Pacta Sunt Servanda Versus the Social Role of Contracts: the case of Brazilian agriculture contracts

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Resumo: Este estudo explora a instabilidade criada por decisões jurídicas contraditórias relacionadas às quebras contratuais. O mercado a termo representa uma importante fonte de recursos para o financiamento da agricultura Brasileira, no entanto, durante um período de aumento de preços da saca de soja no mercado spot, aconteceram muitas quebras contratuais. Foram realizadas análises descritiva e econométrica utilizando 161 decisões judiciais de segunda instância (Apelações) e foi realisada uma pesquisa quantitativa com 70 produtores de soja. Os resultados mostraram larga dispersão entre as decisões dos juízes, bem como a existência de efeitos de segunda ordem, tais como maior exigência de garantias e a redução do número de contratos. Aqueles produtores que não quebraram seus contratos também foram negativamente afetados com as estratégias adotadas pelas empresas de processamento e comercialização. O conceito de "Função social do contrato" introduzido no Código Civil do Brasil está associado à elevação da instabilidade nos contratos, aumento nos custos de transação, bem como, a adoção de sanções econômicas.

Palavras-chaves: agronegócio, contratos, decisões judiciais, soja.

Abstract: *This study explores the instability created by contradictory court decisions related with contract breaches. Forward marketing contracts represent an important source of resources to finance Brazilian agriculture, however a large number of contract breaches were observed during a period of marked increase in soy prices. The study analyzed 161 judicial appeal decisions and a survey was carried with 70 farmers. The results show the difference of judges' interpretation and the existence of second order effects. The effects of court decisions were more requirements of guarantees and the reduction in the number of contracts. Those soybean farmers who did not breach their contracts have also been negatively affected by the strategic reactions of trading and processing companies. The*

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concept of "social function of the contract" introduced in Brazilian civil code led to a higher degree of instability in contracts, raising transaction costs and motivating private economic sanctions.

Key-words: *agribusiness, contracts, judicial decisions, soybean.*

Classificação JEL: L14, K41.

1. Introduction

The recent development of Brazilian soybean production took place, based on complex forms of credit provided by traders, such as forward contracts of sales and anticipated s contracts (*green soybean contract)*. The motivation of this study is the observation of frequent contractual breaches during periods of scaling prices generating lawsuits between farmers, traders and crushers. Courts decisions have been too volatile inducing secondary effects leading to strategic reactions of economic agents.

Forward contracts of soybean are characterized as a term contract. The objective is to transact ex-ante part of the soybean production to be harvested in the following crop year. The contracts are similar to loans that allow farmers to pay for inputs in advance. Another objective of the contract is to allocate risk of price variation. This modality of contracts seems to be preferred to the use of future contracts in the Commodity Exchange. Therefore, parties entering into forward sale contracts have multiple objectives, namely avoiding the risk of price fluctuations and financing the farmers production. From an economic point of view, at least two elements – risk and credit – are part of the transaction.

The 2003 and 2004 crop seasons were particularly problematic since the price at the harvest was higher than the price contracted ex--ante motivating a large number of contractual breaches between soybean farmers and industries[3], leading to legal disputes. Preliminary interviews indicated that there was a concentration of the problem in Brazilian central states. This perception was confirmed by the sheer volume of lawsuits filed in the state of Goiás.

The Brazilian legal system received influence by the French and German systems. Pillars of this code included the absolute concept of ownership, property and contract intangibility. The expression "*pacta sunt servanda"* means that breaching pacts were inadmissible when done freely and among equals (SANTOS, 2004). Nevertheless, the Article 421 of the Brazilian Civil Code states: "The freedom to contract shall be exercised within reason and within the limits of the social function of the contract". The limits of the social role of contracts have not been expressed in the code, leaving large room for interpretations. This study raises evidences that the loose interpretation of the new legal term has weakened the institute of contracts, opening room for multiple interpretations and providing grounds for the annulment of contracts. Since contracts provide mechanisms to control instabilities, secondary effects are expected to arise.

Based on the doctrine of the social role of contracts, we observed that most appeal decisions were initially favorable to farmers. Based on interviews, we also observed that most industrial establishments and trading houses reduced the number of soy forward contracts in subsequent

[3] Industries are used in this paper to represent the buyers of soybean by contracts.

years. This may have been due to a drop in soybean prices, which provided companies with alternatives for soy purchasing, or due to contract insecurity; the latter hypothesis being the object of our study. Finding the motivation of each actor involved in the conflict may assist future improvement of contractual arrangements.

