

Contract flexibility and conflict resolution: evidence from African manufacturing

**Arne Bigsten, Paul Collier, Stefan Dercon,
Marcel Fafchamps, Bernard Gauthier,
Jan Willem Gunning, Abena Oduro, Remco Oostendorp,
Cathy Pattillo, Mans Soderbom, Francis Teal
and Albert Zeufack**

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Abstract: This paper examines the contractual practices of African manufacturing firms using survey data collected in Burundi, Cameroon, Ghana, Ivory Coast, Kenya, Zambia and Zimbabwe. Descriptive statistics and econometric results are presented. They show that contractual flexibility is pervasive and that relational contracting is the norm between manufacturers, their suppliers, and their clients. The existence of long-term relations between firms helps them deal with contract non-performance through negotiation. Confrontational methods such as lawyers and courts are used when negotiations fail. Whenever confrontation can be avoided, business is resumed.

Correspondence: Marcel Fafchamps, World Bank, 1818 H. Street NW, Washington DC 20433, US. E-mail: fafchamp@leland.stanford.edu. Web address: <http://www-leland.stanford.edu/~fafchamp>.

This paper investigates the contractual practices of African manufacturing firms and examines whether economic agents use long-term relationships to make contractual performance contingent upon external shocks. Evidence to this effect has already been uncovered in credit transactions among villagers (e.g., Udry (1990, 1994), Lund and Fafchamps (1997)) and fishermen (e.g., Platteau and Abraham (1987)). In contrast to these earlier works that focused on small individual transactions in a rural setting, this paper analyzes the extent of contractual flexibility among large manufacturing firms.

Very little is known about how African markets operate in practice. Fafchamps et al. (1994), Fafchamps, Pender and Robinson (1995), and Fafchamps (1996) have shown that contracts between African manufacturers and their suppliers and clients often are renegotiated: supplies occasionally arrive late or their quality is different from what was ordered, and clients sometimes pay late. Although some modicum of contractual flexibility is prevalent the world over, casual observation and anthropological accounts (e.g., Cohen (1969), Meillassoux (1971), Amselle (1977), Geertz, Geertz and Rosen (1979)) suggest that African firms have a more elastic definition of flexibility -- to the point where it may have become a source of misunderstanding and cultural prejudice. In their dealings with Africans, for instance, foreigners are often taken by surprise by contractual delays and calls for contractual renegotiation, from which they are quick to conclude that African firms (and Africans in general) are unreliable and opportunistic. This is true not only of the occasional traveler, but also of western firms wishing to source products from Africa (e.g., Biggs et al. (1994)).

This paper examines evidence on contractual flexibility among African manufacturing firms using data collected in six countries: Burundi, Cameroon, Ivory Coast, Kenya, Zambia, and Zimbabwe. The empirical analysis tests simple theoretical predictions regarding the incidence of contractual problems and the way contractual disputes are resolved. Results provide the first empirical evidence regarding the extent of and local remedies to contractual non-performance in African manufacturing. They now need to be compared with contractual practices in other parts of the world.

As Fafchamps, Gunning and Oostendorp (1997) have shown, contractual risk affects firms' decisions in a non trivial manner. Zimbabwean manufacturing firms that face a higher frequency of delayed supplies are shown to accumulate significantly more inventories of inputs than firms that face little risk. Like precautionary saving protects households against income shocks (e.g., Deaton (1991), Kimball (1990), Zeldes (1989)), inventory accumulation protects firms against stockout risk (e.g., Krane (1994), Kahn (1987)). Contractual risk may have yet other effects on firm behavior, such as investment, expansion into new markets, and resistance to shocks; studying them is left for future research.

Our results are consistent with the idea that contractual flexibility is a rational response to risk. Expectations regarding contractual performance are thus likely to reflect the environment in which firms operate: the riskier the environment, the higher the need for flexibility, the higher the incidence of contract non-performance, and the higher the expectation of renegotiation. We therefore expect firms operating in a high risk environment to share different expectations regarding standards of contractual performance than firms operating in a low risk environment. When firms that normally operate in low risk environments are put into contact with high risk firms, contradictory expectations of contractual behavior are likely to lead to misunderstanding and feed mutual prejudice (see Biggs et al. (1994) for illustrations). Although this paper does not address these issues directly, results presented here suggest that African manufacturers who export their products face fewer payment recovery problems, while those who import encounter more delays in input delivery, possibly because of delays in transportation. More work is needed to assess whether African firms exposed to outside influences through trade adopt Western-style contractual practices in their local operations or rather take advantage of local tolerance for late

payment and delivery to meet their stricter obligations towards international suppliers and clients.

Section 1. Markets and Contract Flexibility

The last two decades have witnessed a world-wide renewed faith in the capacity of market forces to allocate resources efficiently. Governments have been advised to stop meddling in the allocation process and to let the 'free market' reign. Very little, however, is known as to how a free market actually operates in practice. In particular, we know precious little about how firms deal with each other. For instance, it is unclear how firms which otherwise compete with each other and have opposed interests manage to prevent opportunistic breaches of contract. Yet if the market is to do a better resource allocation job than the government, then surely it must deter or at least minimize cheating among economic agents.

Markets and Opportunism

Microeconomic textbooks depict market transactions as simple exchanges whose economic content is fully described by price and quantity. Evidence collected in Africa and elsewhere suggests otherwise. Purchases of inputs and sales of output -- let alone the provision of labor or credit -- are plagued by a variety of moral hazard, adverse selection, and contract enforcement problems that shape economic exchange and determine how efficient markets are (e.g., Fafchamps (1996)). Building upon the works of Kranton (1996) and Ghosh and Ray (1996), Fafchamps (1998a) shows that a decentralized market can discipline itself if cheating is interpreted as a sign of incompetence. The mechanism by which opportunism is deterred, however, leads to markets that differ significantly from those described in economic textbooks. For one thing, exchange is not anonymous but relational: firms economize on screening incompetent partners by establishing long-term relationships with other firms they have learned to trust. As in Shapiro and Stiglitz's (1984) model of unemployment as a disciplining device, cheating by competent is deterred by the fear of having to search for a new partner.

Relational contracting is, however, an impediment to fully efficient exchange because it makes it costly for firms to switch partners. This may be alright in stable economic environments in which patterns of exchange are constant over time. But if firms must respond to rapidly changing economic conditions by constantly seeking new partners, being stuck with the same partner forever is not optimal. In this case, Greif (1993) and Fafchamps (1998a) have shown that information sharing can dramatically increase the fluidity of exchange by reducing the penalty for switching partner.²

The above mentioned work suffers from one major shortcoming, however: it assumes that cheating is a cut and dry affair, i.e., firms can always honor their contractual obligations, the only problem is to ensure that they do. Yet, in real life, circumstances beyond their control arise in which firms are unable to comply with a contract: a power outage may delay production, civil strife may interfere with delivery, or the central bank may not release the foreign exchange on time. The circumstances that impede contractual performance may be temporary or permanent. If they are temporary, it seems like a waste to cancel a perfectly good relationship simply because one of the partners is temporarily unable to perform. Intuitively, it is in the interest of the two parties to work things out until the difficulty is over. Fafchamps (1996) indeed demonstrates that if there are exogenous circumstances in which one party, say *A*, is unable to comply with its

² To achieve this purpose, however, the stigmatization of cheaters may be necessary; see Milgrom, North and Weingast (1991) and Fafchamps (1998a) for details. Firms may also seek to economize on screening costs by relying on statistical discrimination or by refusing to deal with firms outside their network. These issues are discussed in Greif (1994) and Fafchamps (1998b).

contractual obligations, then it is not in the interest of the other party *B* to insist on harsh punishment for breach of contract. Doing so would only incite *A* to refuse to trade *ex ante*.³ In this case, it is optimal for the parties to recognize that exogenous circumstances may prevent them from honoring their obligations and to build flexibility into the contract. When exchange is relational, flexibility is facilitated by the implicit agreement that binds the parties: if one party feels cheated, it can decide to break the relationship and force the other party to look for another supplier or client. In addition, the aggrieved party may seek reparation by enlisting the help of an external contract enforcement agency. The existence of an implicit threat to seek outside reparation *only* if trust has been broken helps the parties to economize on writing the contract. There is no need to write all contingencies down; all that is required is that parties apply the contract in good faith, that is, to the best of their capacity. These theoretical arguments are clear and have been formalized elsewhere (e.g., Hart and Holmstrom (1987), Fafchamps (1996)). What is unclear is whether they are relevant at all in practice.

Contract Flexibility

Evidence suggests that market transactions, far from being rigid contracts, exhibit an unexpected degree of flexibility (e.g., Lorenz (1988), Fafchamps (1996), Fafchamps, Pender and Robinson (1995)). To fully understand how markets operate in practice, we need to understand what flexibility means and why it exists. Flexibility arises when contractual performance is made explicitly or implicitly contingent upon external events affecting one of the parties. The idea is that a supplier who cannot deliver or client who cannot pay is allowed to renegotiate the contract and default from his or her original obligations. Flexibility is thus a form of insurance, of risk sharing.

Fafchamps (1996) has argued that, unless contract are flexible, economic exchange cannot take place. This is because parties can never to totally sure they can comply with their contractual obligations: external events may prevent them from doing so. Unless they can exonerate themselves from obligations that have become too onerous, they will refuse to engage themselves. Allowing parties too much flexibility, however, is opening room for much abuse. Contractual obligations must therefore be sufficiently flexible that parties are not afraid to engage themselves, but not so flexible that opportunistic behavior is overtly encouraged. The facility with which agents can monitor each other makes it easier for them to condition contractual performance on conditions affecting the parties. How much information circulates may depend on local information sharing institutions -- and the ability to cross-check information -- and on agents' capacity to personally monitor each other. One of the objectives of this paper is to provide evidence on how flexibility operates in practice.

Section 2. Evidence from African Manufacturing

In this section we provide evidence of relational contracting and contract flexibility among African manufacturing firms. We also seek to identify a set of robust predictors of contractual risk and of choices of conflict resolution methods. The data that we use for this purpose come from surveys of manufacturing firms conducted in six countries of Sub-Saharan Africa: Burundi, Cameroon, Ivory Coast, Kenya, Zambia, and Zimbabwe. The surveys were conducted by a variety of national teams coordinated by the Regional Program of Enterprise Development of the World Bank. Although the data are generally comparable, occasional discrepancies occur and

³ To see why, consider the following caricatural example. Suppose a bank proposes to lend you one million dollars free of interest but stipulates that, in case the money is not repaid in full by a given date, you will be executed. To the extent that circumstances beyond your control may prevent you from repaying the bank with absolute certainty, you may very well decide that the contract is unattractive.

some data are not available for certain countries.

