter, 1981, Williamson, 1983, 1994). The main role of the courts, in this case, is to be the locus of ultimate appeal, delimiting and enforcing threat positions. Functioning courts make it harder for a seller to defect by producing substandard goods.

We use three measures of complexity of the goods traded. We define the goods to be complex if the supplier makes the good solely for our respondent; if our respondent has no alternative supplier for this input; or if the contract is written rather than oral. The fact that our firm is the sole customer for its supplier's output might mean the supplier has had to undertake specific investments to make the input, or it might merely be a symptom of the thinness of markets in these transition economies. Our data do not allow us to distinguish these two effects, but the distinction is not material: in either case the risk of reneging is larger than when there exist multiple suppliers. Similarly, the fact that our firm has a single supplier for an input might mean that specific investments are needed to make it, or it might reflect market thinness; either brings reneging risks. Written, rather than oral, contracts are used for complex transactions in which there is a need to write things down for the sake of clarity, as well as to help in proving a breach should a dispute arise.[1]

To examine the relative roles of relationships and the courts in supporting transactions in complex goods, we investigate the firms' relationships with their suppliers (Section 5). Trust in existing suppliers may make firms reluctant to purchase from new suppliers. Because buyers have more information about suppliers with whom they have had previous dealings, they are willing to pay more to an incumbent supplier than to one with whom they have never worked.

Higher switching costs of this nature result in barriers to entry, as new firms have a difficult time attracting customers and more productive firms gain market share more slowly (Klemperer 1995). Our second main result is that courts lower switching costs and thereby reduce entry barriers. We asked firms whether they would abandon their incumbent supplier if offered a 10% lower price by a new, previously unknown firm, and we use the answers to this question to estimate the determinants of switching costs. We find that switching costs are higher when the input is more complex and, by some measures, when the buyer is more certain about the quality and fit of the existing input. Members of trade associations also have lower switching costs. Even controlling for these effects, entrepreneurs who perceive the courts to be effective have significantly lower switching costs.

For the subset of transactions where the goods are customized to the buyer--rather than standard goods made to inventory--we find that buyers who say the courts are effective are significantly less likely to reject the new, lower-priced offer than those who say the courts are ineffective. Effective courts, by clarifying threat positions, generate extra confidence within complex transactions.

It follows that effective courts arguably have another efficiency-enhancing effect. By encouraging firms to undertake specific investments, the development of the courts changes the composition of economic activity, enabling more complex goods to be produced (Williamson, 1991). We cannot test for this effect in our data, but the result that, when the courts are effective, firms buying complex inputs are more ready to switch to new suppliers suggests that such a change has already begun in these countries.

The development of legal institutions, then, brings indirect efficiency gains, by lowering entry barriers, in addition to direct efficiency gains through strengthening confidence in contracts. We find that the main effect of courts is on the willingness to work with a new supplier at all. Courts do not affect the likelihood of severing established relationships. The main effect of belief in the court system is to encourage the formation of new relationships. These results suggest that even weak courts can have significant positive effects in encouraging innovation and entry.

3. Contract-Enforcement Mechanisms

We surveyed privately owned manufacturing firms with between seven and 270 workers in Poland (303 firms), Slovakia (308), Romania (321), Russia (269) and Ukraine (270). The survey, described in more detail in Johnson, McMillan and Woodruff (2000), was designed to find similar firms in similar cities in all five countries. Most of the surveyed firms are small, with 84% having fewer than 100 employees. Some were spun off from state-owned enterprises, others were started from scratch.[2] We adapted the survey methodology developed for Vietnam by McMillan and Woodruff (1999b), though that work did not focus on the relative importance of the courts and relational contracting, since the courts there were ineffective. The survey asked about the manufacturer's relationship with its oldest continuous customer and its newest customer, and its oldest continuous and newest supplier. We examine how cooperation in each of the four trading relationships is affected by the availability of the courts and relational contracting.

3.1 The courts

Our survey asked managers whether they believed the courts were effective in enforcing contracts with trading partners. We first asked whether the courts could hypothetically be used to enforce contracts with customers and suppliers, i.e., whether the firm could use the courts if a dispute arose, even if it had never actually had a dispute with a trading partner. More than two-thirds of entrepreneurs across the five countries say the courts can be used (see Table 1). The percentage is highest in Romania (87%) and Poland (73%) and lowest in Ukraine (55%). For comparison, when we asked entrepreneurs in Vietnam the same question, almost no one—just 9%—said the courts could be used (McMillan and Woodruff 1999b).

--Place Table 1 Here—

We also asked whether the firms have, in fact, been involved in a contractual dispute. Most (58%) said they had. Among those firms reporting at least one dispute, more than half in Russia and Ukraine and almost half in Poland said they used the courts in their most recent dispute with a customer or supplier. Courts were used in less than a third of disputes in Slovakia and Romania.[3] Romanian firms are most likely to say they can use the courts but least likely to

have used them. Polish firms, on the other hand, are less likely to say courts can be used but more likely to have used them.

Measuring the impact of courts on contracting is difficult. The incidence of disputes is not a good measure because with a very efficient court system (in which the court's decisions are predictable and there is a small but positive cost of going to the court), we should observe few disputes. For this reason we prefer the measure of whether entrepreneurs believe the courts could be used if a dispute arose, while acknowledging the obvious problems with such a hypothetical question. While this question is hypothetical, the theory of repeated games models just such beliefs, i.e., the relevant question is precisely not what the entrepreneur did last time he or she had a dispute, but what he or she believes would happen if there is a dispute in the future. In the regressions we also use the data on actual court use as an alternative measure to check the results obtained using the hypothetical measure.[4]

Our data on court effectiveness are roughly in line with those obtained for our countries in other studies. Indexes of the countries' legal environments for business show that all five countries have legal systems that function to some extent. The *Wall Street Journal*'s panel of investment professionals rated the countries according to an index of the rule of law at the end of 1997. Poland scored 9.0 on a scale of one to ten (with a higher score indicating stronger rule of law), Romania scored 6.4, Slovakia 6.2, Russia 5.4, and Ukraine 3.9 (*Wall Street Journal*, 1998). The EBRD's 1997 index of how commercial laws are being enforced and administered, based on a survey of lawyers in the region, scored Poland best (with "clear commercial laws that are supported by an effective court system"), Slovakia, Romania and Russia together in the middle (with "clear commercial laws not fully supported by the court system"), and Ukraine scored worst (with "commercial legal rules that are generally unclear and sometimes contradictory").[5]

Other firm-level surveys in these countries also find similar beliefs about the court effectiveness. Pop-Eleches (1998) finds that 67% of small retailers in Romania say they can use the courts for business disputes. Frye and Shleifer (1997) report that 45% of retailers in Poland respond similarly, roughly consistent with our findings, though they find more optimism among Russian retailers, with 65% saying they can use courts. Hendley, Murrell, and Ryterman (1999) find that 61% of Russian enterprises filed or threatened to file claims against delinquent customers in the previous two years, and 25% against suppliers. Hellman, Jones and Kaufmann

(2000) asked managers whether they were affected by the "sale of court decisions in commercial cases." Poland and Romania fare relatively well, with just 18% and 17% of firms saying that the sale of verdicts is a problem. Slovakia (25%), Ukraine (26%) and Russia (27%) fare somewhat worse. Thus our data on court effectiveness are consistent with what others have observed.

In our survey, why would firms within a given country vary in their assessments of the courts' effectiveness? They operate, after all, under the same laws. Within-country differences could arise in three ways. (a) The accessibility of the courts could be objectively different for different firms or for different entrepreneurs. There could be fixed costs either of using the courts or of investigating their use; larger firms would then be more likely to say the courts are usable. Younger entrepreneurs might adapt more quickly to the rapidly changing institutions in transition economies. (b) The perceived ability to use courts may be associated with unmeasured characteristics of the entrepreneurs interviewed that are unaffected by the actual status of the courts. Those with "a trusting nature" may be more likely to say courts can be used. (c) Entrepreneurs could differ in random ways in their perceptions of the courts' effectiveness; given the speed of change of these countries' institutions, some errors of perception are to be expected. Differences in responses arising from (a) and (c) imply real or perceived differences in the ability to use courts. To the extent that the within-country differences are explained by (a) and (c) and we include proxies for (a) as controls in the regressions, our regression coefficients will not be misestimated, provided the entrepreneurs act on their reported beliefs in their credit-granting decisions. A positive association between the stated ability to use the courts and higher levels of credit granted to customers can then be interpreted as an effect of the institutions on trust. Running regressions with the reported effectiveness of the courts as the dependent variable (see Appendix B), we find that, consistent with (a), belief in the courts is significantly more likely among managers who are younger and in larger firms.

Workable courts offer some assurance that debts will be paid. Our first hypothesis, therefore, is that firms that express faith in the courts will offer more trade credit. In the regressions to follow we test this, taking as our main measure of courts' effectiveness the answer to the question of could you use the courts if you had a dispute. Despite the hypothetical nature of this question, theory suggests it is a better measure than experience with courts, because courts

might be used less frequently the more effective they are. We will, however, use the question about actual court use as a check on the regression results.

3.2 Relational contracting

In countries lacking workable laws of contract, relational contracting is used in place of the law. Even in countries with sophisticated legal systems, however, relational contracting is needed, for the law does not work frictionlessly. The transaction costs of appealing to the law sometimes exceed the transaction costs of using relational contracting. Market participants have some advantages over judges in deciding whether commitments have been lived up to, as identified by Charny (1990). First, market participants are more expert than courts in monitoring other participants' conduct. Second, their decisions can be more nuanced than the binary decision of liability or no liability that the court must make. Third, they can consider information that cannot be introduced in court, such as impressionistic evidence about business trends or judgments about the quality of items sold. They can base their decisions on a firm's behavior over time, on probabilistic patterns that would not be admissible evidence in court. For these reasons, as Macaulay (1963) showed, courts are seldom used to resolve disputes between trading partners even in the United States, and using them generally marks the termination of the trading relationship.[6] Firms generally rely on relational contracting. We test four sets of predictions about when contracting can be supported by informal punishments.[7]

First, the most straightforward punishment is refusing to deal with the trading partner in the future. The threat of severing a relationship gains force if it is costly to find alternative trading partners (Kranton, 1996; Ramey and Watson, 1996). Firms work to sustain relationships to avoid searching for new trading partners. The first hypothesis to be tested, therefore, is that customers with higher search costs receive more trade credit.[8] We proxy the customer's cost of finding a new supplier, i.e., an alternative to the interviewed firm, by the number of competitors to the interviewed firm located near it (within 1 km). We expect to find that a larger number of competitors located nearby is associated with firms providing less credit to their customers.

Second, information is important in assessing credit risk. The business ability and competitive position of the customer, its reliability, and the level of its investments affect the likelihood of repayment. Entrepreneurs were asked how they first made contact with their oldest and newest customers. We are primarily interested in relationships arising from two different

types of information networks, which we refer to as social networks and business networks. Either of these networks may provide information about trading partners; either may also provide the ability to sanction trading partners by sullying their reputation within the network. If a firm initially learns about its customer from other firms in the industry or through family connections, it might be more willing to offer trade credit. The regressions also include two other variables representing information available at the start of the relationship, indicating information from banks or credit bureaus, and other miscellaneous sources of information. Each of these represents a small part of the sample. The remaining base group against which the coefficients are measured is relationships in which our manufacturer had no information about the customer at the start of the relationship.

Third, the history of the trading relationship might affect the level of trust. Cooperation might build up gradually, as the supplier learns through trading about the customer's reliability. By gradually increasing the amount of trade credit it offers, the firm might be able to sort fly-by-night firms from those with longer time horizons (Ghosh and Ray, 1996; Watson, 1995). The regressions will test the hypothesis that more trade credit is offered when the relationship is of longer duration.[9]

Finally, refusing to deal with the trading partner is most effective if the future profits from forgone trade are large enough to outweigh the current gains from not cooperating; this depends on the size of the discount rate or the frequency of the interaction. A hypothesis to be tested in the regressions to follow is that more trade credit is granted to customers that buy more frequently. This hypothesis must be treated with care, however, for the timing of purchases might not be exogenous but rather determined at the same time as the extent of trade credit.

In addition, trade associations are an alternative to using courts and may be complementary to reliance on relational contracts. In market economies such associations sometimes provide arbitration services for disputes involving their members (Bernstein, 1996; Woodruff, 1998). Almost half of the firms we surveyed are members of a trade association. Membership is highest in Russia and Ukraine, and lowest in Poland (see Table 1, row 4). Two-thirds of these firms (37% of all firms) say their association offers assistance in locating new trading partners and information on the reliability of existing or potential trading partners (thus helping relationships to develop), and/or arbitration of disputes with trading partners (thus

substituting for the courts).[10] We hypothesize that, because trade associations provide information about potential trading partners' reliability and help arbitrate disputes, membership in a trade association (a) increases the amount of trade credit a firm offers and (b) makes a firm more ready to switch to a new supplier.

Relational contracts and the courts also have implications for the costs of switching between suppliers (as we will discuss in Section 5).

4. Determinants of Trade Credit

From the discussion in Section 3, we expect the level of trade credit to be decreasing in the number of similar manufacturers located nearby and increasing in the duration of the relationship, use of information networks, and membership in a trade association. Controlling for these factors, we want to test whether belief in the effectiveness of courts has any effect on the amount of trade credit.

In this section we report regressions in which the percentage of the bill paid with delay is the dependent variable and our proxies for contract enforcement mechanisms are the independent variables. The survey was administered to 1471 firms, yielding 2942 potential manufacturer-customer relationships. Just over a quarter (27%) of the customers are state-owned enterprises, and about 7% are export customers located outside the manufacturer's country. We eliminate these relationships from the main sample because courts and networks may operate differently with these two groups of customers.[11] After eliminating these relationships and observations with relevant data missing, our sample is 1460 for most of the trade credit regressions.

