LONG TERM CONTRACTS AND REPEATED INTERACTION: EVIDENCE FROM THE COSTA RICAN COFFEE MARKET

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ABSTRACT:

This paper uses contract-level data from the Costa Rican coffee industry to explore the relationship between formal and relational contracting. We find that in this setting more intensive contracting relationships lead to greater use of long-term contracts, which are used to ensure the supply of raw materials and to protect the parties against hold-up in this industry. The result persists when we address identification problems such as unobservable heterogeneity and endogenous matching through a variety of fixed effects and instrumenting strategies. We interpret this as evidence that relational contracting acts as a complement to formal contracting by improving the enforceability of formal contracts.

We focus on transactions between Costa Rican coffee mills and exporters. Mills process coffee cherries purchased from growers to produce coffee beans that they then sell to exporters. Exporters blend these beans and resell them to international buyers. The Costa Rican industry supervisory authority, ICAFE, collects data on every contract between these mills and exporters, covering the price, quantity, and duration of the contract, as well as multiple characteristics of the beans traded and the identities of the buyers and sellers. One important characteristic of the beans is whether they are "differentiated" or not, where differentiated beans are those that bear some particular designation regarding place of origin or regarding sustainability or other certification.

Long-term contracts may be useful in this industry for many reasons, including price hedging, assurance of supply, and—especially in the case of differentiated beans—to protect against hold-up when an exporter makes specific investments in developing and marketing a blend that relies on specific differentiated beans provided by a limited number of mills. An easily enforceable long-term contract would allow the exporter to ensure a

supply of the necessary inputs at a predictable price so that it would have an incentive to develop such differentiated blends. As a result, one would expect long-term contracts to be more prevalent in the trade of differentiated beans. The empirical analysis demonstrates that is in fact the case.

However, long-term contracts in this setting may be costly and difficult to enforce. As a result, long-term contracts may be more effective and more attractive on balance (given that they do come with some costs of inflexibility) when employed between frequently contracting parties who can use the power of relational contracting to improve the enforceability of the long-term formal contract. The empirical analysis demonstrates that in fact more frequently contracting firms are more likely—other things equal—to employ long-term contracts than are infrequently contracting firms; this is especially so for differentiated beans.

Such an analysis is rife with the usual identification problems that arise in empirical analyses of contracts. (1) There may be considerable unobservable heterogeneity among buyers and sellers that correlates with contract length and with frequency of interaction. For example, small buyers may have low contracting frequency and lack the predictable order flow to make long-term contracting attractive, creating a negative correlation between frequency and contract length that is unrelated to the phenomenon of interest. (2) The frequency of contracting may correlate with the intensity of the hold-up problem and therefore the attractiveness of long-term contracting, apart from any effect through relational contracting. For example, a buyer focused on creating a blend identified with a narrow geographic designation may have high frequency of interaction with a small number of mills handling such beans, and this may create a large hold-up problem and an incentive for long-term contracting apart from anything to do with relational contracting. (3) There may be endogenous matching of buyers and sellers that is premised on unobservables correlated with contract choice. For example, buyers may choose to do business most frequently with the sellers they find most reliable or trustworthy, with whom perhaps long-term contracts are not necessary, creating a negative correlation between frequency and contract length that has nothing to do with relational contracting.

We employ a number of strategies to deal with these identification challenges. The first point can be addressed, given the richness of the data, through extensive use of fixed effects. The second point can be addressed by analyzing frequency of interaction in other bean types—ie, by looking at how relational contracts sustained by trade in undifferentiated beans affects contract length in differentiated beans. The third point can be addressed by employing various instrumenting strategies for contracting frequencies, including use of lags or construction of measures of expected contracted frequency among potential trading partners using measures of proximity in geographic or product space.

We explore all these approaches and consistently find that more frequent contracting leads to greater use of long-term contracts for differentiated beans, suggesting that relational and formal long-term contracting are complements in this setting. This contributes to a small but growing literature that explores empirically the substitutability and complementarity of relational and formal contracts.