Characteristics of surveyed firms

In each of the six countries, random samples were drawn among manufacturing firms in four sectors of economic activity: textile and garment; metal products; wood and furniture; and food processing (see Table 1). Samples sizes vary from 120 firms in Burundi to 238 firms in Cameroon. Firms with fewer than 5 employees were excluded from the sample. The data thus represent the small to large scale manufacturing sector in Africa; microenterprises are ignored. The average number of employees for the six countries is 144; sample firms are largest in Zimbabwe (301 workers on average), and smallest in Burundi (76). The Zimbabwe sample is made of relatively old firms with an average age of 25 years; younger firms are found in the three French-speaking countries of the sample. Sixty percent of the surveyed firms have a legal status that limits the liability of the firm to its own assets; other firms are held either in sole proprietorship or in partnership. Over one quarter of the surveyed firms operate under partial or complete foreign ownership, with a high of 62% in Ivory Coast and a low of 12% in Zambia. Partial or complete state ownership occurs for less than 5% of sample firms.

The ethnic makeup of the sample firms varies dramatically among countries. In two of the seven countries, less than half of the sample firms have ethnic Africans as owners. Ethnic Europeans are predominant in Zimbabwe and maintain a strong presence in Cameroon and Ivory Coast. Asians occupy a dominant position in Kenyan manufacturing and are present elsewhere as well. The implications of this ethnic differentiation are discussed in detail in Fafchamps (1998b).

The way firms deal with clients and suppliers is depicted in Table 2. Most surveyed firms sell at least part of their output to end-users of their products such as manufacturers and consumers; the rest is sold primarily to wholesalers and retailers. About a quarter of surveyed firms do at least some of their business with publicly owned entities. On average, sample firms export 9.6% of their output; this proportion is highest in Ivory Coast and lowest in Zambia. Some form of written agreement -- e.g., a signed invoice -- is used in less than half the sales to clients. The explanation lies in the length of the relationship that binds firms with their clients. Data on the number of years firms have dealt with their clients are not available but the data show that firms have on average dealt for close to 8 years with their problematic customers, that is, those that recently failed to pay or paid late. Problematic customers are primarily individual consumers. Roughly one tenth of late and non-payment cases occur with relatives or kin.⁴

More detailed information is available on firms' suppliers (see second part of Table 2). A quarter of the firms deal with at least one monopolist among their major suppliers. Monopolies appear more commonplace in Zimbabwe, a feature already noted by Gunning and Mumbengegwi (1995) and a possible heritage of the Unilateral Declaration of Independence (UDI) period during which an international embargo forced the country to be self-sufficient. A quarter of surveyed firms' inputs are imported; the rest is bought locally, possibly from importers. Firms in Burundi and Cameroon are more likely to be direct importers of inputs than firms in the other three countries.

Firms are extremely loyal to their suppliers. They purchase on average close to three quarters of their most important inputs from the same suppliers, whom they have known for 9.5 years

⁴ Respondents were asked to mention whether the problematic client was either (1) a relative or family member; (2) a member of the same tribe or ethnic group; or (3) none of the above. They seem to have interpreted the question of ethnicity in the narrower sense of kinship. For instance, even in a country such as Burundi where 82% of respondents are Africans and where Hutus constitute close to 90% of the population, only 7% of the respondents said that the problematic client was from the same ethnic group. This could not have occurred if respondents had interpreted ethnicity as meaning Hutu or Tutsi or white.

on average. Only a fifth of the firms place infrequent orders; others have regular relationships with suppliers. These relationships, however, are primarily based on business acquaintance, not family or ethnicity; only 6% of the surveyed firms mention that one of their regular suppliers is a relative or personal friend; 12% have a supplier who is from the same 'ethnic group' as them.

Less than forty percent of the surveyed firms receive credit from their supplier; this proportion is lowest in Zambia and highest in Zimbabwe. The average payment term over all sample firms is three weeks; it is of course higher for those who receive supplier credit. Trade credit among African manufacturing firms is discussed in detail in Cuevas et al. (1993), Fafchamps et al. (1994), Fafchamps, Pender and Robinson (1995), and Fafchamps (1997). In contrast, advance payment is rare: only 4.3% of the surveyed firms resort to it, often because the supplier insists on it.

Table 2 also reports the characteristics of problematic suppliers, that is, those who fail to deliver on time or who deliver deficient quality. Less than 10% of the breaches of contract occur with first-time suppliers, possibly because firms do so little of their business with unfamiliar suppliers. On average, firms have known problematic suppliers for 8.2 years -- only marginally less than the length of time they have known their suppliers in general. Problematic suppliers are primarily other firms; less than 13% of recent cases of contract non-performance were with public firms.

Incidence of contractual disputes and conflict resolution methods

Next we turn to the incidence of contractual disputes with clients (Table 3). The data show that roughly two thirds of the sample firms experienced some cases of late payment by clients during the 12 months preceding the survey; close half of them faced cases of non payment. With 23.4 occurrences of late payment per year, the annual average of late payment cases is close to ten times the average number of non-payment cases, suggesting that late payment is a more common phenomenon than non payment.

In the great majority of cases of late and non payment, firms attempt to resolve the problem through direct negotiations with the client. This proportion is highest in Cameroon and Burundi, lowest in Zimbabwe. A small number of firms resort to private arbitration loosely defined;⁵ Some 8.7% of sampled firms ever called or threatened to call upon the police for help. In one fourth of the problematic cases, the dispute was either brought to the attention of a lawyers and ended up in court or the threat of legal action was resorted to by the parties. Sharp differences exist among countries: Zimbabwean firms were much more likely to go or threaten to go to court than those in Burundi -- a possible reflection on the relative reliability of their court systems and the size of surveyed firms in each country. Nearly one half the cases of late and non payment were settled by the time of the survey. Most of the respondents were satisfied with the terms of the settlement, with little difference across countries. Parties continued to trade in 43.8% of the cases -- more in Burundi, less in Zimbabwe -- suggesting that conflict resolution methods are moderately successful in solving disputes and bringing parties back together.

Contractual disputes with suppliers are less frequent and less dramatic (see second part of Table 3). A third of the surveyed firms experienced a late delivery in the year preceding the survey. Untimely delivery was complained about most often in Zimbabwe and least often in Burundi. The number of reported cases is also much higher in Zimbabwe than elsewhere,

⁵ Strictly defined, private arbitration is a process by which parties to a contract agree to grant authority to a third party to legally resolve a dispute between them. The arbitrator has the power to adjudicate the dispute and his or her judgement is, in many developed countries, granted the full protection of the law, at par with other judgements. It unlikely that all respondents were acquainted with this legal definition; their answers probably lump together formal arbitrators and informal mediators with no adjudication power.

suggesting that input delivery risk is particularly problematic in Zimbabwe.⁶ Cases of deficient quality are reported by one third of the surveyed firms. As with clients, the most commonly used conflict resolution method is direct bargaining. Recourse to other conflict resolution methods is extremely rare: only 3.8% of the surveyed firms went to see a lawyer following disputes regarding late delivery or deficient quality. Fafchamps (1996) reports similar results for Ghana. Most disputes with suppliers are settled and firms continue to trade, even if they are not fully satisfied with the outcome.

To summarize, surveyed firms have long term relationships with their clients and suppliers to whom they are very loyal. These relationships are primarily grounded in business acquaintance; family, friendship, and ethnicity play little role in fostering them. The data indicate that contractual disputes occur frequently and that most firms are affected. Without equivalent data from other parts of the world, however, we cannot say whether contractual disputes are more frequent in Africa than elsewhere. The majority of contractual disputes are resolved amicably and trade is resumed in most cases. Direct negotiation is the preferred conflict resolution strategy. Detailed examination of the data reveals that outside parties such as arbitrators, lawyers, or the police, are called upon only in more serious cases of contractual breach such as those involving non payment. Taken together, these results are consistent with the importance of contractual flexibility in helping firms deal with risk, and with the role of long-term relationships in helping firms resolve contractual disputes through face-to-face negotiation.

For the sake of comparison, we report on Table 4 various published indicators of legal environment and the rule of law. They show that, of the six countries studied, Zimbabwe enjoys the highest rankings as to whether the legal system enforces contracts and legal suit can be brought against businesses, according to World Economic Forum (1998). It is also the country for which, according to our data, manufacturing firms are the most likely to sue for breach of contract. The relationship stops there, however, as the rankings in terms of reliability on legal institutions among the other countries do not correspond to actual use of courts and lawyers. Moreover, although Zimbabwe is the country where courts and lawyers are used most intensively, it is also the place with the highest incidence of payment problems. The existence of a good legal system thus seems insufficient to deter all breaches of contract. Table 4 also brings to light the reluctance of the general public for the legal resolution of disputes. This may explain the important role of direct bargaining as the dominant conflict resolution method. Other institutional indicators such as those used by Keefer and Knack (1997) show little relation with observed conflict resolution practices, except perhaps for Burundi (Table 4).

Section 3. Econometric analysis

To further our understanding of contractual disputes and conflict resolution, we continue with a multivariate econometric analysis of the data. Given the total absence of previous work on these issues in Sub-Saharan Africa and elsewhere, we proceed with caution and we refrain from imposing too much structure on the estimation. We seek to identify possible determinants of three basic processes: (1) the incidence and frequency of contractual disputes; (2) the choice of conflict resolution method, given that a dispute has arisen; and (3) the outcome of the dispute. We examine these three issues in turn. Regressors include the contractual environment in which the firm operates, measured by the average incidence of contractual problems and the average propensity to threaten court action in delinquent payment cases among firms operating in the same country and sector; the characteristics of the industry, proxied by country, town size, and sector dummies; the characteristics of individual firms, i.e., size, age, legal status, and ethnicity

⁶ Fafchamps, Gunning and Oostendorp (1997) indeed show that contractual risk incites Zimbabwean manufacturers to accumulate inventories.

of owner/manager; the characteristics of clients and suppliers the firm deals with; and the way firms deal with contract non-performance. Data from the six countries are combined whenever possible but location dummies are included to control for systematic differences across locations.

The Incidence and Frequency of Contractual Disputes

Following our discussion of the theoretical literature in Section 1, we expect the frequency of contractual disputes to reflect the environment in which firms operate: enterprises that buy and sell in countries or sectors in which contractual disputes are frequent should face more problems than firms that operate in a more disciplined environment. Three sets of variables are used to control for market environment effects: location dummies; sectoral dummies; and the average frequency of contractual disputes and threat of court action in each country and sector.⁷ Kenya is the omitted country; small town is the omitted city size; food processing is the omitted sector.

The incidence of contractual disputes is also likely to vary with characteristics of the firm. Larger firms, for instance, conduct more transactions and are thus expected to encounter more problems than small firms.⁸ Older firms may have identified more reliable clients and suppliers and thus face fewer problems (e.g., Bade and Chifamba (1994), Fafchamps (1998b)). Firms with a limited liability status may be more willing to take risk with clients and suppliers and are thus expected to face more contractual disputes. Given the existence of business network effects in African manufacturing (e.g., Fafchamps (1998b), Barr (1997)), one would expect better connected firm managers to screen clients and suppliers more easily and thus to experience fewer breaches of contract. It is also possible that the attitude of firms vis a vis contracts reflects cultural values that are shaped by ethnic identification (e.g., Greif (1993, 1994)). To the extent that the ethnicity of the owner/manager is correlated with membership in business networks and cultural attitudes, it should be included as regressor. We include a dummy for ethnic African and ethnic European management; Asian management is the omitted category. For the same reason, we include dummies for firms that have some foreign or state ownership.