--Place Table 2 Here—

The dependent and independent variables are summarized in Table 2. On average, more than half of the bill is paid with delay. Delayed payment is most common in Poland, where an average of 84% of the purchase price is paid with delay and 72% is paid more than a week after delivery, and least common in Russia, where only 11% of the purchase price is paid with delay and 3% more than a week later (Table 2). In the whole sample, 30% pay everything on or before delivery and 48% pay everything within a week after delivery. [12]

The percentage of the bill paid with delay is the outcome of both the supply of credit and the demand for credit. The reduced-form equation is:

$$TC_i = \alpha + \beta \mathbf{R_i} + \gamma \mathbf{S_i} + \delta \mathbf{B_i} + \phi \mathbf{D_i} + \mu_i \ , \quad (1)$$

where TC is the observed trade credit, $\mathbf{R_i}$ is a vector of variables characterizing the relationship, $\mathbf{S_i}$ is a vector of seller characteristics, $\mathbf{B_i}$ is a vector of buyer characteristics, $\mathbf{D_i}$ is a vector of industry and country dummies. The subscripts i represent the (i=1…n) buyer-seller pairs in the sample. Our focus is the willingness of sellers to grant credit, given repayment uncertainties represented by the vector of relationship and seller characteristics. A single seller may have two relationships represented in the sample. We allow for correlation in the error term μ_i across observations with the same seller by adjusting for clustering at the level of the firm.[13]

Trade credit is operationalized in several different ways. First, we assess the willingness of sellers to allow the buyer to pay any portion of the bill after delivery (line 1 of Table 2), using a probit. We then consider the percentage of the bill paid after delivery. In 29% of the cases, no part of the bill is paid with delay. In another 45% of the cases, the entire bill is paid with delay. We use a two-tailed tobit model when the dependent variable is defined as the percentage of the bill paid after delivery. We also define credit as the percentage of the bill paid more than 8 days after delivery, and as the percentage of the bill multiplied by the percentage of the seller's production sold to the given customer. In the last case, we use a one-tailed tobit rather than a two-tailed tobit because there is no mass at 100%. For each of our dependent variables, we adjust for clustering of errors at the level of the seller.

In the United States, buyers typically receive a 2% discount for payments made within 10 days of delivery, with the balance due in 30 days. The implicit interest rate on payments made after 10 days is 44%, far in excess of bank loan rates. The literature's standard measure of trade credit granted by (to) a firm is its accounts receivable (payable). Given the high implicit interest rate, a firm's aggregate level of trade credit is presumed to be driven primarily by the buyers' demand for credit. Our situation differs in several ways. First, our measure trade credit is specific to a given relationship. We measure credit as the proportion of the bill paid as soon as one day after delivery. As in the United States, the short delay is often interest free. In Romania, for example, regulations require trade credit, when offered, to be interest free for at least 10 days. As a result, the observance of delays of short periods is driven entirely by the willingness of the

seller to supply credit. Second, the evidence suggests that interest rates on credit exceeding any interest-free period are comparable to bank loan rates in our countries. For delayed payments in Poland, interest is typically 0.09% per day, not much higher than the 25% annual interest rate on bank loans prevailing in Poland in the fall of 1997. In Romania, interest after the 10 day grace period is allowed at a rate of 0.15% per day, which again is comparable to the commercial banks' nominal lending rate of 55% per year prevailing in Romania at the time of our survey.[14] Finally, the credit-reporting services that are standard in developed economies have yet to be broadly introduced in these countries; just 1% of our respondents said they used such a service to check customers. Hence, a willingness to supply credit would be expected to play an important role in determining the observed level of trade credit in our data.

4.1 The basic contract-enforcement regressions

The dependent variable in our contract-enforcement regressions (presented in Table 3) is trade credit. There are three sets of regressors in which we are mainly interested. The first set is variables measuring the effect of bilateral relational contracting. The second set measures the effect of trade associations, business networks and social networks. The third measures the effects of courts.

All of the regressions reported on Table 3 include country/industry fixed effects. We include interacted controls because the factors affecting trade credit in the food industry in Poland, for example, may differ from factors affecting trade credit in the food industry in Russia. Since some surveyed manufacturers have two customers in the sample, we adjust all standard errors for clustering at the firm level.

--Place Table 3 Here—

The first column of Table 3 is a probit regression with the dependent variable representing a relationship in which the customer pays any part of the bill with delay. We focus our discussion on the column 1 regression, which is the simplest of the regressions. The other regressions vary among other things the measure of trade credit. The alternative specifications produce results which are very similar to those in column 1.

These regressions give clear evidence on the efficacy of relational contracting. Credit is more likely to be granted to customers who are locked in by search costs; whose relationship with the seller is longstanding; and who were located through third-party recommendations. The courts also matter, for credit is more likely to be granted when the seller believers it can use the courts. The details of these findings follow.

We find weak evidence for the effect of bilateral lock-in through high search costs. Customer search costs are inversely related to the number of competitors to our manufacturer located near (within 1 km) the interviewed manufacturer. About 17% of manufacturers report 1-4 competitors located nearby, while 4% report having more than 5 competitors located nearby. We use two dummy variables to differentiate these two groups of firms from those indicating no nearby competitors. Firms with more than 5 competitors located nearby are about 14% less likely to allow customers to pay any part of their bill with delay. The variable indicating 1-4 competitors has the wrong sign but is not significant.

Payment after delivery increases with the duration of the relationship. Our data indicate that most of the experience effects occur very rapidly, within the first 2 months of the relationships. Relationships with a duration longer than 2 months but 12 months or less are 15% more likely to involve credit than are relationships 2 months old or less, an effect which is significant at the .01 level.[15] The incremental effect of experience beyond the first year of the relationship is much smaller.

These duration effects may be the result of any of several factors. First, sellers learn about the reliability of buyers through trading experience. At the beginning of the relationship when the buyer's type is unknown, credit is not offered. As the seller learns about the reliability of the buyer, the level of credit offered is increased. Hence, learning through trading is one possible cause of the observed duration pattern. Second, sellers and buyers may learn to cooperate over the course of the relationship, as in Sobel's (1985) and Watson's (1995) models of building a relationship. We are unable to separate these two effects, but view them both as aspects of building up relationships through learning about trading partners.[16] A lack of data prevents us from ruling out a third possibility, that selection without learning explains some part of the observed duration effects. For selection without learning to be important, some relationships would have to involve immediate trust. In these relationships, sellers would offer trade credit

from the start of the relationship and continue to do so as long as the relationship lasts. Other relationships would have to involve less trust and be less likely to endure. If this were the case, then there would be a positive correlation between credit and duration without any learning.[17] Manufacturers in Vietnam described a process of learning (McMillan and Woodruff 1999a), and we believe that learning likely explains the duration effect we observe in these data.

Third-party information also matters for these firms; manufacturers learn about the trustworthiness of trading partners by talking to others. Entrepreneurs were asked how they first made contact with their oldest and newest customers. Firms found about 45% of their customers through information from other manufacturers. More than three-fourths of these "other manufacturers" were themselves customers of the interviewee, with the remainder being suppliers, competitors or other firms. About 17% of sampled firms' customers are managed by a family member or by someone who was a friend of the interviewed entrepreneur when the trading relationship began.[18] This percentage is highest in Romania, where previous social connections characterize 31% of customer relationships, and lowest in Poland where only 7% of customers are managed by a family member or friend. The regression coefficients on Table 3 compare customers identified through business and social networks to those about whom the seller had no information at the start of the relationship. Customers identified through business and social networks are 18% and 17%, respectively, more likely to receive trade credit (Table 3, rows 9 and 10).[19] Both of these effects are significant at the .01 level. We also find that sellers who are members of trade associations providing information about trading partners are 6% more likely to grant credit to their customers, an effect significant at the .05 level in the first regression.

That access to courts matters is shown by the regression in column 1. Manufacturers who express confidence that courts can enforce contracts with trading partners are 8% more likely to offer their customer's credit. The effect is significant at just above the .01 level.

In column 2 we use the percentage of the bill paid with delay as the dependent variable. The regressions are two-tailed tobits, adjusting for mass points at both 0 and 100%. The coefficients reported in columns 2-7 of Table 3 represent the slope in the uncensored range. The coefficients and significance levels in column 2 are very similar to those in column 1. Again, the relational contracting variables are significant at beyond the .01 level, trade associations at the .10 level, and courts at the .05 level.

The variables in the regressions in the first two columns measure characteristics of the buyer-seller relationship. Column 3 adds controls for buyer and seller characteristics. The former include variables measuring the number of employees the customer has, (1-15 (base group),16-50, 51-100 and more than 100), a variable indicating foreign ownership, a variable indicating the customer is located outside the seller's city, and variables indicating that the buyer is a retailer/wholesaler or an individual. The seller controls include the age and size of the firm, the age and education level of the entrepreneur, and a variable indicating that the seller had a bank loan in the year preceding the survey.

Each of the buyer characteristics is statistically significant. (The coefficients are shown in Appendix B.) For example, buyers with more than 100 employees pay an additional 8% of their bill with delay compared to smaller firms. Buyers which are foreign owned pay an additional 9% of their bill with delay. Compared to manufacturing customers, customers who are individuals pay 9% less of their bill with delay, and retailer/wholesalers pay 6% more of their bill with delay. We would expect firms which are large and foreign-owned to have more access to credit from other sources, and customers who are individuals to have less access to credit from other sources. Also, large firms and foreign-owned firms typically are better risks than small firms and domestically-owned firms, for reputation matters more to them; having many suppliers, they bear a higher reputational cost if word gets out that they have reneged on a deal. Thus the signs of these variables are consistent with credit being supply-driven rather than demand-driven. The seller characteristics have less significant effects, but firms started more than 10 years before the survey allow customers to pay 16% less of their bill with delay.

A comparison of columns 2 and 3 indicates that the addition of buyer and seller characteristics has very little effect on the relational contracting variables. The effect of courts is somewhat smaller when the additional controls are added (5.1% vs. 5.5%).[20]

Next we consider two alternative formulations of the dependent variable. Column 4 uses the percentage of the bill paid more than 8 days after delivery. The effect of courts is both larger and more significant with the longer delay in payment (compare columns 4 and 3), with firms saying that courts are effective allowing customers to pay 7% more of their bill with delay. Business networks, on the other hand, have somewhat smaller effects. Search costs have smaller effects and lose significance. These changes are consistent with longer delays requiring a higher

degree of trust.[21] For the regression in column 5, we multiply the percentage of the bill paid with delay by the percentage of the manufacturer's production which is sold to the identified customer. This gives us an approximation of credit as a percent of the manufacturer's total revenue, providing an alternative measure of the seller's risk. By this measure, a customer paying 20% of his bill with delay but purchasing 50% of the manufacturer's production represents more risk than a customer paying 50% of his bill with delay but purchasing 1% of production. Both the proportion of the bill paid on credit and the percentage of sales going to a given customer increase as the relationship matures. A comparison of the results in columns 3 and 5 indicates that the resulting duration effect is somewhat more prolonged when credit is measured as a percent of the manufacturer's sales (column 5). The difference between relationships between 3 and 12 months old and those 1-2 years old is much more pronounced in column 5. Comparing column 5 with column 3, the relational contracting variables have higher significance levels and the courts variable a lower significance level. This suggests that the former play a stronger role in governing the decision to rely more heavily on a single customer.

Column 6 controls for the amount of credit received from suppliers. Each additional 10 percentage points of credit received from suppliers is associated with an additional 2.7 percentage points of credit offered to customers, an effect that is highly significant. The magnitude and significance of the effect suggests that the variable is measuring more than just a relaxation of the manufacturer's credit constraint. The inclusion of this control dampens the effect of most of the other independent variables somewhat, and causes two variables – trade association membership and customer search cost – to lose significance. Perhaps supplier credit controls for heterogeneity in the sample not picked up by our industry/country controls. One interpretation of the loss of significance of the search cost and trade association variable is that the effects measured by these variables occur across and not within narrow industries. For example, perhaps in addition to providing our manufacturers information about their customers, trade associations provide suppliers with information about our manufacturers, leading to higher credit levels both up- and downstream. If this is the case, then the regression in column 6 understates the effect of trade association membership, since part of the effect of the trade association's activities are picked up by the supplier credit variable.[22]

Column 7 adds three factors which may affect the ability to sustain cooperation with a customer but which may be endogenous—the frequency with which goods are delivered, talking with other suppliers of the customer, and visiting the customer before the first sale. The construction of the variables is described in Appendix C. Because of the potential endogeneity, the coefficients on these variables should be interpreted with some caution. Of the 3, visiting the customer before the first sale and the frequency of delivery are significantly associated with the extension of trade credit. The importance of visits may reflect information gathering; prior visits may also indicate a previous social connection (and indeed, visits are positively correlated with information from social networks). Talking with other suppliers of the given customer does not have the expected sign, but is not significant at the .10 level.

Finally, the regression reported in Column 8 replaces belief in the courts with experience with the courts, again using percentage of the bill paid with delay as the dependent variable. But most firms in the sample report that they have had at least one dispute with a trading partner, and about 28% of those firms say the courts played some role in resolving the dispute (Table 2). Experience with the courts may be taken as a stronger indication of their effectiveness.[23] Court experience has a positive but insignificant effect when the specifications used in columns 1-3 and 5-7. But having used the courts is significant when credit is defined as payments beyond 8 days, as shown in column 8.

The importance of the use of networks on the credit decision is robust across all of the specifications on Table 3. Relationship duration has similarly robust effects. The seller's belief in the courts also has a significant effect on the credit decision across all of the specification. However, the effect of courts is smaller than the effect of networks. In the next subsection, we examine whether the importance of courts depends on the age of the relationship.