The core objective of this study is to identify how the breach of soybean forward contracts and subsequent legal decisions have affected the strategies adopted by agents in the soybean agribusiness system. In the pursuit of this objective, a structured field research has been carried out.

The theoretical framework is based on transaction cost economics and institutional environment analysis. The New Institutional Economics toolset considers, among other facts, that in the presence of positive transaction costs institutions may be inefficient, with negative implications for economic agents (NORTH, 1990).

This study adopted the following procedures:

- Description of the fact (breach of contract);
- Identification of dispute resolution mechanisms;
- Analysis of the instability in the economic environment.

A review of literature is presented followed by the theoretical framework, and by the description of relevant aspects of the Brazilian Civil Code. The third section of the article outlines the statistical analysis of State Court of Justice rulings. The fourth section presents the results of the effects of judicial decisions on economic instability, and which affect agents in the soy complex. Finally, conclusions are presented in the fifth section.

2. Soy agribusiness system and forward contracts

The Brazilian soybean agribusiness (grain, meal and oil) accounted for US$11 billion in exports revenue for the year 2007. Brazil's output, of 60 million metric tons, places the country as the second largest among the world's soy producers (CONAB, 2009).

To finance the activity several alternatives to traditional farming credit have been devised. One such alternative is the forward sale of the production through so-called "green soybean contracts". From 1990 onwards, these contracts ensured the sale of supplies and provision of credit to farmers in exchange for soybean that is expected to be harvested in the next crop. Such forward contracts later became popular not as a manner to finance supplies, but as a price-setting mechanism, in order to reduce the impact of price fluctuations at harvest time[4].

When a contract involves advance payment – that is, when one party performs a contractual obligation by making an advanced payment or providing supplies to farmers –, farmland, is required as collateral. Usually, however, collateral for these contracts involves the issuance of Rural Product Bonds[5].

In the 2003/2004 crop season, soybean growers have made forward contracts selling their produce for an average of US$ 10 per 60-kilogram bag[6], however, prices reached US$ 17 at harvest time. The price rise offered an incentive to farmers not to honor the contracts, selling elsewhere for a higher price. Farmers and industry faced a post-contractual conflict that affected coordination of the soybean agribusiness system, as evidenced by a decline in the volume of forward contracts observed in the following crop season.

The agribusiness system is defined as a crop specific sequence of interconnected transactions carried to producing, transforming, and distributing the product. Systemic analysis is broader than the production chain concept, and focuses the coordination mechanisms in addition to technological, and economic relationships.

[4] The model was severely impacted by the economic crisis observed in 2008.

[5] The Rural Product Bonds (*Cédula de Produto Rural - CPR*) is a bond issued since 1994 to facilitate the use of cash forward contracts in the agricultural sector. It allows farmers to purchase supplies by offering their production capacity as collateral to credit or financing providers.

[6] The 60-kilogram sack is the customary Brazilian unit for soybeans. It is equivalent to 2.2 U.S. soybean bushels.

In agribusiness system analysis the institutional structure of production plays a central role (ZYLBERSZTAJN and FARINA, 1999).

The soy agribusiness system therefore involves farming supply industry, farmers and growers, soy traders in direct contact with growers (trading houses, brokerage houses, cooperatives, and grain elevators), soy crushing establishments, grain distributors, and end consumers. Transactions are influenced by the institutional environment, which involves the legal system when it comes to issues such as property rights and environmental regulation, among others.

According to Jank (2004), growers who contracted forward with industry and traders adopted an efficient mechanism to obtain credit. Such a transaction allows the farmer to control the risk of price fluctuations. Forward contracts account for 25% of soy sold in Brazil, and are apparently preferred over the use of exchange-traded futures.

2.1. Uncertainty and institutional environment

The review of literature seeks to provide more in-depth discussion of the role of the institutional environment in reducing uncertainty, particularly concerning the influence of the judicial system on economic relationships. Whereas traditional economic theory studies markets and considers the firm as a cost-minimizing production function, indifferent to its internal structure and to all external conditions (except for prices), New Institutional Economics approach to agribusiness coordination considers the internal structure of the firm, its vertical and horizontal relationships as a the institutional structure of production (ZYLBERSZTAJN, 1995).