The nature of the relationships that firms maintain with their clients and suppliers could also affect the incidence of contractual problems. Here we are somewhat limited by the nature of the information collected in the survey. For clients, we include the share of exports in total sales, as well as dummies for whether the firm sells to individual end-users and whether it sells to public entities. Although payment delays in export markets are longer, the institutional mechanism of the letter of credit is expected to reduce the incidence of payment problems since payment is no longer at the discretion of the buyer. Selling to traders (the omitted category) is generally perceived to be safer than selling to individual end-users such as manufacturers and final consumers. The reason is that traders are in general more liquid and have a faster cash turn-around. Selling to public entities is expected to raise the incidence of payment problems because governments everywhere, but particularly in Africa, are notorious for paying with delay.

For suppliers, more varied data are available. We include indicators of market power (share of imported inputs plus dummies for whether the firm faces a monopolistic supplier or a public supplier for at least one of its inputs); indicators of social capital (length of relationship with

⁷ Each observation is omitted from its own average to avoid endogeneity bias. Because of high multicollinearity across average frequency measures, a single frequency measure is used in the regression analysis: the frequency of late payment in regressions involving clients, and the frequency of late deliveries in regressions involving suppliers. In all regressions, the average frequency of threat of court action refers to payment disputes with clients.

⁸ The number of transactions a firm is engaged in over a set period of time is not proportional to size, however, since larger firms typically engage in larger transactions. Moreover, firms may differ in what they mean by a transaction. For a small firm selling purely on a cash basis, a transaction is a single sale or purchase; for a large firm, a transaction can be an order or an invoice, depending on the context. These differences complicate the collection of data across firms of different sizes.

suppliers, percentage of purchases from main suppliers, and dummies whether firm buys from family and friends and whether firm only makes infrequent purchases); and indicators of credit terms (dummies for whether the firm receives supplier credit and whether it gives advance payment). We expect market power to raise the incidence of contractual problems since monopolists can more easily get away with breaches of contract. In contrast, we anticipate that stronger relationships with suppliers should reduce the frequency of problems. Finally, we expect that more complex contracts involving credit open more room for breach of contract and thus should raise the frequency of problems. Because the nature of the relationships that firms maintain with clients and suppliers is potentially endogenous, results should only be interpreted as indicative of empirical regularities.

Logit regressions on the incidence of contractual problems with clients and suppliers are presented in Tables 5 and 6. Coefficients are reported in the form of odds ratio to improve readability; an odds ratio greater (smaller) than one means the regressor raises (reduces) the probability of a contractual problem. Results indicate that there are significant differences across countries and sectors but also that these differences are not well captured by contract environment variables.⁹ Some countries such as Zimbabwe, Cameroon, Ivory Coast have a higher incidence of payment problems. These also tend to be more advanced countries by African standards. Zimbabwe experiences a higher incidence of supplier-related problems, a result consistent with Fafchamps, Gunning and Oostendorp's (1997) finding that supplier risk has a significant effect on manufacturing inventories in that country. As expected the incidence of problems is higher among large firms, but the effect is not always significant. Older firms face more non-payment problems, not less, suggesting that older firms do not have a significant screening advantage over younger firms. Surprisingly, both African and European-managed firms face more cases of non-payment than Asian-managed firms: if network and cultural effects are present, in this broad sample of African manufacturing firms they do not unilaterally disadvantage African firms, contrary to what was suggested by Fafchamps's (1998b) work on Zimbabwe and Kenya.

Regarding the effect of relation-specific variables, we find that selling to public firms raises the probability of late payment. In contrast, selling in export markets reduces the incidence of payment problems. The effect is large: a firm that exports all its output is four to five times less likely to experience a late or non payment problem than a firm that exports nothing. But this effect may be due more to reliance of institutional mechanisms such as the letter of credit rather than exemplary behavior on the part of international buyers. Indeed, on the supplier side, late delivery is shown to be more likely for firms that import much of their raw materials. The reason for this empirical regularity is again unclear and it could be due to transportation and customs delays. These issues deserves more investigation. On the supplier side, we find that monopolistic suppliers do not, in general, take advantage of their market power: if anything, the incidence of contractual problems is lower with monopolistic suppliers. Public suppliers cause more problems on average but the effect is only significant for deficient quality. Late delivery is more frequent among firms that import their inputs, a likely reflection of the vagaries of African transportation and port systems. The length and strength of a firm's relationship with its suppliers have the expected sign but they are not significant. Surprisingly, firms that make infrequent purchases encounter fewer problems. One likely explanation is that these firms are very small and operate on a cash-and-carry basis only -- what Fafchamps (1998b) call the flea market economy. Another surprising result is that firms that buy from family and friends encounter more late delivery problems. One possible interpretation is that it is more difficult to put pressure on family and friends

⁹ Unreported regression results show that, when country and sectoral dummies are omitted, environment variables are very significant. Once country and sector dummies are included, however, they are no longer significant. This may be due to multicollinearity, given the way environment variables are constructed.

than on regular suppliers, an idea already emphasized in Fafchamps, Pender and Robinson (1995) and Fafchamps et al. (1994). Finally, as expected, problems are much more frequent among firms that receive or give credit to their suppliers, a result consistent with the idea that contractual breach is more likely in more complex contracts, but the effect is in general not significant.

Next, we examine the number of contractual problems firms face using a selection model (e.g., Heckman (1976), Maddala (1983)). Results are presented in Tables 7 and 8. They confirm that large firms unmistakably face more problems than smaller firms -- hardly a surprise. Older firms seem to do better with suppliers, a result in agreement with the idea that there are returns to experience in choosing and dealing with suppliers. A high frequency of threat of court action is associated with a lower probability of experiencing late payment, a result with is consistent with the idea that stricter sanctions for breach of contract have a deterrent effect. Unfortunately for this theory, legal threats are also associated with more cases of late payment and a higher propensity to experience late delivery and deficient quality with suppliers. More detailed work is required to disentangle these issues. Again, exporters experience fewer payment problems, probably thanks to the letter of credit system.¹⁰ European-managed firms report more late payment problems, contrary to what the business network idea had led us to expect. Firms buying from friends and family and those who receive supplier credit run into more problems with suppliers. Other relationship characteristics are not significant, possibly because of endogeneity or omitted variable bias. A thorough investigation of the causality between these various factors requires instruments that are not available in these data and is left for future research.

Next we seek to understand whether the frequency of problems varies significantly across categories of buyers. The survey recorded the type of client with whom respondents had their most recent payment problem and coded answers into three main categories: individuals, domestic firms, and public entities and other types of clients (e.g., foreign firms). Based on conversations with entrepreneurs, we suspect individual buyers to be riskier than firms because they are smaller and can more easily evade debt recovery. To do a proper test, we would need data for each respondent on the proportion of total sales going to these three categories of buyers. Unfortunately these data are not available. What we know, however, is whether respondents sell to public entities and individual end-users (who can either be individual customers or manufacturing firms).

Results from a multinomial logit regression are reported in Table 9.¹¹ They should be regarded as suggestive only. As anticipated, respondents selling to public entities are more likely to experience problems with such clients while firms that sell to individual end-users are less likely to have problems with firms (the omitted category). Larger firms appear less likely to experience problems with individuals and more likely to face difficulties with other firms or with public entities. In contrast, African managed firms are more likely to face problems with individuals. These results may be due to the fact that larger, better connected firms deal more with formal clients and are thus more likely to encounter recovery problems with such clients. An alternative interpretation is that African entrepreneurs *interpret* late and non payment as problems with individuals and, for cultural reasons, answered the question differently. More research is needed to ascertain which explanation is appropriate.

¹⁰ The survey did not collect data on recourse to the letter of credit system, but informal discussions with respondents in Kenya and Zimbabwe indicate that letters of credit are used in most imports and exports from outside of Africa. Because of the informal nature of much intra-African trade, respondents seldom export or import within Africa themselves. The only possible exception is trade with South-Africa.

¹¹ An insufficient number of observations precluded a similar analysis for suppliers.

Conflict Resolution Methods

Theory predicts that conflict resolution methods play an important deterrence role. It is the fear of sanction that induces agents to comply with their contractual obligations (e.g., North (1990), Platteau (1994a, 1994b), Greif (1993)). These sanctions can take several forms (e.g., Fafchamps (1996)): guilt; harassment; loss of relationship and reputation; and recourse to legal institutions such as courts and lawyers, but also private arbitration and, more prosaically, the police. We focus here on two types of sanctions that are important in practice: legal recourse, and loss of relationship.¹²

Simple models of relationships such as the ones presented by Kandori (1992), Greif (1993), Ghosh and Ray (1996) and Fafchamps (1998a) predict that sanctions are applied as soon as breach of contract occurs.¹³ Which type of sanction is chosen depends on their relative cost and effectiveness. Given the existence of fixed costs in legal proceedings, the threat of legal action is seldom credible for small size transactions. Suing a poor individual with no assets is rarely cost effective: the chance of recovering anything by legal means is slim so that it is not worth incurring lawyers and court fees. Suing may also be unattractive if the contractual dispute is complex and the evidence hard to verify, so that the outcome of the court process is uncertain. In contrast, breaking a relationship is likely to be counterproductive if the other party is sole buyer or seller. Legal sanctions may not work either; harassment may be the only viable alternative.

Whenever there exist uncertainty regarding the cause for the breach of contract, immediate sanctions need not be optimal; a more gradual approach may be called for. To see why, suppose for instance that agents can be hit by two types of shocks: temporary shocks and permanent shocks. The former make it impossible for agents to comply with their contractual obligations for a single period only; the latter make the agent permanently unable to comply (e.g., bankruptcy).¹⁴ Intuitively, applying harsh sanctions is appropriate only when the other party has been hit by a permanent shock. If the shock is only temporary, both parties are likely to be better off renegotiating the contract and preserving their relationship. In these circumstances, the natural response to a breach of contract is for both parties to communicate and negotiate until it becomes clear that the shock is permanent, at which point hard sanctions are applied.

The negotiation subgame is itself fraught with problems, however. Waiting too long to sue may enable the breaching party to hide assets and evade legal sanctions. The negotiation process is thus likely to be limited in time. Renegotiation introduces an insurance-like element into the contract. By analogy with the benefits agents can obtain by filing false insurance claims, parties may profit by calling for undue renegotiation, thereby abusing the other party's willingness to renegotiate contract terms. As a result, agents unable to monitor the situation of the other party may optimally refuse to renegotiate for fear of abuse and may opt for hard sanctions instead.