4.2 Courts and the strength of relationships

Credit relationships are established rapidly among our sample firms. Within two months, 12 percentage points more of the bill is paid with delay, a number which represents 20% of the sample mean credit level (Table 2). Buyers lose their anonymity quickly. It is reasonable to expect courts to have their greatest impact when buyers are still unknown, during the first few months of the relationship. The courts can be expected to be involved more in new relationships

than in longstanding ones, for it is in new relationships that the poor risks get discovered and weeded out. To test this, we divide the sample into young and old relationships. We use a cutoff of 2 months. Column 1 of Table 4 reports the results of a regression with the same specification as Table 3, column 3, but with the sample limited to relationships of less than two months, about 17% of the sample. [24] The effect of courts is much larger in new relationships (β=16.6, column 1) than in the sample of relationships older than one year (β=4.5, column 2). The latter coefficient is insignificant even though relationships older than one year represent a much larger part of the sample (53%) than relationships younger than 2 months. The difference between the two coefficients is significant at the .05 level (t=2.33). Moreover, firms that believe courts are effective are distributed randomly across the two duration subsamples. There is no correlation between a belief that courts are effective and the duration of relationships (r=.04, p=0.19).[25]

--Place Table 4 Here—

We also have a measure of the manager's opinion about the extent to which his firm and the customer are locked in a bilateral relationship. We asked managers how long it would take them to find an alternative buyer for goods refused by the specified customer. We also asked them how long they thought it would take the specified customer to find alternative supplies of the good traded if they failed to deliver. Where the manager responded "a day" or "less than a week" to *both* of these questions (32% of the sample), we categorize the relationship as "market-based." Where managers responded "more than a week" to both of these questions (39% of the sample), we categorize the relationship as "bilateral." Columns 3 and 4 of Table 4 show regressions using the market-based and bilateral subsamples, respectively. Consistent with the results from the duration subsamples, we find that courts are more important when relationships are weaker, in market-based transactions. In the sample of market-based relationships, belief in courts is associated with 10 percentage points more of the bill being paid after delivery. Courts have no significant effect in the sample of bilateral relationships. The difference in coefficients is significant at the .10 level (t=1.74). There is a positive correlation between belief in courts and market-based relationships (r=.08, p=0.01).[26]

A further division of the sample is shown Table 4. Relationships in which the buyer is located in the same city as the manufacturer are separated from relationships in which the buyer is in a different city. Taking legal action against a customer usually requires use of the courts in the customer's city. This implies substantially higher costs when the customer is located in another city. Since courts are locally administered there may also be "home town" advantages. Firms are likely to have a better understanding of the nuances of particular courts and judges in their own city. Hence the use of courts in a distant city adds an additional element of uncertainty. The data are consistent with these expectations. Courts have a large and significant effect among relationships with customers located in the same city (β=6.6, t=1.98), but no significant effect in relationships with customers located in other cities (β=0.9, t=0.25). The difference between the two coefficients is not significant at the .10 level (t=1.24).[27]

4.3 Robustness Checks

Private protection rackets are famously rife in Russia and Ukraine, though they are less active in the other post-communist countries. In a survey of Russian shopkeepers by Zhuravskaya and Frye (1998), 33% reported that one of the roles of private protection organizations was to enforce agreements (though far more reported their role was to "protect" the shopkeepers from other criminals). According to anecdotes, though, the mafia plays a larger role with shops than with manufacturing firms of the sort we surveyed. Firms reporting disputes with trading partners were asked whether "an informal private agency specializing in such cases" aided in the resolution of the dispute. Only 5% of firms gave this response, though 48% of Russian firms and 26% of Ukrainian firms reporting disputes said they used such an agency.

We create two variables that provide some control for the availability of private enforcement. When added to the basic regression reported in column 3, neither "other third party enforcement" (β= - 2.81, t=0.75) nor using "an informal private agency specializing in such cases" (β= - 8.70, t=1.21) has a significant effect on credit. Their inclusion has almost no effect on the relational contracting variables or on the courts variable.

The results shown on Table 3 are also robust to modifications in the sample criteria. All of the reported coefficients remain significant and of close to the same magnitude when relationships and/or firms started more than 10 years before the survey – prior to the beginning of

economic reforms – are excluded from the sample. The results are similarly robust to limiting the sample to the three Eastern European countries. Including state-owned and export customers also has only modest effects. A regression with state enterprises and export customers is shown in Appendix B, along with separate regressions for each country. (Russia and Ukraine are combined because of the small sample sizes in these countries.) Courts are positively associated with credit in each of the country level regressions, though the effect is significant only in Slovakia.[28] With the exception of social networks in Poland, the information network variables also have the right sign everywhere, and are significant most of the time.

We have also run random effects and OLS regressions for all of the specifications. The results are very similar to those we report in Table 3. Moreover, firm level fixed effects regressions produce very similar estimates for the effect of relationship duration, business networks, and social networks.[29] These and the other results referenced in this subsection are available from the authors.

Finally, Glaeser et al. (2000) raise the possibility that survey questions inquiring how much an interviewee trusts others may in fact be good measures of the trustworthiness of the interviewee. To the extent that our question on courts is correlated with the overall level of trust the manager has in others, Glaeser et al.'s argument would be that managers responding affirmatively to the courts question are more trustworthy. This implies that that those believing courts are effective should *receive* more credit from their suppliers. We checked this by running regressions similar to those in Table 3 with the level of credit received by the interviewed firm from the suppliers identified in the survey. The buyer's belief in the effectiveness of courts has no effect on the level of credit received by our firms. We take this as evidence supporting the claim that our question on the effectiveness of courts is measuring something more than the trusting nature of the interviewee.

4.4 Summary of trade-credit regressions

Trust between trading partners is supported by both institutions and relational contracting. Manufacturers who express confidence in courts allow their customers to pay about 5 percentage points more of their bill with delay. But the effect of courts is much larger at the start of relationships. During the first 2 months of a relationship, belief in courts is associated with about

17% more of the bill being paid with delay. By comparison, the level of credit increases by about 12 percentage points during the first few months of a trading relationship. Customers found through social or business networks pay about 15 percentage points more of their bills with delay. Trade associations have a smaller effect. With the exception of trade association membership, these findings are robust to alternative definitions of the dependent variable, and to changes in specification.

5. Determinants of Switching Costs

The courts play a significant role, then, in encouraging trade credit when relationships are new. Are they also important in determining when new relationships begin?

Our data allow us to explore the formation of relationships in the following way. With respect to each firm's oldest and newest supplier relationship, we asked entrepreneurs: "If another firm you have never purchased from offered to supply this input for a price 10% less than this supplier, would you purchase from the new firm instead of this supplier?" Firms gave one of three answers: they would refuse this offer, accept the offer and abandon the existing supplier, or buy from the new supplier while continuing to purchase from the old supplier.

--Place Table 5 Here—

Their answers, summarized in Table 5, suggest there is significant resistance to taking on new partners. Over half said they would pass up the apparently better deal, in whole or in part, to maintain the relationship with the existing supplier and a sixth said they would pass it up completely. Romanian firms were most likely to say they would drop their existing supplier in favor of the cheaper supplier, giving this response in almost two-thirds of the cases. (This may be related to the fact that most of the Romanian firms' transactions are simple—as Table 5 shows, fewer goods are made to order in Romania than in any of the other countries bar Ukraine—and with simple transactions there is less risk in dropping the existing supplier.) Less fragile relationships are indicated in Poland and Slovakia, where around half of the firms would abandon existing suppliers completely. In Russia and Ukraine, almost all firms say they would buy from the new supplier without breaking the relationship with the existing supplier.[30, 31]

Welfare is lower, arguably, when switching costs are high. A supplier that knows its customer is locked in can charge a relatively high markup. Lowering switching costs brings prices closer to marginal cost, making the market for inputs more competitive overall.

There is a substantial literature on buyer switching costs, both in economics and in marketing. The economics literature is primarily theoretical, and focuses on pricing behavior of sellers in multi-period models with switching costs (Klemperer, 1995). The marketing literature is primarily empirical, and focuses on how brand loyalty is affected by factors such as advertising (see for example Erdem and Keane, 1996).[32] Asymmetric information is central in both of these literatures. Buyers have more information about the products of sellers from whom they have previously purchased.[33]

Assume the buying firm knows something about the supplier from which it is currently buying: its reliability in delivering on time, the quality of its products. It knows nothing about the new potential supplier except that its offered price is 10% less. This gives the incumbent an advantage over the new supplier. We can think about this in the following simple framework. Suppose the value to the manufacturer of goods supplied by the existing supplier (denoted by subscript e) is given by

$$U_e = U(V_e + \eta_e - P_e) \qquad (2)$$

where V_e is the expected value of the good supplied, η_e is a random parameter with mean zero and variance σ_e^2, P_e is the price paid to the existing supplier, and U is a concave utility function, inducing risk aversion. The value of the input should be interpreted broadly to include not only the quality of the physical good, but the quality of service – on-time delivery, replacement of defective merchandise, and so on. The value to the manufacturer of the good (potentially) supplied by the new supplier is similarly

$$U_n = U(V_n + \eta_n - P_n) \qquad (3)$$

where the subscript n represents the new supplier. Since more is known about the existing supplier, $\sigma_e^2 < \sigma_n^2$. We assume the new supplier is drawn randomly from the population of

suppliers, so that V_n is the population average value of the input. The good supplied by the existing supplier may have an expected value either higher or lower than this, depending on the specific draw. On average, we might expect to find $V_e > V_n$ more often then the reverse, since good draws are more likely to survive (and be picked up in our data).

Finally, we add the possibility of a percentage discount offered by the new supplier to induce the manufacturer to switch. This is denoted D. The value of the good supplied by the new supplier is then increased by a percentage D. The manufacturer will switch to the new supplier when $E[U_n \mid D] > E[U_e]$, that is when the expected utility from the input supplied by the new supplier plus the price discount exceeds the expected utility from the input supplied by the existing supplier.

Whether, for a given discount D, the buyer chooses to switch will depend on three factors. First, the expected value of the good supplied by the existing supplier, or how V_e compares with V_n. Second, the respective variances around the expected value of the good; and in particular, the downside risks of switching to the new supplier. And third, the degree of risk aversion of the manufacturer matters. Together, these determine how $E[U_e]$ compares to $E[U_n]$. Given some degree of risk aversion, switching is less likely if the expected value of the input supplied by the existing (new) supplier is higher (lower), and if the variance surrounding the estimated value of the input provided by the existing (new) supplier is low (high).

We have empirical proxies for each of these three effects. Some of our proxies affect both the estimate and the variance of the input's value. For example, the expected value of the inputs delivered by the existing supplier should be positively correlated with the duration of the existing relationship, since high value relationships are more likely to endure. Because trading experience also provides information about the quality of inputs provided by a supplier, the variance surrounding the estimated value of the input should fall with the duration of the relationship. Both of these effects contribute to an expectation that switching costs are positively correlated with the duration of the relationship with the existing supplier.

The sources of information about the existing supplier should have similar effects. We expect that the use of information networks and more intensive information gathering by the manufacturer should also be associated with higher switching costs. We use the frequency of the visits to the current supplier's factory and the frequency of delivery of the inputs as indicators of

information gathering efforts. Note that information gathering is more likely to be exogenous in this regression than in the trade credit regression, since the visits refer to the existing supplier rather than the new supplier.

The characteristics of the input involved affect both the probability a supplier will fail to deliver as promised and the cost to the manufacturer of that event. Some inputs are standardized and available off the shelf from many suppliers. The physical quality of these inputs can often be determined at the time of purchase. Failure of a supplier to make a delivery is quickly and easily remedied. Hence the risk of non-performance is low. Other inputs are made specifically for the buyer, and are produced to order. The advantage of the incumbent supplier is smaller for the first type of good: V_n is closer to V_e, and σ_n^2 is closer to σ_e^2. We measure the differences in the characteristics of the input with indicators that the input is produced only for our manufacturer and that the quality specifications are written down. We also include a variable indicating that the manufacturer has a second supplier of the input.[34]

Functioning courts, by strengthening the enforcement of contracts, reduce the scope for deviant behavior on the part of the unknown supplier. Thus, we expect to find that functioning courts reduce switching costs and increase the willingness to switch suppliers.

Trade associations providing arbitration services may perform a similar role to the courts. Trade associations may have an additional effect as well, through information services that they provide their members. Buyers who are members of trade associations are more likely to be able to obtain information about the new supplier's past behavior, and will also have the ability to report a deficient supplier to the association. Both of these decrease the likelihood that the supplier will be deficient.

Finally, the level of risk aversion certainly varies across the firms and entrepreneurs in our sample, in ways that we can only imperfectly measure. The size of the firm is a reasonably good proxy for its risk aversion; larger buyers tend to be more diversified and less risk averse. Other factors such as the age and education level of the entrepreneur and the age of the firm may account for some differences in entrepreneurs' risk aversion.

A more complete model would include the effect of switching on future purchases as well. This may be important because manufacturers who chose to switch may burn their bridges with their existing suppliers by doing so. In that case, the manufacturer may be unable to return

to the existing supply relationship in future periods. The cost of switching would then be affected by the cost of searching for yet another supplier. This leads to another potential benefit provided by trade associations. Information provided by trade associations about the location and reliability of new suppliers reduces the cost of searching for yet another supplier should the new relationship fail.

Switching costs are a function of the variables outlined above. To induce the buyer to switch suppliers, the new supplier must offer a discount equal to at least the switching cost. Econometrically, the required discount would then be estimated as:

$$D^*_i = \alpha + \beta \mathbf{C_i} + \gamma \mathbf{S_i} + \delta \mathbf{E_i} + \varphi \mathbf{T_i} + \phi \mathbf{M_i} + \varepsilon_i \ , \qquad (4)$$

Where $\mathbf{C_i}$ is a vector of variables measuring the complexity of the input, $\mathbf{S_i}$ is a vector of variables describing the relationship with the existing supplier, $\mathbf{E_i}$ indicates the availability of enforcement through courts, $\mathbf{T_i}$ indicates membership in a trade association, and $\mathbf{M_i}$ is a vector of firm/entrepreneur characteristics which measure, among other things, the degree of risk aversion,. As with the trade credit regressions, our surveyed manufacturers may show up in two relationships. We adjust the error ε_i for clustering at the level of the buyer. With our data, we observe only whether D falls below or above 10%. Denoting rejection of the offer by $R_i = 1$, we observe:

$$R_i = 1 \text{ if } \varepsilon_i > 10\% - (\alpha + \beta \mathbf{R_i} + \gamma \mathbf{C_i} + \delta \mathbf{E_i} + \varphi \mathbf{T_i} + \phi \mathbf{M_i})$$

$$R_i = 0 \text{ otherwise.} \qquad (5)$$

We estimate this with a probit model.

5.1 Basic Switching Cost Regressions

Firms responded to our question in one of three ways. About a sixth of them said they would reject the new supplier outright. Another half said they would switch entirely to the new supplier. The remaining third said they would buy from both suppliers, presumably reducing quantities purchased from the existing supplier but not abandoning it. In the regressions, we look at the decision to reject the lower-priced offer vs. the decision to accept it (whether or not the buyer continues to deal with the incumbent supplier). That is we sum the responses of those who say they would buy entirely from the new supplier and those who say they would buy some from the new supplier and some from the incumbent. It is the decision to accept or reject the new offer

that is most relevant from the point of view of assessing barriers to entry, for this is what determines whether a new entrant can make any sales.[35]

The independent variables described above are shown on Table 5. As with trade credit, we exclude import and state-owned suppliers from the sample. Our main findings can be shown with simple tests for differences of means. The sample can be divided into relationship involving inputs of two types. The first, which we term standard, are produced to inventory and sold by the supplier to multiple manufacturers. Inputs are standard in 76% of the supplier relationships in the sample. The remaining 24% of the sample are custom inputs. These are produced to order, produced uniquely for our manufacturer, or both. Switching suppliers in the latter relationships involves higher risk on the part of the manufacturer. Consistent with switching cost theory, manufacturers say they would reject the lower-price offer in 13% of the relationships involving standard goods, but 25% of the relationships involving custom goods. (The difference is significant, t=4.67.) How does a belief in the effectiveness of courts affect the level of switching costs? Entrepreneurs who believe that courts are effective are less likely to reject the offer from the anonymous supplier outright. They do so 14% of the time, compared to a rejection rate of 22% among those who say courts are not effective. The difference is statistically significant (t=3.20).