In 1937, Ronald Coase's landmark article *The Nature of the Firm* opened the door to study of the firm focused on its internal organizational aspects and on its relationships with clients and suppliers. In another article, *The Problem of Social Cost* (1960), Coase states that institutions would only be rendered unnecessary if information asymmetry did not exist and if transaction costs were nil. As such, a situation is inconsistent with the real world, firms play a crucial role in allocating resources.

The institutional environment is a matrix of formal and informal governance mechanisms that determine the rules to be followed and the control system to be set up. The manner in which the institutional environment is structured may interfere directly with production and transaction costs. North (1990, p. 3) considers institutions to be the "rules of the game" in a society, as they are the constraints that "structure incentives in human exchange, whether political, social, or economic". Institutions "consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights). Throughout history, institutions have been devised by human beings to create order and reduce uncertainty in exchange" (NORTH, 1991, p. 97).

Williamson (1996) states that the core function of the institutional arrangement is to reduce the costs of contracting, monitoring performance, organizing activities, or adapting to agents' efficient responses to the transaction problem. Secondly, the institutional environment is a set of rules that establish foundations for the market, and, depending on structure, may decrease or increase transaction costs for organizations. Institutions are therefore important and warrant analysis.

Transaction cost economics set behavioral assumptions such as bounded rationality and the existence of opportunism. Bounded rationality is a natural characteristic of human beings, that is, it is impossible – or unmanageably costly – to obtain and/or process all the information required for decision making (drafting a contract, for instance) without leaving room for the other party to take opportunistic action. According to Zylbersztajn (1995), opportunistic behavior is more than the result of individual actions in the pursuit of self-interest. As stated by Williamson (1985) it is defined as seeking self-interest with guile. Someone may have privileged

information on the reality of another agent and use it opportunistically, raking advantage of the situation to make a profit.

Klein et al. (1978) point out a real possibility of post-contractual opportunistic behavior following the creation of appropriable quasi--rents, that is, when the likelihood of gaining from opportunistic behavior increases. There are costs and benefits to breach of contract, argues Klein (1992). Within the self-enforcing range, each agent will assess whether gains will exceed the cost of legal and economic sanctions. Legal sanctions are defined in the contracts themselves, usually as fines, and are judicially enforceable. Economic sanctions are unwritten, but nonetheless important, particularly those that affect the agent's future relationships, such as damage to reputation.

Watanabe (2007) discusses the theory of efficient breach. According to the author, breach of a contract is *efficient* when the benefits produced by not performing exceed the loss. She does, however, note that damages are difficult to measure, particularly when agents are part of an agribusiness complex (farmers and agricultural suppliers, for instance). In addition to pecuniary losses incurred by the agricultural industry, which has obligations to other agents in the agribusiness complex, Watanabe argues that farmers' future relationships may be harmed due to a damaged reputation; renegotiation is therefore preferable to breach in the long term.

The case of soybean farmers shows that price rises observed after the contract encouraged contract breach. The theory suggests that future relationships are expected to be hampered, with potential economic loss.

According to Arruñada and Andonova (2005), the adequate functioning of a market economy requires effective tutelage of the freedom of contract. Wealth creation depends on trading, and trading transactions require that their terms are properly defined and that uncertainty regarding adherence to those terms has been controlled – that is, rules and courts are necessary. The role of courts is to fill the contractual "gaps" – which are assumed as being incomplete – therefore reducing agents' transaction costs.

Nevertheless, all rulemaking is subject to inefficiency, due to the presence of self-interest, incomplete information, and bounded rationality. Both legislators and judges may fail in their duties because of private interests, and even in the absence of such interests, may fail in identifying which rules are most appropriate to each case (ARRUÑADA and ANDONOVA, 2004).

Arida et al. (2004) claim that in countries like Brazil debtors are seen as hypo-sufficient agents that deserve protection. According to the authors, this is probably due to highly unequal distribution of income, which came together with historical and economic factors to create a strong "anti-creditor" bias. The authors also cite data from a Brazilian survey that consisted of members of the judiciary presented to situations in which they would have to choose between upholding a contract and rendering a socially "fair" judgment. Results show that 7% of judges considered that contracts must be enforced independently of their social effects, while 61% responded that the judge has to perform a social function and the quest for social justice justifies decisions in breach of contracts.