Although market exchange would become impossible in the total absence of sanctions for breach of contract (e.g., Benson (1990), Fafchamps (1996)), punishment of all breaches of contract is not required; it is sufficient that breach of contract be punished with a sufficiently high probability. Consequently, some agents may be able to free-ride the system, i.e., refrain from incurring any of the costs associated with conflict resolution and yet expect a low probability of breach. By the same token, agents may choose to randomize, i.e., to punish only a certain percentage of breaches they incur. In these cases and when it is clear that pursuing the breaching party

¹² Evidence regarding reputational sanctions is presented in Fukuyama (1995), Lorenz (1988), Hart (1988), Greif (1993), Fafchamps (1996, 1997, 1998b).

¹³ This is but an application of the optimal penal code principle of Abreu (1988): gradual sanctions are unnecessary; optimal deterrence is obtained when harsh sanctions are used to punish all deviations from cooperation.

¹⁴ These ideas could be extended to shocks to factors influencing agents' willingness to pay without affecting their ability to pay (e.g., Fafchamps (1996)).

is futile, doing nothing may well be the optimal strategy.

This brief, heuristic discussion leads us to expect firms to differ in the way they seek to resolve breach of contract. First, we expect to observe across countries and sectors some differences in reliance on legal institutions that reflect the cost and predictability of legal recourse. We control for such effects via location and sectoral dummies and the average incidence of contractual conflicts. Second, large firms are more likely to engage in large transactions and thus more likely to find legal recourse cost effective. Third, older firms may have acquired better negotiation and monitoring skills, and are likely to be more familiar with legal institutions. We therefore expect them to be less likely to do nothing when faced with contractual problems. To the extent that limited liability status creates a moral hazard problem and weakens incentives, we expect such firms to be more casual about contractual breach and hence to be more likely to do nothing. Firms may also use their business contacts to monitor contract renegotiation; as a result we expect ethnic Africans to be more likely to either do nothing or use legal recourses given that they have fewer business connections in several of the countries we study, such as Ghana, Kenya, and Zimbabwe (e.g., Barr (1997), Fafchamps (1998b)). We also include dummy variables indicating whether the firm has some foreign or state ownership. Next, firms that value relationships ought to put more emphasis on direct bargaining once problems occur. In contrast, firms that face monopolistic sellers may find it difficult to seek legal reparation. Finally, firms receiving or granting credit to their suppliers ought not to remain inactive when faced with contractual problems. We control for all these factors with the variables listed in the previous subsection. Again, some of these variables are potentially subject to endogeneity bias, a bias we cannot correct for because we do not have good instruments for relationships and network capital. Results should thus be interpreted as suggestive only.

We first examine the probability with which firms seek to negotiate and threaten court action conditional on having encountered a contractual breach. We use a multinomial approach.¹⁵ For clients we divide respondents' actions into four categories: (1) do nothing, (2) only negotiate (the omitted category), (3) only use legal institutions, and (4) bargain and use legal institutions simultaneously.¹⁶ For suppliers, the third and fourth categories are merged given the small number of observations in each of them.¹⁷ Since the frequency of late delivery and deficient quality is much lower than that of recovery problems, there much fewer observations on the supplier side. Results are presented in Tables 10 and 11 for clients and suppliers, respectively.

Consistent with expectations, we find that large firms are more likely to threaten court action against delinquent clients, a result consistent with the higher cost effectiveness of legal proceedings for large transactions. The effect is large and significant for both clients and suppliers. Legal institutions are thus more important for large firms than for small ones. Direct negotiation in delinquent payment cases seems to be the method of choice of African owners,¹⁸ perhaps reflecting a cultural preference for non-confrontational conflict resolution methods. The length of the relationship between parties dramatically reduces the likelihood of going to court in delinquent payment cases. The fact that the problematic client is from the same family or kin group also reduces the likelihood of court action. These results are consistent with the idea that valuable relationships serve to discipline contractual behavior without recourse to external enforcement mechanisms (e.g., Ghosh and Ray (1996), Fafchamps (1998a)). The severity of the dispute also influences the conflict resolution method: disputes about late delivery and non-

¹⁵ Qualitatively similar results are obtained using separate logit regressions.

¹⁶ In practice, the former typically precedes the latter, but we have no data on the sequencing of actions.

¹⁷ There are only three cases of exclusive recourse (or threat of recourse) to legal institutions.

¹⁸ This effect is particularly strong in the logit regression using direct bargaining as dependent variable.

payment are less likely to be dealt with via bargaining, and more likely to trigger threats of court action (although the effect is not statistically significant for suppliers). Exporting firms are shown to be less likely to rely simply on legal institutions to resolve payment disputes. This is consistent with the role that the letter of credit mechanisms plays in solving disputes.

On the supplier side, we see that dealing with monopolistic suppliers raises the probability of doing something in response to a contractual dispute. Contrary to expectations, loyalty to suppliers as measured by the percentage of purchases made from main suppliers increases the likelihood of taking no action. Discussions with respondents nevertheless suggest that when parties are extremely well acquainted with each other, minor contractual problems such as late deliveries and quality problems are handled so easily and expeditiously that respondents do not perceive negotiation as taking place at all. Whenever the problematic supplier is a public firm, direct bargaining is less likely, possibly because it is unlikely to be successful: public agencies are notorious for being unreliable suppliers so that negotiating with them for late deliveries and poor quality is probably seen as a waste of time.

Outcome of Contractual Dispute

We conclude this section with an analysis of the outcome of contractual disputes with clients and suppliers. Survey respondents were asked to comment on 'the most recent case' of non payment, etc, they had encountered. Responses are therefore subject to truncation: some of the most recent contractual disputes have not been settled yet. We do not, however, have information on when the dispute began, so that we cannot correct for differences in the duration of disputes. Two issues are therefore examined: first, whether the contractual dispute was settled at the time of the interview and, in this case, whether the respondent was satisfied with the outcome;¹⁹ and second, whether the trade relationship continued after the dispute. Regressors are the same as in previous regressions, except that we also control for the method of conflict resolution used by respondents.²⁰ Results must be interpreted with caution because both the outcome of the dispute and the choice of conflict resolution method are likely to be correlated with the severity of the dispute, which is unobserved. For instance, respondents are unlikely to call upon the police for help unless they feel that it is their only hope of getting satisfaction. The coefficients of conflict resolution methods are thus subject to omitted variable bias and should be interpreted in that light.

With these words of warning, results are presented in Tables 12 and 13 for clients and suppliers respectively. They indicate that direct bargaining is strongly associated with the settlement of disputes and the resumption of trade. In contrast, recourse to legal institutions such lawyers, courts, and the police result in a much higher probability that the business relationship is severed following a payment dispute. The use of lawyers and threats of court action is also associated with less satisfactory resolution of those disputes that are settled.

Consistent with theoretical predictions regarding the role of relationships in helping resolve disputes, trade resumption after a payment dispute is more likely when parties know each other well and have been trading for a long time together. Among other results of interest, we note that African managed firms are more likely to settle payment disputes and to do so satisfactorily after controlling for firm size, age, country, and sector of activity. Combined with evidence that shared ethnicity has a positive effect on the settlement of disputes, this can be interpreted as limited evidence of a more lenient attitudes toward payment disputes and a deeper emphasis on flexibility

¹⁹ The small number of disputes with suppliers prevented the estimation of the satisfactory settlement regression in the supplier case.

²⁰ Small sample size prevented the inclusion of conflict resolution methods in the trade continuation regressions for supplier disputes.

and negotiation among African entrepreneurs.

Exporting firms are shown to be more likely to resume trade after a payment dispute than other firms. It is not fully clear why this is the case but it is possible that exporting firms are those that are better skilled at preserving relationships in spite of conflicts. Such skills would indeed be valuable when negotiating export contracts with buyers in other countries. Finally, we note that disputes with individual consumers are less likely to be settled, possibly because individuals are plenty and problematic customers and suppliers are presumably more easily dispensable when they are individuals than when they are firms. In contrast, results not shown here suggest that of all possible disputes, those with public entities are the worst: less likely to be settled, less likely to resume trade, and, quite understandably, less likely to leave the respondent satisfied. One possible explanation for these results is that trade relationships are more likely to be resumed when respondents view the breaching party as an individual person than when they view it as an anonymous firm or public entity. This issue deserves more research.

Conclusion

We have presented evidence that African manufacturers operate in an environment characterized by contractual non-performance risk. Although more work is required to confirm our results, they are in line with the idea that most surveyed firms expect contracts to be flexible. Our findings suggest that contract non-performance is handled primarily through direct negotiation. Only if negotiation is unsuccessful do firms turn to outsiders such as lawyers and courts and, in certain cases, the police. When this happens, the parties are extremely unlikely to resume their relationship. The existence of long term relationships with clients and suppliers appears to serve as a facilitator in these disputes, raising the probability that the dispute is settled and that the outcome is judged satisfactory. Relations based on family, friendship, or ethnicity/kinship make it easier for firms to solve disputes but also raises the incidence of contract non-performance, the two issues being possibly linked.

The paper contributes to the literature in two ways. First, it demonstrates that regarding contracts as rigid is not only inaccurate, it also fails to recognize that contractual flexibility is necessary for market exchange to take place. This finding is essential for a proper understanding of how markets operate in practice. Second, although the data did not allow us to ascertain the direction of causality between participation in international markets and contractual practices, the evidence presented nevertheless suggest that the relation between the two is strong and deserves further study. What this paper was able to show is that African manufacturers operate in an environment where contractual disputes are frequent but are mostly dealt with through direct negotiation. The great majority of disputes regarding late deliveries are resolved to the satisfaction of the parties and trade is resumed thereafter. The same is true for many disputes regarding late payment.

Taken together with evidence that entrepreneurs who are ethnic Africans seek the resolution of conflicts primarily through non-confrontational means, these results suggests that there may be reasons other than rent seeking and erroneous policies for why Africa trades so little with the rest of the world, namely that foreign firms find it difficult to deal with African firms and find them generally unreliable. In particular, attempts by African entrepreneurs to renegotiate delivery and payment terms *ex post* -- a relatively common practice in local transactions according to the data presented here -- are likely to be misinterpreted as opportunistic. While it would be ill advised to overplay the idea -- other obstacles to trade remain formidable -- it nevertheless opens the door to another way of conceiving and, hence, promoting relations between African and foreign firms. This issue deserves further investigation.