The regression results shown on Table 6 show that these basic results hold when other controls are added. The regression reported in column 1 includes our basic variables plus industry/country controls. The second regression adds firm-level and entrepreneur-level control variables (described in the note to the table), and the third replaces confidence in courts with experience using courts.

--Place Table 6 Here—

More complex inputs imply higher risk of non-compliance by suppliers. The basic regressions measure this with three variables. First, a minority (11%) of the suppliers produce a good sold only to the interviewed manufacturer. Second, in 32% of the cases, the manufacturer has no alternative supplier for the input. In these cases, the risk of accepting the deal outright is increased. The new relationship can fail in more ways than with standard inputs— inspecting

quality before purchase is more difficult in the first case and timely delivery is more important in the second. Finally, in 85% of the cases, quality specifications are written down, indicating more complex inputs. All of these variables have the expected positive sign, and the first two are significant at the .01 level in each of the regressions reported in columns 1-3. Having written quality specifications is significant only in the first regression. The magnitude of the coefficients indicates these variables are important. A supplier producing a good sold only to our manufacturer is 18% less likely to be abandoned than one producing a good sold to multiple buyers; having no alternative source of the input is associated with an 10% higher rejection rate; and supply relationships using written quality specifications are about 5% less likely to be abandoned.[36]

The precision of the estimated value of the good supplied by the existing supplier depends on how much information the buyer has about that supplier. This we measure with variables similar to those used in the trade credit regression. Relationships of longer duration, use of business and social networks, and visits with the supplier before the first transaction are all expected to result in higher information levels. More frequent deliveries should also lead to better information and make cooperation easier to sustain. By providing more information about the existing relationship, we expect each of these variables to lead to higher switching costs.

The new supplier is most likely to be rejected if the relationship with the existing supplier is less than 2 months old. The probit indicates that buyers are 5-7% less likely to reject the new supplier (i.e., switching costs are lower) when the relationship with the existing suppliers is 3-12 months old than when the relationship is 0-2 months old. The new supplier is also less likely to be rejected when the relationship with the existing supplier is more than 9 years old. Cohort effects may explain the latter result. The oldest relationships started early in the transition, when there was less competition among, and less information about, suppliers. But cohort effects are unlikely to explain the difference between relationships 1-2 months old and 3-12 months old. This is perhaps because the supplier has incurred set-up costs to make the specific good, and the buyer would suffer reputational consequences from switching partners too often. With a relationship of less than two months, it is just too early to judge the existing supplier's reliability.[37]

More frequent deliveries and more frequent visits before the first transaction lead to higher switching costs. Delivery frequency is measured in categories of daily, weekly, bi-weekly, monthly, every 1-3 months, and less often. A movement of one category is associated with a 2% lower chance that the relationship is abandoned. Thus, relationships with weekly deliveries are 4% more likely to reject the new supplier outright than relationships with monthly deliveries. An additional visit by the supplier to the manufacturer before the relationship began is associated with a 1% higher probability of rejecting the deal. Visits may be higher when inputs are more complex. Membership in a trade association providing information or arbitration services significantly reduces the probability of rejecting a new partner: trade association members are 7-8% less likely to reject the new supplier.

How does access to courts affect switching costs? Here the data are very clear. Firms expressing confidence in the ability to rely on the courts have lower switching costs. They are 7% less likely to reject the deal with the new supplier. Having used the court in resolving the last dispute with a trading partner has a slightly smaller effect (5%) on the propensity to switch suppliers.

5.2 Custom and Standard Inputs

As we noted above, the majority of the suppliers maintain inventories of the goods and sell them to multiple buyers. The risk to the buyer should be much lower where standard inputs are involved. The willingness to switch depends on the nature of the goods being purchased. If goods are custom-made, then the downside risk of switching may be high. If the new supplier fails to deliver at the promised time or to manufacture to the promised specifications, it will be hard find a replacement supplier. With standard items, by contrast, the consequences of nonperformance by the new supplier are less severe, as substitute suppliers are likely to be available. Functioning courts lower the downside risk of switching when the goods are custom-made, because the new supplier can be legally held to its promises on delivery time and specifications.

Courts, therefore, are predicted to have a greater effect on the propensity to switch when goods are customized than when they are standardized. Again, a simple test of differences in

means suggest that this is the case. In relationships involving custom inputs, buyers who believe that courts are effective reject the offer 21% of the time, while those saying courts are not effective reject the offer 33% of the time (t=2.12, n=263). Buyers of standard goods who believe that courts are effective are also less likely to reject the new offer, but the difference is much smaller (13% vs. 16%, t=1.67, n=846). The regressions in columns 4 and 5 of Table 6 confirm this difference. The sample in column 4 is limited to custom inputs. Firms who believe courts are effective are 21% less likely to reject the offer, controlling for other factors. Among relationships with standard inputs (column 5), the effect of courts is a much smaller 4%. The difference between the two coefficients is significant at the .01 level (t=2.84). There is a significant positive correlation between the purchase of standard inputs and a belief that courts are effective (ρ=0.11, p<.001).

These differences across types of goods are robust to other categorizations of the goods. A second categorization of complex relationships includes those where there is no alternative supplier or goods which are produced uniquely for the buyer. Belief in courts has a significant effect on the likelihood the offer is rejected for these goods (β= - 0.17, t=3.03, 37% of the sample) but not for more standard goods (β= - 0.01, t=0.76, 63% of the sample). We also asked firms how long it would take them to find alternative supplies if the supplier failed to delivery as promised. The responses were “a day or less” (15% of responses), 1 day to 1 week (31%), a week to a month (33%), more than a month (17%) and “it would be impossible” (3%). Courts have a significant effect among the subsample of goods that take more than a week to replace (β= - 0.1, t=2.79, 37% of the sample), but not among inputs that could be replaced in a week or less (β= - 0.04, t=1.54, 63% of the sample). By either of these divisions, the coefficients of courts in the two subsamples are significantly different from one another at the .10 level or higher.

5.3 Robustness Checks

The results reported on Table 6 are robust to the inclusion of other controls, and to alternative measures of the complexity of the inputs. Neither the availability of other private third party enforcement (β= -0.01, t=0.23) nor the use of private enforcement in resolving the firm’s most recent dispute (β= 0.02, t=0.71) has a significant effect on the probability of rejecting and offer. The magnitude of the courts effect increases marginally to 8% when second of these is

included in the regression. Using independent country and industry controls makes no difference to the results.

As an alternative measure of the complexity of the input, we used the question regarding how long it would take the buyer to find alternative inputs if the seller failed to deliver. Longer replacement times imply more risk on the part of the buyer. The time to replace is correlated with both the production of inputs sold only to this buyer ($\rho = .20$) and with having no alternative supplier ($\rho = .34$). The time to replace is not significant when it is included with these other two variables, but is when it is used in place of these other variables. The measured effect of courts is not changed with the time to replace is added to the regression; the courts effect is somewhat larger (9%) when time to replace is used in place of the other two variables. Finally, we included measures of the frequency of ongoing visits by the supplier to the manufacturer and measures of the competitiveness of the buyer's market, and the proportion of the incumbent suppliers bill which the buyer pays with delay. Ongoing visits from the supplier to the customer are significantly associated with higher rates of rejection of the new supplier. One measure of competitive markets (the manager's estimate of demand elasticity) is significant and indicates that buyers in more competitive markets are more likely to reject the offer. Two measures of competitiveness—the number of competitors located nearby and an indication that the buyer prices its goods with reference to competitor's prices rather than through bargaining with the customer—are not significant. Credit received from the existing supplier also has no significant effect. None of these variables has any effect on the estimated magnitude of the effect of courts.

Excluding relationships and firms started more than ten years before the survey has no effect on the magnitude of the courts effect. Neither does limiting the sample to the three Eastern European countries. Including state-owned and import suppliers in the sample has no effect on the magnitude of courts, but increases the precision of the measurement somewhat ($\beta = -0.06$, $t = 2.99$, see Appendix B). At the single country level, courts have a significant negative effect only in Slovakia. The measured effect of courts is very close to zero in Poland, though it is negative and close to significant when the Polish sample is limited to custom inputs (See Appendix B).

Random effects and linear probability (OLS) regressions produce similar results on the key variables. The random effects regression with the same variables as column 1 results in an insignificant coefficient on written quality specifications and on the variable indicating a

relationship duration of 3 to 12 months. In the subsample of standard inputs (column 5 regression), both the linear probability and random effects regressions produce significant coefficients for the effectiveness of courts. However, the magnitude of the coefficient remains much small than in the subsample of custom inputs. The significance levels of the other complexity measures, of trade association membership, and of courts remains the same.[38]

5.4 Summary of Switching Results

Controlling for the complexity of the relationship and the level of information about the existing supplier, we estimate that the threshold for switching costs is significantly lower for firms that can rely on courts. Firms that cannot rely on the courts to enforce contracts are willing to pay higher costs to maintain relationships with existing suppliers. The effect of courts is much larger and more significant when the supply relationship involves specialized inputs.

As Klemperer (1987, 1995) and others have shown, higher switching costs can lead to collusive price levels even in competitive markets. Switching costs may also result in barriers to entry, as new firms have a difficult time attracting customers, and more productive firms gain market share more slowly. The development of legal systems leads to efficiency gains in the economy beyond those represented by the effects courts have on sustaining cooperation in existing relationships.

Relational contracting, then, has ambiguous effects. Ongoing relationships can improve efficiency by supporting deals that the legal system is unable to enforce. But exclusion is the corollary of ongoing relationships. Continuing to deal with a particular supplier means being reluctant to deal with new suppliers. If firms routinely reject lower-priced deals, low-cost producers will find it difficult to get new customers and high-cost producers will not be driven out. Where networks govern interfirm relationships, the rewards to low cost suppliers will be smaller. In a primitive economy, customers are stuck with their suppliers because of quality uncertainty; in a sophisticated economy, trading partners might be locked in by specific assets.

6. Conclusion

Relational contracting is the main mechanism governing contracting in Russia, Ukraine, Poland, Romania, and Slovakia. Relational contracting works better when the seller has

information about the customer, obtained either prior to beginning trading or during the course of the relationship. Trust builds up quite quickly, within the first two months of the relationship. Relational contracting also works better in supporting trade credit when the customer is locked in by high costs of searching for another supplier.

The courts also significantly affect contracting. Entrepreneurs who say the courts work behave differently from those who say they do not work. An entrepreneur who believes in the courts grants more trade credit than one who does not. The effect of courts is significantly stronger in certain types of relationships: with new customers and where lock-in is low. In an established bilateral relationship it is the relationship itself that determines the degree of cooperation, regardless of whether the courts are effective.

In addition to their direct efficiency gains, in improved contractual assurance, the courts improve efficiency by lowering entry barriers. Under relational contracting, a new entrant finds it hard to sell its goods, since buyer firms will tend to stay with suppliers with whom they have established relationships. The courts reduce this reluctance to switch. Courts therefore foster new entry and overall economic development.

These data provide one of the few quantitative estimates of the relative importance of courts and relationships.[39] While we are unable completely to rule out the possibility that missing variables affect the estimated coefficients, we believe the results from sub-sample regressions indicate that the measured effect of courts is not overwhelmed by missing variable bias. Courts have a significant effect in new relationships, in relationships with little friction, and in relationships with local customers. There is little evidence of a correlation between a manager's belief in the effectiveness of courts and the nature of the customer relationships identified in the survey. Courts are also significantly more important in the willingness to work with a new supplier when the input being purchased cannot be easily traded in a cash transaction.

Functioning courts have two roles: in simple transactions, helping ensure bills are paid; and in complex transactions, facilitating relational contracting by delimiting threat points. For the first category of transaction, the courts become increasingly needed as the economy develops. When market-supporting institutions are weak, market information is likely to be poor, so firms find it hard to find alternative trading partners. In such an economy, our results suggest, it matters little that the courts are ineffective, for relational contracting works well. Customers pay their

bills because they have nowhere else to go if they lose their current supplier. As market information improves and finding alternative trading partners becomes easier, the courts become more important in supporting simple transactions because customers' temptation to renege increases.

Courts become increasingly needed as the economy develops, also, to the extent that there is a change in the composition of economic activity, with an increased demand for customized as opposed to standard goods. Buyers of customized goods, we found, are reluctant to change suppliers even for a 10% lower price. This reluctance is less when the courts function than when relationships are the only source of contractual assurance. The courts lower the costs of switching when goods are custom-made. Effective courts improve the functioning of the market by fostering the establishment of new relationships.

The legal systems in these countries are very far from perfect. The most advanced of our sample, Poland, received a score of only 2.9 out of 9 from the 1999 World Competitiveness Yearbook on its question about fairness in the administration. Yet the courts are perceptibly improving the efficiency of business activity. From the perspective of development policy, this provides some reason for optimism. An effective legal system, it is often said, cannot be built in less than a generation. Our data suggest that a legal system that, while imperfect, has beneficial effects can be set up much more quickly than that.

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Appendix A: The Sample and the Survey

The data reported here are from surveys undertaken in Russia and Ukraine in May and June 1997, and in Poland, Romania and Slovakia in September-December 1997. Pilot surveys were undertaken in Russia and Ukraine in January-February 1997, in Poland and Slovakia in March 1997 and in Romania in August 1997. The sample of about 300 firms in each country was drawn from a list provided by the country's Statistical Institute. In order to increase the cross-country comparability of the sample, the initial selection was limited to one medium-sized city in each country: Katowice (Poland), Brasov (Romania), Bratislava (Slovakia), Volgograd (Russia) and Dnepopetrovsk (Ukraine). Only in Slovakia did we have trouble identifying a large enough sample of firms meeting the established size criteria who were willing to participate. In the final sample, about one-quarter of the Slovakian firms are located in Bratislava, one-quarter in Kosice, and the remaining half are spread across seven other cities. Participation rates were high among the firms contacted—in excess of 70% in Poland and Romania, and 68% in Slovakia. We believe the resulting sample is reasonably representative of small and medium-sized manufacturing firms in each country, though it is not a census.

Table A-1 provides a summary of the characteristics of firms in the sample. Most were started in 1990 or after; many within 3 years of the survey. Only in Poland was a significant share of the firms started before 1988. The majority of firms in Russia and Ukraine were privatized, or spun off from state-owned enterprises; the majority in the other three countries started from scratch, with none of their equipment coming from state-owned enterprises.