References

- Abreu, D., "On the Theory of Infinitely Repeated Games with Discounting," *Econometrica*, 56: 383-396, 1988.
- Amselle, J., *Les Négociants de la Savanne*, Editions Anthropos, Paris, 1977.
- Bade, J. and Chifamba, R., "Transaction Costs and Institutional Environment," *The Manufacturing Sector in Zimbabwe: Dynamics and Constraints*, Free University of Amsterdam/University of Zimbabwe, RPED Country Study Series, The World Bank, Amsterdam, April 1994.
- Barr, A. M., *Social Capital and Technical Information Flows in the Ghanaian Manufacturing Sector*, Center for the Study of African Economies, Oxford University, Oxford, May 1997. (mimeograph).
- Benson, B. L., *The Enterprise of Law*, Pacific Research Institute for Public Policy, San Francisco, 1990.
- Biggs, T., Moody, G., Leewen, J. v., and White, E., *Africa Can Compete! Export Opportunities and Challenges in Garments and Home Products in the U.S. Market*, The World Bank, Washington, D.C., March 1994. RPED Discussion Paper.
- Cohen, A., *Custom and Politics in Urban Africa: a Study of Hausa Migrants in Yoruba Towns*, University of California Press, Berkeley, 1969.
- Cuevas, C., Hanson, R., Fafchamps, M., Moll, P., and Srivastava, P., *Case Studies of Enterprise Finance in Ghana*, RPED, The World Bank, Washington D.C., March 1993. (draft).
- Deaton, A., "Saving and Liquidity Constraints," *Econometrica*, 59(5): 1221-1248, September 1991.
- Fafchamps, M., Biggs, T., Conning, J., and Srivastava, P., *Enterprise Finance in Kenya*, Regional Program on Enterprise Development, Africa Region, The World Bank, Washington, D.C., June 1994.
- Fafchamps, M., Pender, J., and Robinson, E., *Enterprise Finance in Zimbabwe*, Regional Program for Enterprise Development, Africa Division, The World Bank, Washington, D.C., April 1995.
- Fafchamps, M., "The Enforcement of Commercial Contracts in Ghana," *World Development*, 24(3): 427-448, March 1996.
- Fafchamps, M., "Trade Credit in Zimbabwean Manufacturing," *World Development*, 25(3): 795-815, 1997.
- Fafchamps, M., Gunning, J. W., and Oostendorp, R., *Inventory, Liquidity, and Contractual Risk in African Manufacturing*, Department of Economics, Stanford University, Stanford, August 1997. (mimeograph).
- Fafchamps, M., *Ethnicity and Markets: Supplier Credit in African Manufacturing*, Stanford University, Stanford, February 1998a. (mimeograph).
- Fafchamps, M., *Market Emergence, Trust and Reputation*, Stanford University, Stanford, February 1998b. (mimeograph).

- Fukuyama, F., *Trust: The Social Virtues and the Creation of Prosperity*, The Free Press Paperbacks, New York, 1995.
- Geertz, C., Geertz, H., and Rosen, L., *Meaning and Order in Moroccan Society*, Cambridge U. P., Cambridge, 1979.
- Ghosh, P. and Ray, D., "Cooperation in Community Interaction Without Information Flows," *Review of Economic Studies*, 63: 491-519, 1996.
- Greif, A., "Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders' Coalition," *Amer. Econ. Rev.*, 83(3): 525-548, June 1993.
- Greif, A., "Cultural Beliefs and the Organization of Society: A Historical and Theoretical Reflection on Collectivist and Individualist Societies," *J. Polit. Econ.*, 102(5): 912-950, 1994.
- Gunning, J. W. and Mumbengegwi, C., *The Manufacturing Sector in Zimbabwe: Industrial Change under Structural Adjustment*, Free University of Amsterdam and University of Zimbabwe, Amsterdam, January 1995.
- Hart, K., "Kinship, Contract, and Trust: the Economic Organization of Migrants in an African City Slum," *Trust: Making and Breaking Cooperative Relations*, D. Gambetta (ed.), Basil Blackwell, New York, 1988.
- Hart, O. and Holmstrom, B., "The Theory of Contracts," *Advances in Economic Theory*, Truman F. Bewley (ed.), Cambridge University Press, Cambridge, 1987.
- Heckman, J., "The Common Structure of Statistical Models of Truncation, Sample Selection, and Limited Dependent Variables and a Simple Estimator for Such Models," *Annals of Economic and Social Measurements*, 5: 475-492, 1976.
- Kahn, J. A., "Inventories and the Volatility of Production," *American Economic Review*, 77(4): 667-679, September 1987.
- Kandori, M., "Social Norms and Community Enforcement," *Review Econ. Stud.*, 59: 63-80, 1992.
- Keefer, P. and Knack, S., "Why Don't Poor Countries Catch Up? A Cross-National Test of Institutional Explanation," *Economic Enquiry*, 35(3): 590-602, July 1997.
- Kimball, M. S., "Precautionary Savings in the Small and in the Large," *Econometrica*, 58(1): 53-73, January 1990.
- Krane, S. D., "The Distinction Between Inventory Holding and Stockout Costs: Implications for Target Inventories, Asymmetric Adjustment, and the Effect of Aggregation on Production Smoothing," *International Economic Review*, 35(1): 117-136, February 1994.
- Kranton, R. E., "Reciprocal Exchange: A Self-Sustaining System," *Amer. Econ. Rev.*, 86(4): 830-851, September 1996.
- Lorenz, E. H., "Neither Friends nor Strangers: Informal Networks of Subcontracting in French Industry," *Trust: Making and Breaking Cooperative Relations*, D. Gambetta (ed.), Basil Blackwell, New York, 1988.
- Lund, S. and Fafchamps, M., *Risk Sharing Networks in Rural Philippines*, Department of Economics, Stanford University, Stanford, April 1997. (mimeograph).

- Maddala, G., *Limited-Dependent and Qualitative Variables in Econometrics*, Cambridge University Press, Cambridge, 1983.
- Meillassoux, C., *The Development of Indigenous Trade and Markets in West Africa*, Oxford University Press, Oxford, 1971.
- Milgrom, P. R., North, D. C., and Weingast, B., "The Role of Institutions in the Revival of Trade: The Law Merchant, Private Judges, and the Champagne Fairs," *Economics and Politics*, 2(19): 1-23, 1991.
- North, D. C., *Institutions, Institutional Change, and Economic Performance*, Cambridge University Press, Cambridge, 1990.
- Platteau, J. and Abraham, A., "An Inquiry into Quasi-Credit Contracts: The Role of Reciprocal Credit and Interlinked Deals in Small-scale Fishing Communities," *J. Dev. Stud.*, 23 (4): 461-490, July 1987.
- Platteau, J., "Behind the Market Stage Where Real Societies Exist: Part I - The Role of Public and Private Order Institutions," *J. Development Studies*, 30(3): 533-577, April 1994a.
- Platteau, J., "Behind the Market Stage Where Real Societies Exist: Part II - The Role of Moral Norms," *J. Development Studies*, 30(4): 753-815, July 1994b.
- Shapiro, C. and Stiglitz, J. E., "Equilibrium Unemployment as a Worker Discipline Device," *Amer. Econ. Rev.*, 74(3): 433-444, June 1984.
- Udry, C., "Rural Credit in Northern Nigeria: Credit as Insurance in a Rural Economy," *World Bank Econ. Rev.*, 4(3): 251-269, September 1990.
- Udry, C., "Risk and Insurance in a Rural Credit Market: An Empirical Investigation in Northern Nigeria," *Rev. Econ. Stud.*, 61(3): 495-526, July 1994.
- World Economic Forum, *The Africa Competitiveness Report 1998*, The World Economic Forum, Geneva, Switzerland, 1998.
- Zeldes, S. P., "Optimal Consumption With Stochastic Income: Deviations from Certainty Equivalence," *Quarterly J. Econ.*, 104(2): 275-298, May 1989.

Table 1. Characteristics of sample firms:

	Burundi		Cameroon		Ivory Coast		Kenya		Zambia		Zimbabwe		Total sample	
	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean
<i>Sector of activity:</i>														
textile and garment	120	25.8%	238	20.2%	179	24.0%	224	25.0%	215	31.2%	193	43.5%	1169	28.1%
metal	120	20.0%	238	30.7%	179	22.9%	224	25.4%	215	21.9%	193	18.7%	1169	23.8%
wood and furniture	120	20.8%	238	21.8%	179	26.3%	224	26.8%	215	19.1%	193	13.5%	1169	21.5%
food processing	120	33.3%	238	27.3%	179	26.8%	224	22.8%	215	27.9%	193	24.4%	1169	26.6%
<i>General characteristics:</i>														
number of employees	120	76	200	109	179	134	222	117	213	109	189	301	1123	144
year of inception	120	1983	237	1982	179	1979	224	1975	215	1976	192	1969	1167	1977
limited liability status	120	38.3%	238	62.6%	183	53.6%	224	50.9%	215	72.1%	192	74.5%	1172	60.2%
some foreign ownership	120	30.0%	237	32.5%	183	62.3%	224	17.0%	216	11.6%	190	24.2%	1170	28.7%
some state ownership	120	12.5%	243	5.3%	179	1.0%	224	2.2%	216	8.3%	203	5.4%	1185	4.7%
<i>Ethnicity of owner:</i>														
african origin	120	81.7%	237	79.3%	179	57.0%	223	41.7%	185	59.5%	163	29.4%	1107	57.7%
european origin	120	5.8%	237	16.9%	179	33.0%	223	3.6%	185	13.0%	163	49.7%	1107	19.8%
other origin	120	12.5%	237	3.8%	179	10.1%	223	54.7%	185	27.6%	163	20.9%	1107	22.5%