--Place Table A-1 Here—

At least 85% of the entrepreneurs in each of the countries report that they have previous experience working in an SOE. Previous work experience in the private sector is much more common for startup firms than spin-offs. At least 29% of startup entrepreneurs have prior private sector experience in every country except Romania. In all five countries the educational

background of entrepreneurs is similar; the average amount of schooling is 15-16 years everywhere.

Measured by employment, in all five countries privatized firms were much larger in their first year of operation than the startups. The startups were smallest at birth in Slovakia and largest in Poland, though there is not a large difference among the countries in the average size of startups in their first year.

In Poland, Romania and Slovakia, the sample was drawn so that one-quarter of the firms were from the same industry, metal parts and products. Nearly a fifth of the Ukrainian firms and one-eighth of the Russian firms are also produce metal products. The remaining firms are spread across manufacturing sectors, as shown in Appendix Table 1.

The survey was administered face-to-face by interviewers contracted in each country, with responses provided by the general manager or deputy general manager of each firm. The largest part of the survey is a series of questions related to the longest running and newest customer and supplier relationships. There are also sections on the resolution of contract disputes with customers and suppliers, access to formal bank finance, hidden and unofficial payments, and a set of general questions regarding the size and profitability of the firms.

Appendix B: Additional Regressions

B1: Regressions on the Effectiveness of Courts

Belief in the usefulness of courts varies in systematic ways across firms and entrepreneurs. A probit regression using belief in courts as the dependent variable shows that firms with more than 50 employees are about 10% more likely to say that courts are effective than are smaller firms (t = 2.62). Entrepreneurs younger than 40 are also about 10% more likely to express faith in courts than are older entrepreneurs (t = 2.38). Variables measuring the education level of the entrepreneur and age of the firm are not significant at customary levels. Confidence in courts is also associated with the sector in which firms operate. Firms buying and selling a larger share of inputs and outputs in another country are less likely to say courts are effective, while firms doing more business with state-owned enterprises are more likely to say that courts are effective. The latter two effects are significant at the .05 and .01 level, respectively. The regression controls for country/industry fixed effects. The results are shown on Table B-1. These regression results give us some confidence that the different responses reflect real differences in the ability to use courts.

-- Place Table B-1 Here—

B2: Regression Results by Country

The initial samples exclude customers and suppliers which are state-owned firms, as well as export customers and import suppliers. These exclusions are justified statistically because chi-square tests indicate that the group of coefficients were are interested in have different effects on trade credit and switching costs across the different customer types. Nevertheless, we have run regressions including these observations in the sample. A trade credit regression with the same specification as Table 3, column 3 is reported in the first column of Table B-2. A switching cost regression with the same specification as Table 6, column 1 is reported in column 1 of Table B-3. In the trade credit regression, neither search costs nor trade association membership are significant at the .10 level in the full sample. Other variables, including effective courts, remain

significant. All of the variables of interest in the switching cost regression retain their significance.

--Place Tables B-2 and B-3 Here—

Both belief in the effectiveness of courts and the average level of trade credit are significantly lower in Russia and Ukraine than in the other three countries. Column 2 of Appendices B-2 and B-3 reports a regression which excludes observations from Russia and Ukraine. The results are little changed from those reported in Tables 3 and 6 (columns 3 and 1, respectively), suggesting that the inclusion of data from Russia and Ukraine are not skewing the results.

Courts may be more effective in some countries than in others; social networks may become less important as market institutions develop. Our last set of regressions repeat the basic trade credit and loyalty regressions using the subsample from each country. The results are shown on Table B-2 (trade credit) and Table B-3 (switching costs). Because of the limited number of complete observations in Russia and Ukraine, these countries are combined for the trade credit regressions. Even combined, there are not enough observations to run loyalty regressions for Russia and Ukraine without using state-owned and import suppliers.

The smaller sample sizes yield fewer statistically significant results. With a few exceptions, all of the trade credit variables (Table B-2) retain the expected sign in each of the countries. The effects of business networks are notably consistent across these countries, and always significant at the .10 level. Social networks have the biggest impact in Romania and in Russia and Ukraine, where they are most commonly used (see Table 2), and no significant impact in Poland, where their use is infrequent. Customer search costs have a significant effect only in Slovakia, though in Poland the measured effect is nearly the same magnitude as the overall sample. Finally, the relationship duration variables indicate that relationship start quickly in Romania and take longer to build in Poland (though trade credit levels in general are much higher in Poland.)

Courts have a positive coefficient in each of the four country-level regressions, but the effect is significant only in Slovakia. When the sample is limited to relationships of two months

or less, belief in effective courts is significant in Poland. The courts coefficient is also positive in the young relationship sample in Slovakia, but is near zero in Romania.

In the switching cost regressions, the input complexity variables retain the expected sign throughout. Having a supplier which produces a good sold only to this buyer is significant in each of the regressions, and having no alternative supplier is significant everywhere but Slovakia. Again, courts have significant effects only in Slovakia. Trade association membership reduces switching costs significantly in Poland, Slovakia and Romania. When the sample is limited to custom inputs, the effects of courts falls below the .10 significance level in Poland (t=1.50).

--Place Table b_4 Here—

Appendix C: Relevant Survey Questions:

The most relevant survey questions are listed below. In many cases, we also note how the question was used to create the dependent or independent variables (in italics).

Questions asked about oldest and newest customer:

(55) How often do you deliver goods to this customer?

1	Daily	{310}
2	Weekly	
3	Every 2 weeks	
4	Monthly	
5	Every 1-3 months	
6	Less often	

Frequency of delivery is 5 for daily, 4 for weekly, and so on.

(61) Before you began working with this customer, what was your primary source of information about this firm/person?

	YES	NO		
1 It is managed or owned by my family	1	2	**Q 63**	{316}
2 It is managed or owned by a friend	1	2	**Q 63**	{317}
3 I used to work for this firm	1	2	**Q 63**	{318}
4 From a previous business acquaintance	1	2	**Yes Q 62, No Q 63**	{319}
5 Through a government agency	1	2	**Q 63**	{320}
6 Through a bank	1	2	**Q 63**	{321}
7 Through a credit rating agency	1	2	**Q 63**	{322}
8 Through a business association	1	2	**Q 63**	{323}
9 Other: (specify) ……..	1	2	**Q 63**	{324}

{.....325}

The most common "other" responses were "he contacted us" (44%), "advertisement" (12%), "met at a market fair" (9%) and "we found the company ourselves" (8%). Social networks are indicated by yes responses to either of the first 2 questions; business networks by yes responses to 3, 4 or 8.

(63) How many times did your company's representatives visit this customer's factory or store before you sold to him?

1	Never	{327}
2	1-3 times	
3	4-6 times	
4	More than 6 times	

Question 63 was used for the "visited customer before first transaction" variable. "Never" was given a value of 0; "1-3 times" a value of 2; "4-6 times" a value of 5; and "More than 6 times" a value of 7. Thus, the visits variable takes on values from 0 to 7.

(67) What proportion of the customer's payment is made at the following times:

1	____ % When the order is placed	{334-35}
2	____ % On delivery	{336-37}
3	____ % 1-7 days after delivery	{338-39}
4	____ % 8-30 days after delivery	{340-41}
5	____ % More than 30 days after delivery	{342-43}
6	____ % Other Schedule (Specify)	

Firms specifying some amount for "other schedule" were dropped from the sample (42 cases or 1.5% of the sample). Payment after delivery is the sum of 3, 4 and 5; payment eight days or more after delivery is the sum of 4 and 5.

(76) Currently, does your company talk with other suppliers of this customer?

1	No	{354}
2	Yes, daily	
3	Yes, weekly	
4	Yes, monthly	
5	Yes, but infrequently	

Response 1 was given a value of 0, response 5 a value of 1, 4 a value of 2, 3 a value of 4 and 2 a value of 5.

Questions asked about oldest and newest supplier:

(121) Does this supplier make

1	The exact same product for other firms,	{514}
2	Is the input specific to your firm?	

(130) Before you began working with him, what were your sources of information about this supplier?

	YES	NO		
1 It is managed or owned by my family	1	2	**Q 132**	{523}
2 It is managed or owned by a friend	1	2	**Q 132**	{524}
3 I used to work for this firm	1	2	**Q 132**	{525}
4 From a previous business acquaintance	1	2	**Yes Q 131, No Q132**	{526}
5 Through a government agency	1	2	**Q 132**	{527}
6 Through a bank	1	2	**Q 132**	{528}
7 Through a credit rating agency	1	2	**Q 132**	{529}
8 Through a business association	1	2	**Q 132**	{530}
9 Other: (specify) ……..	1	2	**Q 132**	{531}

Same as question 61 above. The most common "other" responses were "advertisement" (30%), "He contacted us" (19%), "met at a fair" (11%), and "found company ourselves (7%).

(137) Do you have other suppliers of this input? Yes 1
No 2

(138) If this supplier failed to deliver, how long would it take you to find replacement supplies?

1 A day or less
2 More than a day, less than a week
3 More than a week, less than a month
4 More than a month
5 Would be impossible

Response 1 was coded as 1, response 2 as 2, and so on.

(146) If another firm you have never purchased from offered to supply this input for a price 10% less than this supplier, would you purchase from the new firm instead of this supplier?

Yes 1
No 2
Buy from both 3

(147) If your company had a dispute with this supplier, would your other suppliers find out about it?

Yes 1 {563}
No 2

This question was used for the variable "other suppliers would know about dispute."

Contract Disputes:

(183) Even if you never had a contract dispute could you please tell me which of the following third parties can enforce an agreement with a customer or supplier?

	YES	NO	
1 Court	1	2	{707}
2 The national government	1	2	{708}
3 The local government	1	2	{709}
4 A non-governmental organisation (such as a trade association	1	2	{710}
5 Other	1	2	{711}
6 There is no one	1	2	{712}

Confidence in courts is indicated by a yes response to question 183_1.Other private enforcement is indicated by a yes response to question 183_5.

(186) Has a customer ever failed to pay for a product after you have delivered it?

Yes 1 {720}
No 2

(187) Has a supplier ever refused to accept the return of defective merchandise or to refund money for merchandise returned because of low quality?

Yes 1 {721}
No 2

(189) What organisations assisted in the case of your most recent payment dispute?

	YES	NO	
1 Courts	1	2	{725}
2 Local government authorities	1	2	{726}
3 A formal private agency specialising in such cases	1	2	{727}
4 An informal private agency specialising is such cases	1	2	{728}

5 No one	1	2	{729}

A yes response to question 189_1 indicates the courts were used in the most recent dispute with a trading partner. For a no response to 189_1, or where the firm reports that it has not had a dispute with a trading partner, use of courts takes a value of 0.

General:

(11) Number of full time employees at the end of first half of 1997.....{109-111}

(12) What is your main business activity?

01	Metal parts and products	06	Chemical products	**For official Use only**	{112-113}
02	Wood products and furniture	07	Paper and packaging		
03	Food products and beverages	08	Handicrafts and art		
04	Clothes, footwear, and leather goods	09	Electrical machinery		
05	Construction materials	10	Miscellaneous		

Used to create 10 industry dummies.

(201) How many other producers of goods similar to yours are located
Within 1 km of your factory..... {758-59}
Within same city..... {760-61}

(206) Is your company a member of any type of business or trade association?
Yes 1 {768}
No 2

(207) What benefits do companies get from business or trade associations?

	YES	NO	
Information about technology	1	2	{769}
Information about the identity and location of new Customers/suppliers	1	2	{770}
Information about the trustworthiness of customers/suppliers	1	2	{771}
Contract and/or dispute arbitration	1	2	{772}
Other (specify)	1	2	{773}

{.....774}

The trade association variable is one if the response to question 206 is yes and there is at least one yes response to the second, third, or fourth part of question 207.

(242) If it were possible for you to decrease the price of your main product by 10% (without your competitors changing their prices), how much do you think your sales would increase as a percentage of your current sales?

.....% {907-8}

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[1] With highly complex contracts, it may not be feasible to write things down; but with the relatively simple production processes used by small firms in the transition economies, such extreme complexity is probably rare.

[2] In our sample for Poland, Romania, and Slovakia startups far outnumber spin-off firms, whereas in Russia and Ukraine spin-offs dominate. For an explanation of why private sector development started earlier in Poland, but is similar in nature to what has occurred elsewhere in Eastern Europe and the former Soviet Union, see Johnson and Loveman (1995).

[3]Although Russian and Ukrainian firms are most likely to use courts given a dispute, they are least likely to report having had a dispute, so the percentage of firms having experience with courts is actually lowest in those countries. The percentage of firms reporting disputes is only 16% in Russia and 20% in Ukraine, compared to more than 75% of in each of the other three countries. While this may reflect a difference in the interpretation of the question across countries, it may also reflect more personalistic relationships with customers and suppliers given the much smaller number of customers the Russian and Ukrainian firms have.

[4] The propensity to use the courts to settle disputes varies across countries even when legal systems are well developed. Macaulay (1963) gives examples of US firms being reluctant to go to court in a dispute. Japanese firms are still more reluctant than US firms; Haley (1978) argues that the costs of using the Japanese courts are so high that suing usually does not pay. Arrighetti, Bachman and Deakin (1997, p.188) asked some European firms about the likelihood of legal action against a customer or supplier committing a breach of contract: of about 20 firms in each country, 40% of British firms, 79% of Italian firms, and 95% of German firms said it was unlikely or very unlikely.

[5] Relative to developed market economies, however, the legal systems of all the countries in our sample remain underdeveloped The 1999 World Competitiveness Yearbook in its question on fairness in the administration of justice gave Poland 2.9 out of 9. This compares over 8 generally for rich industrial countries, and the low 1.3 for Russia. The World Economic Forum's Global Competitiveness Report of 1996, in its question on confidence in the fair administration of justice, gives 2.92 to Poland. This compares to 5.78 for New Zealand at the top, and 1.77 for Russia at the bottom.

[6] In our data, too, we find that the use of courts generally signals the severing of a relationship with a trading partner. In Poland, for example, the relationship was severed in 98% of the cases where courts were used to resolve a dispute, compared to 78% of the cases where they were not used in a dispute.

[7] Koford and Miller (1998), for Bulgaria, and Hendley, Murrell, and Ryterman (1999), for Russia, also find relational contracting to be the main form of contracting. In developing countries, as well as transition countries, relational contracting is common: see for example Fafchamps (1996), Bigsten et al. (2000).

[8] Search costs also affect the relative bargaining power of seller and buyer, but we would expect this bargaining-power effect to show up in the price that is agreed to, and not the likelihood of trade credit.