Table 2. Relationships with clients and suppliers

A. With Clients:	Burundi		Cameroon		Ivory Coast		Kenya		Zambia		Zimbabwe		Total sample	
<i>Type of client:</i>	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean
sells to end-users	119	92.4%	185	73.0%	191	70.2%	222	77.5%	213	82.6%	201	68.2%	1131	76.4%
sells to public firms	119	46.2%	185	14.1%	191	16.8%	222	16.7%	213	31.5%	201	24.4%	1131	23.5%
share of exported output	119	4.2%	198	9.9%	210	22.8%	224	6.7%	214	2.1%	189	9.7%	1154	9.6%
<i>Formalism:</i>														
written agreement	119	49.6%	185	53.0%	191	34.0%	222	45.0%	213	43.7%	201	52.2%	1131	46.0%
<i>Characteristics of problematic clients:</i>														
length of relation (years)	47	4.1	113	5.1	234	9.5	107	6.5	115	9.6	92	6.9	708	7.7
individual consumer	78	70.5%	149	38.3%	110	58.2%	142	39.4%	155	34.8%	149	24.8%	783	41.3%
public firm	78	12.8%	149	14.8%	110	12.7%	142	11.3%	155	12.9%	149	3.4%	783	11.1%
relative or kin	70	7.1%	132	13.6%	93	7.5%	117	19.7%	135	3.7%	109	13.8%	656	11.1%
B. With Suppliers:														
<i>Market power:</i>														
one supplier monopolistic	113	30.1%	204	14.7%	204	28.4%	213	17.8%	213	32.4%	197	40.1%	1144	26.9%
one supplier public firm	110	20.9%	204	23.5%	199	17.6%	213	15.0%	213	37.6%	197	28.9%	1136	24.2%
share of imported inputs	115	41.8%	187	46.8%	152	21.5%	224	20.7%	213	23.1%	175	16.1%	1066	27.4%
<i>Loyalty to supplier:</i>														
% inputs from one supplier	79	76.9%	198	70.0%	173	77.9%	214	61.2%	211	64.8%	190	78.5%	1065	70.5%
length of relationship (years)	88	7.0	188	7.5	204	7.9	202	9.3	176	9.5	191	14.6	1049	9.5
orders infrequent	113	37.2%	201	21.4%	199	21.1%	212	17.0%	212	15.6%	197	14.7%	1134	19.8%
<i>Social network capital:</i>														
one supplier friend or family	113	6.2%	204	6.9%	204	2.9%	213	10.3%	213	4.7%	197	5.6%	1144	6.1%
one supplier same ethnicity	0		196	13.8%	201	4.0%	180	19.4%	211	6.6%	121	18.2%	909	11.7%
<i>Credit terms:</i>														
receives supplier credit	113	28.3%	204	45.1%	204	33.3%	213	43.7%	213	25.8%	197	54.8%	1144	39.2%
payment terms (days)	113	15	204	29	204	22	213	22	213	12	197	26	1144	21
gives advance payment	113	2.7%	204	12.3%	204	3.9%	213	4.7%	213	0.0%	197	1.5%	1144	4.3%
<i>Characteristics of problematic suppliers:</i>														
first-time supplier	41	22.0%	103	9.7%	59	8.5%	120	5.0%	117	7.7%	115	8.7%	555	8.8%
length of relationship (years)	27	3.4	91	5.9	67	11.5	112	0.6	107	10.0	100	16.0	504	8.2
individual consumer	44	22.7%	101	8.9%	61	32.8%	121	14.9%	117	11.1%	117	3.4%	561	13.2%
public firm	44	0.0%	101	2.0%	61	3.3%	121	8.3%	117	9.4%	117	12.0%	561	7.0%

Percentages refer to the proportion of responding firms in the category. Otherwise the mean response is reported.

Table 3. Contractual disputes with clients and suppliers**A. With Clients:**

	Burundi		Cameroon		Ivory Coast		Kenya		Zambia		Zimbabwe		Total sample	
	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.	Mean
<i>Incidence of disputes:</i>														
late payment	119	52.9%	208	71.6%	234	42.3%	223	59.6%	214	67.8%	202	80.7%	1200	62.7%
number of cases per year	107	3.1	n.a.		234	2.4	221	5.8	212	18.8	178	90.5	952	23.4
non-payment	118	40.7%	202	62.9%	234	32.9%	223	35.9%	213	39.4%	203	55.7%	1193	44.3%
number of cases per year	114	1.5	n.a.		234	1.5	222	1.3	212	1.4	203	5.6	985	2.3
<i>Conflict resolution method (1):</i>														
direct bargaining	78	85.9%	149	90.6%	108	85.2%	142	72.5%	156	88.5%	147	54.4%	780	78.8%
private arbitration	78	5.1%	147	11.6%	108	9.3%	141	3.5%	156	6.4%	146	5.5%	776	7.0%
police	78	14.1%	141	12.8%	104	12.5%	141	4.3%	156	7.1%	146	5.5%	766	8.7%
lawyer	78	3.8%	147	24.5%	108	14.8%	141	30.5%	156	17.9%	147	47.6%	777	25.2%
courts	78	15.4%	147	22.4%	108	17.6%	141	28.4%	156	20.5%	147	43.5%	777	25.7%
<i>Outcome of dispute (1):</i>														
dispute settled	76	39.5%	145	34.5%	108	44.4%	141	49.6%	157	64.3%	147	54.4%	774	49.0%
satisfied with outcome (2)	30	80.0%	50	84.0%	48	77.1%	69	88.4%	100	82.0%	78	73.1%	375	80.8%
continue to trade	73	58.9%	142	43.7%	104	46.2%	140	42.9%	n.a.		144	35.4%	603	43.8%

B. With Suppliers:

<i>Incidence of disputes:</i>														
late delivery	118	19.5%	207	37.7%	234	22.2%	223	38.1%	214	26.6%	203	47.8%	1199	32.7%
number of cases per year	113	0.3	n.a.		234	1.4	222	6.8	212	2.9	203	19.3	1113	5.8
deficient quality	118	28.0%	206	43.7%	234	16.7%	223	41.7%	214	48.1%	202	54.0%	1197	39.0%
number of cases per year	115	0.9	n.a.		234	0.4	219	4.0	209	5.4	193	7.5	1086	3.4
<i>Conflict resolution method (1)</i>														
direct bargaining	44	79.5%	102	84.3%	59	81.4%	n.a.		116	76.7%	115	57.4%	436	74.3%
private arbitration	43	4.7%	101	2.0%	56	8.9%	112	9.8%	116	3.4%	113	1.8%	541	4.8%
police	44	2.3%	96	1.0%	57	1.8%	120	2.5%	116	0.9%	114	0.0%	547	1.3%
lawyer	44	0.0%	99	5.1%	58	3.4%	121	5.0%	116	4.3%	110	2.7%	548	3.8%
courts	44	0.0%	99	5.1%	57	0.0%	119	3.4%	116	4.3%	110	3.6%	545	3.3%
<i>Outcome of dispute (1)</i>														
dispute settled	43	86.0%	99	77.8%	57	75.4%	n.a.		116	61.2%	107	66.4%	422	70.9%
satisfied with outcome (2)	36	63.9%	75	85.3%	41	85.4%	n.a.		71	84.5%	71	76.1%	294	80.3%
continue to trade	41	78.0%	n.a.		59	89.8%	119	67.2%	n.a.		109	91.7%	328	80.8%

(1) Conditional on a dispute having occurred. (2) Conditional on the dispute being settled.

n.a.: data not available.

Table 4. Indicators of Legal Environment and the Rule of Law

	Burundi	Cameroon	Ivory Coast	Kenya	Zambia	Zimbabwe
Legal system enforces contracts	n.a.	2.71	3.88	3.79	4.00	5.37
Legal suit against business are possible	n.a.	4.18	4.24	4.71	5.62	6.07
Citizens accept legal resolution of disputes	n.a.	1.71	1.91	1.78	1.97	1.89

Source: World Economic Forum (1998). Ranges from 1 (strongly disagree) to 7 (strongly agree).

Law and order	2.5	6	6	5	3	5
Bureaucratic quality	2	4	4	4	2	4
Risk of expropriation	6	7	7	7.5	8	8
Government repudiation of contracts	2.5	6	6	5	3	5

Source: Keefer and Knack (1997). Indices for year 1993. A high number is good, a low number is bad.

Table 5. Logit Regression on the Incidence of Contractual Problems With Clients
(Robust standard errors reported using country-level clustering)

	Late payment		Non-payment	
	Odds ratio	z stat.	Odds ratio	z stat.
<i>Location dummies (1)</i>				
Zimbabwe	4.020	2.145	2.083	1.555
Cameroon	2.061	2.183	4.434	2.060
Ivory-Coast	1.133	0.377	3.425	4.249
Burundi	0.649	-2.026	1.340	0.917
Zambia	1.100	0.444	0.961	-0.224
Main city	1.055	0.241	1.254	0.640
Secondary city	1.131	0.379	1.303	1.042
<i>Sectoral dummies:</i>				
Textile	2.889	2.811	2.175	1.650
Metal	2.611	2.413	2.227	1.361
Wood	3.281	2.445	1.847	1.453
<i>Contractual environment:</i>				
Incidence of payment problems	0.281	-0.513	0.303	-0.443
Recourse to legal system	0.240	-1.575	1.038	0.043
<i>Firm characteristics:</i>				
Size (2)	1.274	2.413	1.165	1.328
Age (3)	1.139	0.838	1.233	1.643
Limited liability status	1.401	2.435	1.056	0.253
Some state ownership	0.829	-0.654	1.100	0.277
Some foreign ownership	0.764	-2.545	0.987	-0.075
African owner/manager	1.313	1.008	1.436	4.685
European owner/manager	1.290	0.944	1.583	2.333
<i>Relationship with clients:</i>				
Sell to individuals	1.123	0.425	1.236	1.357
Sell to public firms	1.489	2.396	1.135	0.912
Share of exports in sales	0.986	-2.690	0.985	-3.717
Number of observations	860		853	
Pseudo R-squared	0.093		0.073	
Correctly classified observations	69%		63%	

(1) Kenya is the omitted country; small town is the omitted city category.

(2) Firm size = log(number of employees +1); (3) Firm age = log(1995 - year of inception).

Table 6. Logit Regression on the Incidence of Contractual Problems With Suppliers
(Robust standard errors reported using country-level clustering)

	Late delivery		Deficient quality	
	Odds ratio	z stat.	Odds ratio	z stat.
<i>Location dummies (1)</i>				
Zimbabwe	1.652	1.770	1.646	0.587
Cameroon	0.733	-1.363	1.088	0.301
Ivory-Coast	0.845	-0.419	0.523	-0.746
Burundi	0.210	-6.801	0.288	-1.729
Zambia	0.391	-3.435	1.544	2.092
Main city	1.393	1.132	1.045	0.183
Secondary city	1.189	0.601	1.101	0.391
<i>Sectoral dummies:</i>				
Textile	0.493	-2.538	0.420	-1.813
Metal	0.606	-1.596	0.166	-2.022
Wood	0.493	-1.768	0.268	-1.934
<i>Contractual environment:</i>				
Incidence of payment problems	0.115	-0.993	0.011	-1.040
Recourse to legal system	1.449	0.419	1.118	0.088
<i>Firm characteristics:</i>				
Size (2)	1.475	5.640	1.306	8.090
Age (3)	0.796	-1.090	0.774	-1.133
Limited liability status	1.166	0.692	0.926	-0.600
Some state ownership	0.773	-0.988	1.512	0.507
Some foreign ownership	0.933	-0.464	0.528	-1.755
African owner/manager	0.819	-0.472	1.173	0.691
European owner/manager	0.875	-0.674	1.527	1.363
<i>Relationship with suppliers:</i>				
One supplier monopolistic	1.217	0.811	1.055	0.377
One supplier public firm	1.096	0.290	1.366	1.928
Share of imported inputs	1.007	2.400	0.998	-0.456
% purchases from main supplier	0.997	-0.673	0.993	-1.284
Length of relationship (4)	0.984	-0.204	1.044	0.267
One supplier friend or family	1.904	3.112	1.108	0.588
Dummy for infrequent purchases	0.708	-1.246	0.791	-1.619
Receives supplier credit	1.198	0.822	1.280	1.262
Gives advance payment	1.171	0.579	2.231	2.402
Number of observations	711		710	
Pseudo R-squared	0.141		0.084	
Correctly classified observations	69%		64%	

(1) Kenya is the omitted country; small town is the omitted city category.