[9] Banerjee and Duflo (2000) find that a firm's reputation determines the nature of its contracting with its trading partners, but in their analysis the reputation adheres to the firm in general (it is proxied by the age of the firm) whereas in our analysis reputation is developed within a specific relationship.

[10] The Russian Chamber of Commerce, according to Greif and Kandel (1995), provides its members with information on companies that have been alleged to have violated contracts. Some of the trade associations may have evolved from institutions of the old planned economy. But startup firms are as likely as privatized firms to be members of trade associations everywhere except in Slovakia, which suggests the services the associations offer are valuable.

[11] Chi-square tests confirm that the coefficients on courts and networks are significantly different for state-owned and export customers. We present results including these customers in Appendix B.

[12] In aggregate, trade credit is important for these firms. Their reported accounts payable amounts to 54% of external finance for the Polish firms in our sample, 57% for the Slovakian firms, and 45% for Ukrainian firms. Only in Russia is trade credit uncommon, representing 2% of external finance. (Our data do not allow us to compute this number for Romania.) Like their counterparts in developed market economies, the small- and medium-sized firms have more trade credit than bank loans (Mayer and Alexander, 1990).

[13] In Section 4.3 below we consider the possibility that the error term may have individual- or time-specific (first/last customer) components. Allowing these components to enter the error term as random variables has very modest effects on the estimated coefficients. Allowing for fixed seller effects also produces results similar to those shown on Tables 3 and 4, though the set of variables which can be estimated with fixed effects models excludes courts and trade association membership, as these vary only across sellers.

[14] The Polish interest rates are reported at http://www.meximedia.com/ECO/22pol.html and at http://www.oecd.org/publications/observer/213/indicato-eng.htm. The Romanian regulation and prevailing interest rate come from http://www.businesseurope.com/romania/markrom.htm.

[15] We ran a regression allowing the duration effect to differ for each month during the first year. These results (available from the authors) indicate that relationships which are between 1 and 2 months old are 8% more likely to receive credit than those which have a month or less of duration. The effect is not statistically significant. The duration effect reaches the 15% level for relationships 2 to 3 months old, and levels off after that. A chi-square test indicates that the additional duration variables are not jointly significant (χ^2 =10.4 (11), p=.50), suggesting our variable measuring 2-12 months adequately captures the trend.

[16] The problem here is comparable to separating matching and job training effects in a wage-tenure profile. Labor economists have taken great care to differentiate the job matching effects of tenure from job training effects of tenure in employment relationships (see, for example, Altonji and Williams, 1997). Data limitations prevent us from replicating their analysis.

[17] A final possibility is that duration effects may be caused by cohort effects. Relationships begun at certain points in time—for example during financial crises—may be more or less likely to involve credit.

However, given that the largest duration impacts occur within the first two months of the relationship, it is unlikely that cohort effects are significant contributor to the observed duration effects.

[18] Firms were allowed to indicate more than one source of initial information, though few did so. In only nine relationships did entrepreneurs indicate that both business and social networks were used in locating a customer.

[19] In 21% of the cases, the manufacturer responded that the customer "contacted them" or gave an equivalent response. These responses are the base group for the regression coefficients. The remaining cases are identified in the regression with 2 other information variables. The first of these groups is customers identified through government agencies, bank or credit agencies (4.6% of the sample). The second represents customers identified through other responses which indicate some initial information (9.8% of the sample) such as "met at a market fair" or "through a marketing agent."

[20] Inclusion of buyer/seller characteristics has a similarly minor effect on the results of the probit reported in Column 1.

[21] About 8% of the manufacturers report that customers pay part of the bill more than 30 days after delivery. It is possible that these cases represent delinquent payments rather than normal credit. Excluding observations with any part of the bill paid more than 30 days after delivery improves the fit and increases the magnitude of the variable indicating effective courts (β=8.58, t=2.99). The other coefficients are unaffected.

[22] An alternative interpretation is that the causation runs in the other direction: firms offering credit to customers have a greater demand for credit from their suppliers.

[23] There are two concerns with this interpretation. First, we don't know what role the courts played in the resolution of the dispute. In Mexico, for example, manufacturers said they often used courts to certify losses for tax purposes, after giving up any hope of recovering the loss (Woodruff 1998). Second, more than 40% of the firms said they have never had a dispute. These firms are coded the same as firms who have had disputes but not used the courts. Coding firms who said they had never had a dispute as not having used the court may increase the noise in our measure. But excluding these firms from the sample

makes little difference. The effect of experience with courts on credit remains insignificant (β=2.77, t=1.01).

[24] The regressions in Table 3 included 31 industry times country controls. These controls lead to singularities in some of the smaller samples used in Table 4. We have therefore replaced them with 9 industry and 4 country controls. We checked the independent country and industry controls on the full sample. They produce results very similar to those in Table 3. In general, the magnitude and significance of the variable indicating 5 or more competitors nearby are somewhat higher. The magnitude and significance of courts changes little. For example, in the column 3 specification, courts have a coefficient of 4.81 (t=1.88) when the independent controls are used and 5.10 (t=1.99) when the interacted controls are used.

[25] The other specifications of Table 3 produce similar results. The difference between young and old relationships does not hinge on the specific sample cutoff points. Courts are significant when the young sample is defined by any period between 2 months and one year, though the results are stronger with earlier cutoffs. Courts are insignificant in older relationships when the sample is defined by any period beyond nine months. Almost all of the observations in Russia and Ukraine have durations beyond 1 year. Even when these are excluded, the effect of courts is insignificant in any sample that removes relationships younger than 9 months.

[26] The correlation is driven by differences across regions, with relationships more likely to be bilateral in Russia and Ukraine, where courts are perceived to be less effective. When the sample is limited to Poland, Slovakia and Romania, there is no correlation between belief in courts and the degree of lock-in in relationships (ρ=.02, p=0.58). The finding that courts matter only in market based relationships still holds—indeed, it is stronger--when the sample is limited to the three Eastern European countries.

[27] Courts do have a significantly different effect when Russia and Ukraine are dropped from the sample (t=1.96). There is no significant correlation between belief that courts are effective and location of customers.

[28] Slovakia may provide the best results because it has intermediate levels of both trade credit and belief in effectiveness of courts. Additionally, the survey covered several cities in Slovakia and only one city in

each of the other countries. Since business courts are administered locally, the multiple cities may provide more variation in the effectiveness of courts in Slovakia.

[29] Because our measure of courts varies only across firms, we are unable to confirm these results with fixed effects regressions. The fixed effects regressions are linear regressions with the sample limited to firms with two private, domestically-owned customers. There are 552 such firms, of which 202 report different credit levels for their 2 customers. The coefficient on business networks is 10.7 (t=2.85) and on social networks is 14.2 (t=3.17), both of which are close to those reported in Table 3, column 3. The duration effect is somewhat more prolonged (β=13.0 for 3-12 months, β=20.9 for 13-24 months).

[30]We checked the validity of the hypothetical question by examining data on the duration of actual customer and supplier relationships identified in the survey. When the sample is limited to firms begun in 1987 or later (more than 90% of the firms in every country except Poland), the average duration of relationships as a ratio of the age of the firm is lowest in Romania, highest in Russia and Ukraine, and between the two in Poland and Slovakia. These results indicate that firms drop suppliers most frequently in Romania, and least frequently in Russia and Ukraine, consistent with the responses to the hypothetical question.

[31] The number of observations in Russia and Ukraine is small because the majority of suppliers there are state-owned firms. When we include state-owned and import suppliers, there are 288 observations from Russia and 295 observations from Ukraine. Appendix C includes a regressions for the full sample.

[32] Ausubel (1991) offers switching costs as an explanation of price stickiness in the credit card market. Sharpe (1997) also examines pricing in markets with switching costs, finding that interest rates paid by banks are higher in markets with a more rapid turnover in households.

[33] Klemperer (1995) identifies five other factors that contribute to switching costs: compatibility with other inputs; routine transactions cost of switching; costs of learning to use new brands; discounts offered by existing supplier; and psychological or other non-economic costs. We focus our discussion on asymmetric information, because that is the area most affected by the quality of formal institutions. Some of the control variables we use in the regressions—especially those measuring the complexity of the input—could be interpreted as reflecting compatibility issues or learning costs. We have no information on how discounts by existing suppliers or psychological costs vary across the sample.

[34] These variables may also be taken as measuring potential compatibility issues. More complex inputs are more likely to be specialized to inputs provided by other suppliers. Though we have no problem with this interpretation, we focus on asymmetric information because our question presumes the new supplier provides the same input.

[35] Buying from both the new supplier and the incumbent may reflect additional considerations not in our analysis: it may be an effort to reduce risk rather than to accept risk. For example, in more than 90% of the cases in Russia and Ukraine for which we have complete information, entrepreneurs indicate that they would buy from both suppliers. These two countries have the least developed and thinnest markets among our countries, suggesting perhaps that these entrepreneurs are responding to the opportunity to diversify existing risk by adding a new supplier.

[36] Production to order has no significant effect on the rate of rejection, and so was dropped from the regression. It is highly correlated with production of an input sold only to out buyer (ρ=.43).

[37] When 3-5 months is separated from 6-12 months, the rejection rate is lower during months 3 to 5 (β=-.08) than during months 6 to 12 (β=-.04) of the relationship (column 1 specification). The additional variable does not have significant explanatory power to justify its inclusion.

[38] There are 375 firms with two domestic, private suppliers. But only 48 of these would reject the offer for one of their suppliers but not the other. As a result, the dependent variable in the fixed effect (difference) regression has little variation. We therefore interpret the fixed effect results with some caution. They show, however, significant positive coefficients for having no alternative suppliers and visits before the first transaction. The fixed effects regression also produces positive coefficients for each of the three variables indicating relationship duration of more than a year, with the variable indicating relationships of 2 to 9 years being significant at the .10 level.

[39] Hendley, Murrell and Ryterman (1999) provide evidence that ability to contract formally is important for Russian firms, by showing that when lawyers are involved in writing contracts, relationships with customers which are more successful. Bigsten et al. (2000), using data from firms in six African countries, find that firms with access to courts are involved in more complex transactions with trading partners.

Table 1
Dispute Resolution Mechanisms

	All firms	Poland	Slovakia	Romania	Russia	Ukraine
Percent of firms saying courts can enforce contracts	68.4%	72.9%	67.9%	86.9%	55.8%	54.6%
Percent of firms reporting having had a dispute	57.7%	78.2%	83.4%	78.8%	17.2%	20.2%
Percent of firms with dispute who used courts in last dispute	39.8%	48.2%	33.3%	30.4%	54.3%	66.7%
Member of trade association	47.8%	28.9%	31.5%	44.2%	74.4%	67.3%
Member of trade association providing customer/supplier information or arbitration	36.5%	18.0%	22.1%	33.8%	57.8%	57.4%
Always or almost always resolve disputes without a third party	61.1%	56.0%	52.7%	74.6%	NA	NA

NA denotes that data are not available.

Table 2
Dependent and Independent Variables

	All firms	Poland	Slovakia	Romania	Russia	Ukraine
Number of observations	1460	382	422	447	95	118
When bill is paid						
-some part of bill paid after delivery	69.9%	85.7%	76.6%	62.2%	21.1%	62.7%
-percent of bills paid after delivery	60.9%	83.6%	70.4%	48.9%	11.4%	38.2%
-percent of bills paid over 7 days after delivery	45.5%	72.4%	56.9%	28.3%	3.0%	17.5%
-percent of bill paid after delivery * percent of sales to this customer	9.6%	12.6%	10.2%	7.2%	3.6%	12.4%
Customer Search Costs:						
Percent with 1-4 similar firms within 1 km	17.2%	17.7%	18.7%	22.1%	4.2%	1.7%
Percent with 5 or more similar firms within 1km	3.9%	3.4%	8.8%	1.6%	0.0%	0.0%
Duration of relationship:						
Duration of relationship 3-12 months	17.4%	15.4%	21.2%	23.5%	1.1%	0.0%
Duration of relationship 3-12 months	30.1%	37.9%	34.1%	30.0%	12.6%	4.2%
Duration of relationship 13-24 months	8.5%	5.5%	8.5%	10.3%	7.4%	11.9%
Duration of relationship 25-36 months	8.9%	7.0%	6.9%	11.6%	14.7%	6.8%
Duration of relationship 3 - 9 years	32.5%	27.0%	28.2%	24.4%	61.1%	73.7%
Duration of relationship more than 9 years	2.6%	6.8%	0.9%	0.2%	3.2%	3.4%
Manufacturer Information:						
First information from business association	45.1%	43.6%	48.1%	35.8%	43.2%	73.7%
Customer managed by family/friend	17.4%	7.0%	13.0%	30.6%	20.0%	13.6%
Member of trade association providing customer/ supplier information	28.6%	16.9%	21.8%	34.9%	47.4%	50.8%
Courts:						
Percent of firms saying courts can enforce contract	74.1%	71.7%	68.8%	88.8%	53.7%	60.2%
% of those w/ dispute who used courts in last dispute	28.3%	38.7%	29.6%	24.6%	6.3%	19.5%