(2) Firm size = log(number of employees +1); (3) Firm age = log(1995 - year of inception).

(4) Log of average length of relationship with suppliers in years +1.

Table 7. Selection Model of the Frequency of Payment Problems with Clients

Dependent variable is the log of the number of problems per year + 1.

Estimator is Full Information Maximum Likelihood.

A. Frequency equation:	Late Payment		Non-payment	
	Coef.	z stat.	Coef.	z stat.
<i>Location dummies (1)</i>				
Zimbabwe	-0.345	-1.116	-0.250	-0.905
Ivory-Coast	-0.004	-0.011	-0.060	-0.240
Burundi	-0.125	-0.592	-0.154	-1.021
Main city	-0.199	-1.319	0.039	0.309
Secondary city	-0.110	-0.579	-0.041	-0.253
<i>Sectoral dummies:</i>				
Textile	0.037	0.185	-0.249	-1.565
Metal	-0.260	-1.243	-0.389	-2.172
Wood	-0.497	-2.251	-0.271	-1.703
<i>Contractual environment:</i>				
Incidence of payment problems	1.318	1.524	1.647	1.923
Recourse to legal system	1.034	1.906	-0.469	-1.190
<i>Firm characteristics:</i>				
Size (2)	0.134	2.565	0.013	0.320
Age (3)	-0.008	-0.076	0.057	0.701
Limited liability status	-0.073	-0.477	-0.058	-0.484
Some state ownership	0.431	1.366	0.437	1.988
Some foreign ownership	0.076	0.469	0.076	0.601
African owner/manager	0.052	0.339	-0.018	-0.139
European owner/manager	0.589	3.229	-0.015	-0.102
Intercept	1.136	1.687	1.306	3.050
B. Selection equation:				
<i>Location dummies (1)</i>				
Zimbabwe	0.751	2.718	2.453	6.189
Ivory-Coast	0.013	0.041	0.929	3.226
Burundi	-0.371	-1.973	-0.016	-0.091
Main city	0.058	0.431	0.118	0.827
Secondary city	0.139	0.796	0.025	0.128
<i>Sectoral dummies:</i>				
Textile	0.534	3.082	0.227	1.193
Metal	0.426	2.372	0.170	0.913
Wood	0.545	2.951	0.142	0.783
<i>Contractual environment:</i>				
Incidence of payment problems	-0.429	-0.618	0.127	0.159
Recourse to legal system	-1.003	-2.056	-0.095	-0.176
<i>Firm characteristics:</i>				
Size (2)	0.179	3.563	0.100	1.947
Age (3)	0.056	0.654	0.075	0.822
Limited liability status	0.191	1.398	-0.150	-1.014
Some state ownership	-0.348	-1.163	0.097	0.334
Some foreign ownership	-0.194	-1.281	0.097	0.608
African owner/manager	0.132	0.927	0.126	0.838
European owner/manager	0.207	1.111	0.079	0.381
<i>Relationship with clients:</i>				
Sell to individual end-users	0.274	1.899	0.273	1.666
Sell to public firms	0.213	1.660	0.066	0.494
Share of exports in sales	-0.008	-2.577	-0.015	-3.926
Intercept	-0.654	-1.212	-1.296	-2.771
<i>Selection terms:</i>				
log(rho)	-0.548	-2.427	-0.599	-2.994
arctan(sigma)	0.154	2.498	-0.234	-3.608
rho	-0.499		-0.537	
sigma	1.166		0.791	
lambda	-0.582		-0.424	
Number of observations:	677		634	
Log-likelihood value:	-1036.5		-677.8	

(1) Kenya is the omitted country; small town is the omitted city category.

(2) Firm size = log(number of employees +1); (3) Firm age = log(1995 - year of inception).

Table 8. Selection Model of the Frequency of Problems with Suppliers

Dependent variable is the log of the number of problems per year + 1.

Estimator is Heckman 2-step; FIML did not converge.

A. Frequency equation:	Late delivery		Deficient quality	
	Coef.	z stat.	Coef.	z stat.
<i>Location dummies (1)</i>				
Zimbabwe	0.214	0.704	0.158	0.444
Ivory Coast	-0.809	-1.744	-0.671	-1.257
Burundi	-1.021	-2.494	-0.889	-1.703
<i>Sectoral dummies:</i>				
Textile	-0.204	-0.917	-0.170	-0.572
Metal	-0.331	-1.409	-0.258	-0.526
Wood	-0.061	-0.244	-0.003	-0.008
<i>Contractual environment:</i>				
Incidence of payment problems	-0.499	-0.398	0.208	0.115
Recourse to legal system	0.408	0.571	0.211	0.309
<i>Firm characteristics:</i>				
Size (2)	0.211	2.896	0.190	2.583
Age (3)	-0.049	-0.366	-0.044	-0.328
Limited liability status	-0.109	-0.504	-0.106	-0.487
Some state ownership	0.545	1.285	0.499	1.170
Some foreign ownership	-0.428	-2.020	-0.427	-1.994
African owner/manager	-0.112	-0.536	-0.098	-0.460
European owner/manager	0.468	2.093	0.450	1.994
Intercept	1.276	2.204	1.193	1.031
B. Selection equation:				
<i>Location dummies (1)</i>				
Ivory Coast	-0.582	-1.622	-0.198	-0.470
Burundi	-0.375	-1.366	-0.043	-0.127
<i>Sectoral dummies:</i>				
Textile	0.457	2.123	0.617	2.527
Metal	0.246	1.166	0.905	2.566
Wood	0.294	1.397	0.631	2.228
<i>Contractual environment:</i>				
Incidence of payment problems	2.172	2.550	2.935	2.438
Recourse to legal system	2.071	3.436	2.643	4.866
<i>Firm characteristics:</i>				
Size (2)	0.318	5.032	0.324	5.142
Age (3)	-0.451	-3.415	-0.425	-3.225
Limited liability status	0.220	1.265	0.145	0.852
Some state ownership	0.624	1.378	0.710	1.578
Some foreign ownership	0.068	0.348	0.085	0.434
African owner/manager	0.042	0.244	-0.002	-0.010
European owner/manager	0.360	1.622	0.257	1.147
<i>Relationship with suppliers:</i>				
One supplier monopolistic	0.300	1.860	0.306	1.885
One supplier public firm	-0.275	-1.670	-0.395	-2.328
Share of imported inputs	0.000	0.081	0.001	0.234
% purchases from main supplier	0.000	0.025	-0.001	-0.365
Length of relationship (4)	0.103	1.306	0.100	1.260
One supplier friend or family	0.627	2.609	0.641	2.638
Dummy for infrequent purchases	-0.085	-0.462	-0.117	-0.635
Receives supplier credit	0.202	1.353	0.248	1.647
Gives advance payment	-0.148	-0.342	0.077	0.175
Intercept	-2.577	-4.883	-3.562	-4.476
<i>Selection terms:</i>				
log(rho)	0.374	.	0.269	.
arctan(sigma)	0.118	2.346	0.121	2.386
rho	0.357		0.263	
sigma	1.125		1.129	
lambda	0.402		0.296	
Number of observations:	503		503	
Log-likelihood value:	-547.4		-549.1	

(1) Kenya is the omitted country; small town is the omitted city category.

(2) Firm size = log(number of employees +1); (3) Firm age = log(1995 - year of inception).

(4) Log of average length of relationship with suppliers in years +1.

Table 9. Multinomial Logit Regression on the Type of Problematic Client

Client firm is the omitted category.

	Individual consumer		Government & other non-firm	
	Coef.	z stat.	Coef.	z stat.
<i>Location dummies (1)</i>				
Zimbabwe	-0.220	-0.379	-1.136	-1.443
Cameroon	-0.702	-1.012	0.146	0.161
Ivory-Coast	1.163	1.458	0.622	0.575
Burundi	0.604	1.179	-0.300	-0.460
Zambia	-0.281	-0.764	-0.537	-1.142
Main city	-0.283	-0.878	-0.171	-0.426
Secondary city	-0.015	-0.039	-0.475	-0.887
<i>Sectoral dummies:</i>				
Textile	-0.017	-0.044	0.027	0.057
Metal	-0.480	-1.086	-0.564	-1.004
Wood	0.037	0.097	-0.138	-0.285
<i>Average incidence of problems:</i>	2.049	1.002	0.775	0.278
<i>Firm characteristics:</i>				
Size (2)	-0.400	-3.732	0.025	0.185
Age (3)	-0.099	-0.516	0.069	0.279
Limited liability status	-1.223	-4.276	-0.536	-1.294
Some state ownership	0.353	0.591	-0.110	-0.172
Some foreign ownership	-0.210	-0.614	-0.206	-0.510
African owner/manager	0.627	1.858	0.183	0.447
European owner/manager	-0.250	-0.580	0.246	0.492
<i>Relationship with clients:</i>				
Sell to individual consumers	0.978	2.942	0.868	2.047
Sell to public firms	0.356	1.210	1.656	4.950
Share of exports in sales	0.013	1.715	0.010	1.217
<i>Dispute is about non-payment (4):</i>	0.794	3.257	0.027	0.085
<i>Intercept</i>	0.289	0.303	-2.211	-1.787
Number of observations	560			
Pseudo R-squared	0.248			

(1) Kenya is the omitted country; small town is the omitted city category.

(2) Firm size = log(number of employees +1); (3) Firm age = log(1995 - year of inception).

(4) As opposed to late payment.

Table 10. Multinomial Logit Regression on Conflict Resolution Method With Clients

Direct bargaining only is the omitted category.

	Doing nothing		Legal institutions only (6)		Bargaining + Legal institutions	
	Coef.	z stat.	Coef.	z stat.	Coef.	z stat.
<i>Location dummies (1)</i>						
Zimbabwe	0.772	0.565	7.728	3.157	0.141	0.171
Cameroon	1.044	0.664	3.373	1.502	1.184	1.445
Ivory-Coast	-37.689	0.000	-41.051	0.000	-0.434	-0.492
Burundi	-1.431	-1.154	-35.733	0.000	-0.881	-1.334
Zambia	-0.563	-0.877	-0.103	-0.097	-0.441	-0.891
Main city	-0.181	-0.275	0.115	0.096	0.016	0.039
Secondary city	0.097	0.128	0.605	0.475	-0.322	-0.595
<i>Sectoral dummies:</i>						
Textile	-0.807	-1.198	0.555	0.518	-0.023	-0.047
Metal	0.917	1.110	2.292	1.814	0.781	1.431
Wood	-1.276	-1.647	-2.520	-1.920	0.101	0.204
<i>Average incidence of problems:</i>	-5.468	-1.093	-27.000	-2.742	-2.005	-0.843
<i>Firm characteristics:</i>						
Size (2)	-0.026	-0.102	1.537	4.086	0.347	2.233
Age (3)	-0.388	-0.882	0.320	0.537	0.579	2.186
Limited liability status	0.437	0.642	-0.223	-0.209	0.608	1.385
Some state ownership	-34.985	0.000	-39.746	0.000	1.230	1.575
Some foreign ownership	-1.188	-1.367	1.047	1.116	-0.355	-0.797
African owner/manager	-2.137	-2.883	-1.166	-1.112	-0.323	-0.683
European owner/manager	-1.274	-1.289	-2.655	-2.146	-0.164	-0.284
<i>Relationship with clients:</i>						
Sell to individual consumers	-0.037	-0.056	0.640	0.821	0.193	0.455
Sell to public firms	-1.174	-1.396	-0.351	-0.382	-0.009	-0.024
Share of exports in sales	-0.008	-0.538	-0.077	-1.917	-0.008	-0.898
<i>Characteristics of problematic client:</i>						
Individual	1.501	2.465	0.984	1.228	0.572	1.478
Relative or 'tribe'	-0.682	-0.918	-2.598	-1.791	-0.626	-1.251
Length of relationship (4)	-0.158	-0.400	-0.984	-1.734	-0.445	-1.953
<i>Dispute is about non-payment (5):</i>	0.253	0.463	2.628	3.200	1.255	3.766
<i>Intercept</i>	2.821	1.123	0.655	0.175	-3.123	-2.486
Number of observations	324					
Pseudo R-squared	0.2917					

(1) Kenya is the omitted country; small town is the omitted city category.