Table 3
Trade Credit Regression Results

	Probit Regression	*Tobit Regressions*						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Probit for credit/no credi	% paid after delivery	% paid after delivery	% > 1 week after delivery	% after delivery * % of sales	% paid after delivery	% paid after delivery	% > 1 week after delivery
Customer Search Costs:								
1-4 similar firms	0.04	3.65	4.11	3.96	1.50	**5.06**	3.35	3.65
within 1 km	(1.10)	(1.09)	(1.28)	(1.20)	(1.56)	**(1.66)**	(1.05)	(1.11)
More than 5 similar	**-0.14**	**-14.57**	**-13.57**	-5.71	**-3.13**	-6.62	**-13.38**	-6.06
firms within 1 km	**(1.75)**	**(2.37)**	**(2.26)**	(0.94)	**(1.71)**	(1.16)	**(2.24)**	(1.01)
Duration of relationship:								
Duration of relationship	**0.15**	**11.86**	**12.55**	**11.67**	**5.16**	**12.17**	**12.34**	**12.25**
3-12 months	**(4.79)**	**(3.74)**	**(4.06)**	**(3.72)**	**(6.49)**	**(4.03)**	**(4.03)**	**(3.87)**
Duration of relationship	**0.17**	**15.30**	**14.17**	**15.23**	**12.33**	**13.82**	**12.58**	**15.89**
13-24 months	**(4.18)**	**(3.76)**	**(3.55)**	**(3.63)**	**(7.75)**	**(3.62)**	**(3.19)**	**(3.76)**
Duration of relationship	**0.18**	**17.24**	**17.26**	**14.00**	**10.34**	**16.96**	**16.39**	**14.55**
25-36 months	**(4.73)**	**(4.39)**	**(4.45)**	**(3.64)**	**(8.54)**	**(4.52)**	**(4.28)**	**(3.80)**
Duration of relationship	**0.23**	**16.17**	**16.02**	**13.90**	**9.08**	**15.67**	**15.20**	**14.06**
3 - 9 years	**(7.15)**	**(5.13)**	**(5.11)**	**(4.39)**	**(10.12)**	**(5.08)**	**(4.90)**	**(4.41)**
Duration of relationship	**0.21**	**24.84**	**28.51**	**27.83**	**10.72**	**28.89**	**29.33**	**28.59**
more than 9 years	**(3.20)**	**(3.35)**	**(3.84)**	**(3.61)**	**(5.34)**	**(4.30)**	**(3.91)**	**(3.70)**
Delivery at least bi-weekly							**1.49**	
							(1.75)	
Manufacturer Information:								
First information from	**0.18**	**16.21**	**14.87**	**9.23**	**4.44**	**13.45**	**11.71**	**9.49**
business network	**(5.26)**	**(5.32)**	**(5.06)**	**(3.28)**	**(5.15)**	**(4.83)**	**(3.97)**	**(3.38)**
First information from	**0.17**	**14.67**	**14.66**	**14.29**	**4.64**	**14.84**	**10.94**	**14.61**
social network	**(4.47)**	**(4.17)**	**(4.29)**	**(4.33)**	**(4.10)**	**(4.55)**	**(3.21)**	**(4.40)**
Member of trade association	**0.06**	**4.08**	**4.38**	0.68	**1.66**	3.42	**3.98**	0.76
with customer, supplier services	**(1.97)**	**(1.66)**	**(1.78)**	(0.27)	**(2.09)**	(1.49)	**(1.66)**	(0.29)
Dummy for visited customer before							**9.63**	
first sale							**(4.09)**	
Dummy for talk to other suppliers of							-4.04	
this customer							(1.45)	
Courts:								
Courts can enforce contracts (0-1)	**0.08**	**5.54**	**5.10**	**6.64**	**1.44**	**3.95**	**4.54**	
	(2.53)	**(2.09)**	**(1.99)**	**(2.41)**	**(1.82)**	**(1.66)**	**(1.81)**	
Used court in most recent dispute (0-1)								**7.15**
								(2.87)
Other Variables:								
Average percent of bill paid to						**0.27**		
suppliers after delivery						**(8.13)**		
Industry/country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seller/manager characteristics	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Buyer control characteristics	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	1460	1460	1460	1460	1437	1460	1460	1460
% obs not censored		20.96%	20.96%	15.75%	69.45%	20.96%	20.96%	15.75%
Chi-square (degrees of freedom)	123.8 (13)	114.8 (13)	198.6 (36)	175.7 (36)	342.3 (36)	301.0 (37)	224.0 (39)	177.7 (36)
p-value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001

T-statistics are in parentheses, calculated from standard errors corrected for multiple observations per firm. Coefficients in bold are significant at the .10 level or better. The reported chi-square test is for the joint significance of all variables except the country/industry controls. Column 1 is a probit regression; columns 2-4 and 6-8 are two-tailed tobits; column 5 is a one-tailed tobit. The first column reports the change in the probability of giving credit; Columns 2-8 report the marginal effects in the uncensored range.

All regressions include 31 industry/country controls (8 industry groups in 3 countries and Russia/Ukraine), and two variables indicating intial infomration from sources other than business and social networks. Seller characteristics include variables indicating the firm has 16-50 employees, 51-100 employees, or more than 100 employees (15 or fewer employees is the comparison group); the firm was started 3-5 years ago, 6-9 years ago, or 10 or more years ago; a variable indicating that the firm received a bank loan in 1996, a variable indicating that the firm was spun off from a state-owned firm; variables indicating that the entrepreneur is younger than 30, between 30 and 40 years old, or between 40 and 50 years old; variables indicating the manager has between 13 and 16 years of schooling and 17 or more years of schooling; and a variable indicating the manager was formerly a high level manager in a state-owned firm.

Buyer controls include variables indicating the customer is a retailer/wholesaler, the customer is an individual, the customer is foreign-owned, the customer is located in a different city, and variables indicating the customer has 16-50 employees, 51-100 employees, or more than 100 employees (15 or fewer employees is the comparison group).

Table 4
Trade Credit Regression Results
Split Samples

	(1)	(2)	(3)	(4)	(5)	(6)
	Duration 2 months or less	Duration more than 1 year	Relationships which are Market-based	Bilateral	Customer located: Same city	Other city
Customer Search:						
1-4 similar firms within 1 km	8.65	1.04	-2.30	10.75	4.57	-2.24
	(1.43)	(0.28)	(0.53)	(1.98)	(1.22)	(0.43)
More than 5 similar firms within 1 km	-12.39	**-17.05**	-16.23	-33.15	**-20.22**	-7.18
	(1.01)	**(2.66)**	(1.78)	(2.88)	**(3.00)**	(0.79)
Manufacturer Information:						
First information from business network	**13.24**	**8.68**	11.85	16.54	**11.72**	**16.06**
	(1.99)	**(2.11)**	(2.51)	(3.45)	**(3.23)**	**(3.39)**
First information from social network	**13.80**	**7.71**	6.84	25.43	**14.18**	**16.95**
	(1.98)	**(1.70)**	(1.29)	(4.37)	**(3.36)**	**(3.18)**
Member of trade association with customer, supplier services	-5.01	**6.13**	6.46	4.58	**5.64**	1.93
	(0.82)	**(2.21)**	(1.52)	(1.30)	**(1.89)**	(0.52)
Courts:						
Courts can enforce contracts	**16.60**	4.51	10.33	0.59	**6.61**	0.90
	(2.60)	(1.54)	(1.93)	(0.17)	**(1.98)**	(0.25)
Industry and country controls	Yes	Yes	Yes	Yes	Yes	Yes
Seller characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Buyer control characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	254	767	467	558	974	486
% obs not censored	9.06%	26.73%	15.63%	26.34%	20.33%	22.22%
Chi-square (degrees of freedom)	81.4 (31)	61.1 (34)	104.0 (35)	99.4 (35)	140.3 (35)	88.7 (35)
p-value	<.001	0.009	<.001	<.001	<.001	<.001

T-statistics are in parentheses, calculated from standard errors corrected for multiple observations per firm. Coefficients in bold are significant at the .10 level or better. The reported chi-square test is for the joint significance of all variables except the country/industry controls. The reported coefficients are the marginal effects in the uncensored range. All regressions include 31 industry/country controls (8 industry groups in 3 countries and Russia/Ukraine) and two variables indicating intial infomration from sources other than business and social networks.

Seller characteristics include variables indicating the firm has 16-50 employees, 51-100 employees, or more than 100 employees (15 or fewer employees is the comparison group); the firm was started 3-5 years ago, 6-9 years ago, or 10 or more years ago; a variable indicating that the firm received a bank loan in 1996, a variable indicating that the firm was spun off from a state-owned firm; variables indicating that the entrepreneur is younger than 30, between 30 and 40 years old, or between 40 and 50 years old; variables indicating the manager has between 13 and 16 years of schooling and 17 or more years of schooling; and a variable indicating the manager was formerly a high level manager in a state-owned firm.

Buyer controls include variables indicating the customer is a retailer/wholesaler, the customer is an individual, the customer is foreign-owned, the customer is located in a different city, and variables indicating the customer has 16-50 employees, 51-100 employees, or more than 100 employees (15 or fewer employees is the comparison group).

Table 5
Switching Costs: Dependent and Independent Variables

	All firms	Poland	Slovakia	Romania	Russia	Ukraine
Number of observations	1115	335	395	321	40	24
Loyalty to existing suppliers						
Refuse offer of new supplier	15.5%	17.3%	21.3%	8.7%	5.0%	4.2%
Buy from both	34.4%	40.3%	26.1%	26.8%	95.0%	87.5%
Buy from new supplier	50.1%	42.4%	52.7%	64.5%	0.0%	8.3%
Complexity of Input:						
Supplier produces good unique to your firm	11.0%	8.7%	16.7%	5.9%	17.5%	8.3%
Firm has no alternative supplier for this input	31.7%	27.5%	30.9%	37.4%	27.5%	33.3%
Supplier produces good to order	20.5%	24.2%	19.6%	17.4%	25.0%	16.7%
Quality specifications are written	77.4%	58.8%	83.5%	86.6%	90.0%	91.7%
Input is produced to inventory and sold to others (Standard)	76.2%	72.5%	74.6%	81.6%	75.0%	83.3%
Input is produced to order or is unique (Custom)	23.8%	27.5%	25.4%	18.4%	25.0%	16.7%
Information:						
Duration of relationship 3-12 months	35.1%	34.0%	34.2%	41.4%	15.0%	12.5%
Duration of relationship 13-24 months	14.2%	14.9%	14.9%	14.6%	0.0%	8.3%
Duration of relationship 2 - 9 years	36.2%	36.7%	38.0%	26.2%	77.5%	66.7%
Duration of relationship more than 9 years	2.8%	5.0%	1.8%	0.0%	7.5%	12.5%
First information from business network	50.9%	51.0%	57.7%	40.8%	55.0%	66.7%
First information from social network	8.9%	3.0%	8.6%	14.6%	17.5%	12.5%
Trade associations provide customer/supplier services	26.0%	19.1%	22.0%	35.2%	45.0%	33.3%
Frequency of delivery (0-6)	2.82	2.79	2.85	2.92	2.23	2.29
Visits from supplier before 1st purchase (0-14)	1.74	1.64	2.05	1.43	1.25	3.33
Courts:						
Courts can enforce contracts	76.5%	78.5%	70.1%	88.5%	42.5%	50.0%
Used court in most recent dispute	28.1%	35.8%	27.8%	24.0%	7.5%	12.5%

Table 6
Switching Costs -- Probability of Rejecting Deal
Probit Regressions

	(1)	(2)	(3)	(4) Custom Inputs only	(5) Standard Inputs only
Complexity:					
Supplier produces good	**0.18**	**0.14**	**0.14**	**0.23**	
unique to your firm	**(4.59)**	**(4.03)**	**(3.91)**	**(5.24)**	
Firm has no alternative	**0.10**	**0.09**	**0.10**	**0.16**	**0.07**
supplier for this input	**(4.30)**	**(4.35)**	**(4.47)**	**(3.36)**	**(3.50)**
Quality specifications	**0.05**	0.03	0.03	0.05	**0.04**
are written	**(1.97)**	(1.22)	(1.33)	(1.21)	**(1.94)**
Information:					
Duration of relationship	**-0.05**	**-0.07**	**-0.07**	**-0.18**	-0.04
3-12 months	**(1.91)**	**(2.79)**	**(2.67)**	**(3.92)**	(1.59)
Duration of relationship	0.005	-0.02	-0.02	-0.07	-0.004
13-24 months	(0.14)	(0.75)	(0.85)	(1.42)	(0.14)
Duration of relationship	-0.004	-0.01	-0.01	**-0.11**	0.01
2 - 9 years	(0.13)	(0.47)	(0.55)	**(2.06)**	(0.29)
Duration of relationship	-0.09	**-0.09**	**-0.09**	**(a)**	**-0.06**
more than 9 years	(1.63)	**(2.18)**	**(2.15)**		**(1.74)**
First information from	0.03	0.03	0.03	0.02	0.03
business network	(1.06)	(1.30)	(1.17)	(0.32)	(1.15)
First information from	**0.10**	**0.12**	**0.12**	0.05	**0.15**
social network	**(1.95)**	**(2.44)**	**(2.30)**	(0.68)	**(2.92)**
Trade associations provide	**-0.08**	**-0.07**	**-0.07**	-0.05	**-0.06**
customer/supplier services	**(3.92)**	**(3.68)**	**(3.72)**	(1.33)	**(3.40)**
Frequency of delivery	**0.02**	**0.02**	**0.02**	**0.03**	0.003
(0-6)	**(1.84)**	**(2.07)**	**(2.20)**	**(2.13)**	0.35
Visits from supplier	**0.01**	**0.01**	**0.01**	**0.01**	0.003
before 1st transaction (0-14)	**(2.38)**	**(1.79)**	**(1.93)**	**(1.66)**	(0.68)
Courts:					
Courts can enforce	**-0.07**	**-0.07**		**-0.21**	**-0.04**
contracts	**(2.65)**	**(2.79)**		**(3.79)**	**(1.81)**
Used court in most			**-0.05**		
recent dispute			**(2.47)**		
Industry/country controls	Yes	Yes	Yes	Yes	Yes
Buyer/Manager control variables	No	Yes	Yes	Yes	Yes
Supplier control variables	No	Yes	Yes	Yes	Yes
Number of observations	1115	1115	1115	264	839
pseudo r-square	0.18	0.26	0.26	0.42	0.29
Observed percent reject offer	15.5%	15.5%	15.5%	24.2%	12.9%
Predicted percent reject offer	11.1%	9.0%	9.1%	7.7%	6.0%

Notes: (a) Combined with cell above because of a lack of variation in the cell. The dependent variable is 1 if the firm says it would reject the new offer and 0 otherwise. T-values are in parentheses. Coefficients in bold are significant at the .10 level or better. The coefficients are marginal effects at the means values. All regressions also include 31 country *industry indicators and two variables indicating intial infomration from sources other than business and social networks.

Buyer characteristics include variables indicating the firm has 16-50 employees, 51-100 employees, or more than 100 employees (15 or fewer employees is the comparison group); the firm was started 3-5 years ago, 6-9 years ago, or 10 or more years ago; a variable indicating that the firm received a bank loan in 1996, a variable indicating that the firm was spun off from a state-owned firm; variables indicating that the entrepreneur is younger than 30, between 30 and 40 years old, or between 40 and 50 years old; variables indicating the manager has between 13 and 16 years of schooling and 17 or more years of schooling; and a variable indicating the manager was formerly a high level manager in a state-owned firm.

Seller controls include variables indicating the supplier is a retailer/wholesaler, the supplier is an individual, the supplier is foreign-owned, the supplier is located in a different city, and variables indicating the supplier has 16-50 employees, 51-100 employees, or more than 100 employees (15 or fewer employees is the comparison group).

Appendix: Table A-1
Sample Comparisons

	Poland	Slovakia	Romania	Russia	Ukraine
Number of firms surveyed:	303	321	308	269	270
Year Founded:					
before 1988	68	13	0	4	17
1988-1989	38	7	3	13	21
1990-1993	138	199	204	182	152
1994-1997	59	89	114	64	74
Percent privatized	21.8%	22.7%	12.5%	51.8%	69.1%
Manager worked previously:					
Private sector	35.2%	28.3%	8.4%	20.5%	11.9%
Public Sector	93.7%	87.3%	88.5%	98.8%	95.6%
was a public sector manager	35.1%	25.8%	29.6%	57.8%	62.2%
was a public sector engineer	34.0%	38.9%	51.7%	38.2%	35.6%
was a public sector ordinary worker	37.6%	34.5%	17.7%	5.1%	2.2%
Years schooling of manager	15.7	16.2	16.1	15.3	15.2
Number of employees in 1st year	44	42	54	34	60
Number of employees end of 1996	63	57	57	35	60
Employment in first year--spinoff firms	83	119	257	47	73
Employment in first year--startups	33	19	25	22	32
Percent of firms in sector:					
Metal parts and products	27.7%	26.0%	27.7%	12.7%	18.6%
Wood products/furniture	5.9%	9.4%	11.5%	2.6%	5.2%
Food products	11.9%	10.7%	19.6%	10.1%	6.3%
Footwear/clothing	16.5%	12.7%	14.6%	14.9%	4.5%
Construction materials	9.2%	10.4%	11.5%	14.9%	15.6%
Chemical products	9.9%	8.1%	7.8%	6.3%	9.7%
Paper and packaging	1.6%	4.2%	2.5%	7.1%	1.9%
Handicrafts and art	1.3%	0.7%	1.6%	1.1%	1.9%
Electrical machinery	8.3%	8.4%	0.6%	12.3%	11.1%
Miscellaneous	7.6%	9.4%	2.5%	17.9%	25.3%

Table B-1
Probit for Response that Courts are Effective

	(1)
Firm Characteristics:	
Age 3-5 years	-0.04
	(0.72)
Age 5-9 years	-0.08
	(1.56)
Age 10 or more years	-0.03
	(0.41)
16-50 employees	0.04
	(1.18)
51 or more employees	**0.10**
	(2.62)
Firms was a de novo	-0.05
startup	(1.33)
Percent of sales and supplies	**0.08**
from state-owned firms	**(2.41)**
Percent of sales and supplies	**-0.11**
from foreign firms	**(2.85)**
Manager Characteristics:	
Manager 40 or younger	**0.10**
	(2.38)
Manager 41 - 50 years old	0.03
	(0.68)
Manager has 13-16	-0.07
years of schooling	(1.58)
Manager has more than	-0.06
16 years of schooling	(1.20)
Industry/country controls	Yes
Number of observations	1210
pseudo r-square	0.11

Notes: T values in parentheses. The coefficients represent the marginal change in the probability of saying courts are effective at mean values. Coefficients in bold are significant at the .10 level or better.

Table B-2
Trade Credit Regression Results by Country

	(1) All countries with SOEs, Exports	(2) Poland, Slovakia and Romania only	(3) Poland	(4) Slovakia	(5) Romania	(6) Russia/Ukraine	(7) Poland	(8) Slovakia	(9) Romania
			----------Private, domestic customers only----------				----------Private, domestic customers only----------		
							----------Duration 2 months or less----------		
Customer Search:									
1-4 similar firms	3.91	4.37	0.003	0.01	**0.13**	-0.32	**0.16**	0.18	0.10
w/in 1 km	(1.29)	(1.37)	(0.07)	(0.17)	**(1.81)**	(1.57)	**(2.46)**	(1.21)	(0.62)
More than 5 similar	-8.65	**-13.57**	-0.12	**-0.17**	-0.01		(a)	-0.14	-0.05
firms w/in 1 km	(1.51)	**(2.28)**	(1.16)	**(1.81)**	(0.02)			(0.57)	(0.18)
Duration of relationship:									
Duration of relationship	**12.87**	**12.33**	0.04	**0.14**	**0.22**				
3-12 months	**(4.40)**	**(4.01)**	(1.01)	**(3.00)**	**(3.45)**				
Duration of relationship	**15.95**	**13.01**	0.05	0.05	**0.28**	0.17			
13-24 months	**(4.39)**	**(3.05)**	(0.77)	(0.75)	**(4.07)**	(1.07)			
Duration of relationship	**16.54**	**17.84**	**0.10**	0.09	**0.25**	0.11			
25-36 months	**(4.90)**	**(4.26)**	**(2.11)**	(1.34)	**(3.75)**	(0.67)			
Duration of relationship	**15.81**	**15.96**	**0.08**	**0.19**	**0.33**	0.05			
3 - 9 years	**(5.68)**	**(4.87)**	**(2.05)**	**(4.01)**	**(5.81)**	(0.44)			
Duration of relationship	**25.51**	**32.34**	0.07	(a)	(a)	0.12			
more than 9 years	**(4.84)**	**(3.20)**	(1.31)			(0.56)			
Manufacturer Information:									
First information from	**14.69**	**14.81**	**0.13**	**0.15**	**0.18**	**0.21**	0.14	**0.22**	0.17
business network	**(5.51)**	**(4.94)**	**(3.90)**	**(2.89)**	**(2.74)**	**(1.66)**	(1.34)	**(1.70)**	(1.44)
First information from	**15.31**	**13.00**	-0.05	**0.15**	**0.25**	0.06	-0.23	**0.39**	0.21
social network	**(4.77)**	**(3.73)**	(0.85)	**(2.42)**	**(3.67)**	(0.78)	(1.46)	**(2.85)**	(1.56)
Member of trade association	3.13	3.18	-0.01	0.04	0.08	**0.16**	**-0.30**	-0.13	0.07
w/ cust, supplier services	(1.50)	(1.11)	(0.31)	(0.75)	(1.34)	**(1.94)**	**(2.03)**	(1.04)	(0.57)
Courts:									
Courts can enforce	**4.22**	**6.02**	0.02	**0.11**	0.07	0.06	**0.31**	0.15	0.01
contracts (0-1)	**(2.07)**	**(1.99)**	(0.62)	**(2.22)**	(0.75)	(0.78)	**(2.71)**	(1.16)	(0.07)
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry/country controls	Yes	Yes	NA	NA	NA	Yes	NA	NA	NA
Number of observations	2221	1247	382	419	446	213	59	89	105
pseudo r-square			0.16	0.18	0.13	0.06	0.42	0.22	0.05
Observed percent with credit			85.9%	76.6%	62.1%	44.6%	76.2%	60.8%	37.1%
Predicted percent with credit			90.0%	81.3%	63.8%	44.1%	90.9%	64.5%	36.4%

Notes: (a) Combined with cell above or below because of lack of variation within the cell.

T-statistics in parentheses. Standard errors are corrected for multiple observations per firm. Coefficients in bold are significant at the .10 level or better.

The regressions in columns 1 and 2 are two-tailed tobits with 17.0% and. 25.8% of the observations uncensored, respectively. The specifications are the same as Table 3, column 3, with 31 country*industry controls (23 for column 1). The other variables are jointly significant at better than the .001 level (Chi-square=182.7 (36) in column 1 and 226.3 (34 d.f.) in column 2).

The country-level regressions are probits, with specifications as in Table 3, column 1. The coefficients represent the marginal change in the probability of giving credit at mean values.

The variables measuring durations of more than 9 years in Slovakia and Romania and the variables indicating more than 5 proximately located firms and durations of 3-12 months Russia/Ukraine are dropped because there is no variation in the cells. There are an insufficient number of relationships with durations three months or less in Russia and Ukraine to run a regression for these countries.

Table B-3
Switching Costs -- Probability of Rejecting Lower-priced Offer

	(1) All countries with SOEs, Imports	(2) Poland, Slovakia and Romania only	(3) Poland	(4) Slovakia	(5) Romania	(6) Russia/Ukraine with state-owned / import suppliers	(7) Poland	(8) Slovakia	(9) Romania	(10) Russia/Ukraine
			-------Private, domestic suppliers only------				Private, domestic suppliers only ----------Custom inputs only----------		With state-owned and import suppliers	
Complexity:										
Supplier produces good	**0.22**	**0.20**	**0.21**	**0.21**	**0.17**	**0.30**	**0.23**	**0.36**	**0.16**	0.26
unique to your firm	**(7.63)**	**(4.69)**	**(2.42)**	**(2.97)**	**(2.99)**	**(6.21)**	**(2.21)**	**(3.63)**	**(2.12)**	(1.63)
Firm has no alternative	**0.12**	**0.10**	**0.17**	0.07	**0.05**	**0.21**	0.12	0.05	**0.14**	**0.50**
supplier for this input	**(6.69)**	**(3.88)**	**(3.39)**	(1.45)	**(1.79)**	**(6.25)**	(1.33)	(0.43)	**(2.19)**	**(3.60)**
Quality specifications	**0.06**	**0.05**	0.03	0.06	**0.05**	0.04	-0.02	**0.21**		
are written	**(2.55)**	**(2.00)**	(0.56)	(1.08)	**(2.49)**	(0.75)	(0.25)	**(2.22)**		
Information:										
Duration of relationship	**-0.07**	**-0.06**	**-0.14**	-0.02	-0.01	**-0.09**	-0.11	**-0.25**	-0.01	(a)
3-12 months	**(2.49)**	**(1.85)**	**(2.45)**	(0.28)	(0.52)	**(1.87)**	(0.65)	**(1.65)**	(0.20)	
Duration of relationship	-0.03	0.01	0.01	0.05	**-0.05**	**-0.09**	0.21	-0.20	(a)	-0.24
13-24 months	(1.07)	(0.23)	(0.08)	(0.57)	**(1.93)**	**(1.64)**	(0.95)	(1.38)		(1.50)
Duration of relationship	-0.04	-0.01	**-0.11**	0.05	0.02	-0.03	0.06	-0.14	(a)	(a)
2 - 9 years	(1.31)	(0.19)	**(1.66)**	(0.71)	(0.87)	(0.53)	(0.31)	(0.87)		
Duration of relationship	**-0.08**	(a)	(a)	(a)	(a)	-0.03	(a)	(a)	(a)	(a)
more than 9 years	**(2.13)**					(0.53)				(1.40)
First information from	0.03	0.03	0.06	0.09	-0.03	-0.03	0.11	0.19		
business network	(1.15)	(1.08)	(1.06)	(1.41)	(1.16)	(0.96)	(0.92)	(1.18)		
First information from	**0.11**	**0.10**	0.01	**0.28**	-0.004	-0.03	0.19	0.11		
social network	**(2.49)**	**(1.82)**	(0.05)	**(2.47)**	(0.14)	(0.65)	(0.85)	(0.49)		
Trade associations provide	**-0.05**	**-0.10**	**-0.11**	**-0.10**	**-0.06**	0.02	-0.11	-0.02	**-0.09**	0.08
customer/supplier services	**(2.92)**	**(4.24)**	**(2.63)**	**(2.07)**	**(3.14)**	(0.67)	(1.20)	(0.19)	**(1.80)**	(0.48)
Frequency of delivery	**0.02**	**0.02**	**0.03**	0.02	-0.003	-0.01	0.02	0.05		
(0-6)	**(2.21)**	**(2.07)**	**(1.71)**	(1.44)	(0.28)	(0.50)	(0.61)	(1.15)		
Visits from supplier	**0.01**	**0.01**	0.01	**0.02**	0.003	**0.02**	0.03	0.02		
before 1st transaction (0-14)	**(3.45)**	**(2.62)**	(0.84)	**(1.93)**	(0.62)	**(2.63)**	(1.37)	(0.75)		
Courts:										
Courts can enforce	**-0.06**	**-0.07**	-0.01	**-0.12**	-0.01	-0.02	-0.16	**-0.44**	-0.09	0.13
contracts	**(3.09)**	**(2.45)**	(0.10)	**(2.38)**	(0.26)	(0.67)	(1.50)	**(3.04)**	(1.11)	(0.95)
Industry controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry/country controls	Yes	Yes	NA	NA	NA	Yes	NA	NA	NA	Yes
Number of observations	2148	1051	335	395	321	583	92	100	107	91
pseudo r-square	0.18	0.17	0.17	0.19	0.23	0.28	0.30	0.32	0.31	0.40
Observed percent reject offer	16.8%	16.2%	17.3%	21.3%	8.7%	17.0%	23.9%	33.0%	16.8%	42.0%
Predicted percent reject offer	12.6%	11.8%	13.2%	16.7%	3.8%	10.0%	15.5%	23.7%	6.2%	33.0%

Notes: (a) Combined with cell above or below because of lack of variation within the cell.

T-values in parentheses. The coefficients are marginal effects at the mean values. Coefficients in bold are significant at the .10 level or better. The regressions are probits. The specification is the same as in Column 1 of Table 7.

The regression in the first column includes 31 country*industry dummies.

The regression for Russia and Ukraine includes state-owned and import suppliers, since there was not enough variation in the dependent variable when the sample was restricted to private, domestic suppliers.

Table B-4
Customer and Manufacturer Characteristics
From Regression Reported in Table 3, Column 3

Customer Characteristics	
Customer has 16-50 employees	-1.10 (0.37)
Customer has 51-100 employees	-1.94 (0.50)
Customer has 101 or more employees	**7.62 (2.12)**
Customer is located in the same city	**-4.14 (1.87)**
Customer is a retailer or wholesaler	**6.07 (2.44)**
Customer is an individual	**-9.27 (2.69)**
Customer is foreign owned	**9.29 (2.27)**
Manufacturer Characteristics:	
Manufacturer has 16-50 employees	1.81 (0.61)
Manufacturer has 51-100 employees	2.10 (0.68)
Manufacturer has 101 or more employees	3.39 (0.81)
Firm had loan in 1996	-0.53 (0.21)
Firm started operation 3-5 years ago	-2.49 (0.76)
Firm started operation 4-6 years ago	-4.05 (1.10)
Firm started operation 3-5 years ago	**-16.54 (2.93)**
Firm started de novo	2.94 (0.89)
Manager less than 30 years old	3.16 (0.55)
Manager 30-40 years old	-4.11 (1.22)
Manager 40-50 years old	0.38 (0.12)
Manager 13-16 years of schooling	**8.95 (2.40)**
Manager 17 or more years of schooling	1.98 (0.56)
Manager was high level SOE manager	4.37 (1.64)

See the notes to Table 3. Reported coefficients are from the column 3 regression. T-statistics in parentheses. Standard errors are corrected for multiple observations per firm. Coefficients in bold are significant at the .10 level or better.