(2) Firm size = log(number of employees +1); (3) Firm age = log(1995 - year of inception).

(4) Length of relationship = log(years of acquaintance with problematic client +1).

(5) As opposed to late payment.

(6) Recourse to one or more of the following: private arbitration; police; lawyers; courts.

Threats of recourse to police and courts are included.

Table 11. Multinomial Logit Regression on Conflict Resolution Method With Suppliers
 Direct bargaining only is the omitted category.

	Doing nothing		Some use of Legal institutions (5)	
	Coef.	z stat.	Coef.	z stat.
<i>Location dummies (1)</i>				
Zimbabwe	1.036	0.887	-0.616	-0.356
Cameroon	-0.229	-0.207	0.903	0.561
Burundi	-0.563	-0.445	0.574	0.279
Zambia	-0.347	-0.317	1.175	0.667
Main city	0.509	0.991	-0.334	-0.390
Secondary city	0.412	0.701	-0.693	-0.670
<i>Sectoral dummies:</i>				
Textile	-0.970	-1.747	-0.255	-0.255
Metal	-0.751	-1.220	-0.135	-0.132
Wood	-1.510	-1.949	-0.150	-0.108
<i>Average incidence of problems:</i>	-1.645	-0.581	1.743	0.380
<i>Firm characteristics:</i>				
Size (2)	0.089	0.458	0.657	2.193
Age (3)	0.500	1.443	-0.308	-0.509
Limited liability status	-0.798	-1.737	-0.404	-0.470
Some state ownership	-0.343	-0.388	-0.574	-0.439
Some foreign ownership	0.107	0.190	0.096	0.110
African owner/manager	0.049	0.096	0.194	0.224
European owner/manager	-0.558	-1.042	-1.136	-1.022
<i>Relationship with supplier:</i>				
One supplier monopolistic	-0.770	-1.737	0.068	0.087
One supplier public firm	0.628	1.557	-0.838	-1.057
Share of imported inputs	-0.011	-1.499	0.003	0.284
% purchases from main supplier	0.020	2.260	0.005	0.364
Length of relationship (3)	-0.253	-0.942	-0.168	-0.418
One supplier friend or family	0.711	1.144	-0.119	-0.095
Dummy for infrequent purchases	-0.061	-0.115	0.038	0.046
Receives supplier credit	0.011	0.024	-0.014	-0.020
Gives advance payment	0.092	0.093	0.747	0.674
<i>Dispute about deficient quality (4):</i>	-0.726	-1.871	0.172	0.258
<i>Characteristics of problematic supplier:</i>				
Dummy if first time supplier	-37.451	0.000	3.083	1.729
Length of relationship (3)	-0.316	-1.107	0.496	0.883
Dummy if public firm	1.483	1.964	2.489	2.133
Dummy if individual consumer	-0.337	-0.355	0.004	0.003
<i>Intercept</i>	-0.416	-0.207	-5.488	-1.610
Number of observations	239			
Pseudo R-squared	0.1790			

(1) Firm size = log(number of employees +1); (2) Firm age = log(1995 - year of inception).

(3) Log of average length of relationship with suppliers in years +1.

(4) As opposed to late or non delivery.

(5) Some recourse to one of the following: private arbitration; police; lawyers; courts.

Threats of recourse to police and courts are included.

Table 12. Logit Regressions on Settlement of Contractual Disputes With Clients

(Robust standard errors reported using country-level clustering)

	Dispute settled		Settlement satisfactory (6)		Trade relation continues	
	Odds ratio	z stat.	Odds ratio	z stat.	Odds ratio	z stat.
<i>Location dummies (1)</i>						
Zimbabwe	1.996	1.785	0.279	-1.754	3.869	3.058
Cameroon	0.211	-4.649	0.231	-1.383	2.364	1.390
Ivory-Coast	0.420	-3.703	0.938	-0.065	0.788	-0.305
Burundi	0.478	-3.081	0.084	-2.834	2.832	1.896
Zambia	1.852	2.764	0.748	-0.970	n.a.	
Main city	0.868	-0.412	1.901	0.564	0.926	-0.195
Secondary city	0.736	-0.897	0.753	-0.180	0.631	-1.256
<i>Sectoral dummies:</i>						
Textile	0.451	-1.914	0.960	-0.069	1.377	0.730
Metal	0.219	-8.079	0.382	-1.476	1.278	0.970
Wood	0.391	-2.283	0.572	-1.078	1.138	0.269
<i>Average incidence of problems:</i>	2.853	0.673	92.006	1.369	0.042	-2.035
<i>Firm characteristics:</i>						
Size (2)	1.241	1.502	0.687	-1.534	1.052	0.438
Age (3)	1.165	0.807	1.974	1.498	0.620	-1.971
Limited liability status	1.110	0.273	2.292	0.617	1.147	0.377
Some state ownership	0.751	-0.452	6.573	2.758	2.176	0.716
Some foreign ownership	1.046	0.195	1.628	1.307	1.579	0.794
African owner/manager	2.744	2.217	4.408	2.438	0.574	-1.029
European owner/manager	1.015	0.030	0.651	-0.502	0.272	-2.998
<i>Relationship with clients:</i>						
Sell to individual consumers	2.067	1.159	1.713	1.224	3.106	2.450
Sell to public firms	0.431	-4.078	1.110	0.118	0.437	-3.256
Share of exports in sales	1.003	0.524	1.011	1.282	1.019	4.241
<i>Characteristics of problematic client:</i>						
Individual	0.450	-2.298	0.519	-0.686	1.111	0.180
Relative or 'tribe'	2.222	2.501	0.607	-0.594	0.895	-0.279
Length of relationship (4)	1.067	0.302	0.451	-1.979	1.770	1.625
<i>Dispute is about non-payment (5):</i>	0.158	-4.360	0.182	-3.498	0.225	-3.722
<i>Conflict resolution method:</i>						
Direct negotiations	2.501	4.642	0.432	-1.605	1.845	2.851
Private arbitration	2.667	1.800	0.487	-0.754	0.835	-0.197
Police	0.363	-1.540	1.177	0.079	0.546	-0.972
Lawyers and courts	0.668	-1.248	0.371	-2.355	0.239	-5.029
Number of observations	322		170		243	
Pseudo R-squared	0.283		0.253		0.266	
Correctly classified	79%		84%		74%	

(1) Kenya is the omitted country; small town is the omitted city category.

(2) Firm size = log(number of employees +1); (3) Firm age = log(1995 - year of inception).

(4) Length of relationship = log(years of acquaintance with problematic client +1).

(5) As opposed to late payment.

(6) Conditional on the dispute being settled.

Table 13. Logit Regressions on Settlement of Contractual Disputes With Suppliers
(Robust standard errors reported using country-level clustering)

	Dispute settled		Trade relationship continues	
	Odds ratio	z stat.	Odds ratio	z stat.
<i>Location dummies (1)</i>				
Zimbabwe	0.126	-2.472	0.466	-0.803
Cameroon	0.306	-2.911		
Ivory-Coast			2E+04	5.276
Burundi	1.093	0.172	3E+03	5.805
Zambia	0.239	-2.253		
Main city	0.453	-1.786	1.468	1.356
Secondary city	0.730	-0.649	1.598	1.114
<i>Sectoral dummies:</i>				
Textile	2.987	1.876	3.201	3.696
Metal	1.814	1.398	4.670	1.819
Wood	2.922	1.697	1.277	0.974
<i>Average incidence of problems:</i>	62.626	3.183	4E+11	4.909
<i>Firm characteristics:</i>				
Size (2)	0.987	-0.044	1.116	3.633
Age (3)	0.544	-4.451	1.632	4.164
Limited liability status	0.850	-0.338	1.345	0.473
Some state ownership	6.628	1.388	0.706	-1.396
Some foreign ownership	1.076	0.124	0.766	-0.568
African owner/manager	0.545	-0.421	1.816	1.471
European owner/manager	0.642	-0.491	0.879	-0.209
<i>Relationship with suppliers:</i>				
One supplier monopolistic	0.857	-0.622	4.133	1.946
One supplier public firm	1.428	1.248	1.549	2.109
Share of imported inputs	1.004	0.721	0.996	-6.319
% purchases from main supplier	0.992	-0.865	1.001	0.349
Length of relationship (4)	1.736	2.536	0.899	-1.226
One supplier friend or family	0.686	-0.671	0.289	-3.347
Dummy for infrequent purchases	0.299	-6.837	0.676	-1.391
Receives supplier credit	1.234	0.495	3.161	8.265
Gives advance payment	10.231	3.807	0.710	-0.439
<i>Characteristics of problematic supplier:</i>				
Dummy if first time supplier	0.305	-1.430	0.748	-0.286
Length of relationship (4)	0.997	-0.010	0.754	-0.576
Dummy if public firm	0.229	-5.151	0.643	-0.949
Dummy if individual	0.764	-0.439	1.891	1.518
<i>Dispute about deficient quality (5):</i>	1.102	0.255	0.775	-2.883
<i>Conflict resolution method:</i>				
Direct negotiations	4.512	8.619	not included (6)	
Use of legal institutions	1.435	0.492	not included (6)	
Number of observations	236		203	
Pseudo R-squared	0.2121		0.246	
Correctly classified	77%		83%	

(1) Firm size = log(number of employees +1); (2) Firm age = log(1995 - year of inception).

(3) Log of average length of relationship with suppliers in years +1.

(4) Length of relationship = log(years of acquaintance with problematic client +1).

(5) As opposed to late or non delivery.

(6) These variables could not be included in the regression due to insufficient number of observations.