2.2. New directions of contract Brazilian law

Brazil is a civil law jurisdiction. The dominant characteristic of civil law, also known as *continental* or *Romano-Germanic law*, is the codification of the formal rules (SZTAJN and GORGA, 2005). According to Santos (2004), many civil law countries based their legal systems on the French civil code. Pillars of this code included the absolute power of ownership and property and contract intangibility. The Napoleonic Code was developed in a time characterized by the pursuit of individuality, equality, and liberty. The principle of *pacta sunt servanda* was dominant in the Code, as one's word, given in agreement, simply had to be kept. Breach of pacts entered into freely and among equals was considered as being an exception.

After the reform of the civil code, the Article 421 stated that the freedom to contract shall be exercised within reason and the limits of the social function of the contract. According to Reale (2004), a prominent Brazilian jurist who mentored and coordinated drafting of the Civil Code concluded in 2005, the social function of the contract is expected to adapt to the "social function of property" principle. The design of a contract and performance under its terms are not only in the best interest of contracting parties, but also of society as a whole.

The law has been interpreted with different lenses, one being that it undermines the guarantees available to contracting parties. Reale (2004), however, claimed that the New Civil Code is not in conflict with the principle of *pacta sunt servanda*. He claims that the "social function of the contract" is imperative and establishes that contracts cannot be used in support of abusive activity that would cause damage to the other party or to third parties. The debate around these interpretations runs around the fact that always contracts have played a social role, always contracts have been considered fragile in cases of unbalanced domain on information and uneven market power.

Legal intervention may clearly be necessary in certain cases. However, reviewing or nullifying established contracts may cause an increase in uncertainty – and, consequently, in transaction costs – to all agents.

3. Dispute prevention and resolution mechanisms

During the development of the present study, private mechanisms of dispute prevention and resolution have been identified. Private mechanisms for dispute prevention and resolution may be formal or informal. Alternative dispute resolution mechanisms can defined in the contract or informally defined.

Farmers who chose to maintain their contracts claimed they did so in order to safeguard their reputations. The soy market involves yearly renegotiation, and growers fear retaliation – in the form of economic sanctions – on the part of purchasers in negotiations subsequent to a contract breach.

In long-term contractual relationships, sanctions for breaching contracts does not necessarily depend on a third party: as actions in such relationships are self-controlled, punishment may consist on the termination of the relationship. Therefore, if one party breaches a contract, he fears to be punished by the other party, who will refuse to continue the negotiation for the next crop season. The decision to cooperate is based on current and future value of the relationship, reputation being a signal of future contractual problems (BAKER et al., 2002).

According to interviewees, in cases involving advance payment, most lawyers advised farmers to perform under the contract, as they believed the courts would rule in favor of the buyer. This demonstrates that, when property rights are clearly defined, the judicial system "signals" out, leading to a lower demand for litigation. Formal mechanisms of conflict resolution are based on court decisions. Large number of cases generated lawsuits filled by farmers and purchasers/traders seeking a definition of property rights.

The analysis of dispute resolution mechanisms is based on a survey carried in a sample of the State of Goiás Court of Justice in Brazil. This survey analyzes 161 appeal decisions in cases concerning breach of soybean forward contracts. Descriptive statistical and econometric causal analyses have been carried out.

Data collection on appeal decisions was conducted online, initially at the websites of the

Table 1. Decisions of the Goiás Court of Justice by Civil Chamber.

Civil Chamber		Decisions in favor of		Total
		Grower	*Buyer*	
1st	N	36	2	38
	%	**94.7%**	**5.3%**	100%
2nd	N	1	32	33
	%	**3 %**	**97%**	100%
3rd	N	40	8	48
	%	**83.3%**	**16.7%**	100%
4th	N	7	35	42
	%	**16.7%**	**83.3%**	100%
Total	N	84	77	161
	%	52.2%	47.8%	100%

Source: primary data statistical analysis.

Brazilian state courts from: Goiás, Mato Grosso, Mato Grosso do Sul, and Paraná. Only civil appeals of cases involving breach of soybean sale and purchase contracts were considered[7]. The only state in which there were enough cases meeting the sample criteria to provide accurate comparison of rulings was Goiás; as interviews also suggested a greater number of contractual conflicts occurring in the state, we decided to limit the analysis of lawsuits filed in the Goiás Court of Justice. We conducted online searches for rulings up to September 2007. During the study period, we collected detailed data on 161 decisions, the earliest from November 2003 and the most recent from August 2007.

The court decisions analyzed in this study are related to the Civil Appeals, known in the Brazilian legal system as appeal decisions.

The first analyzes about the rulings revealed that there is heterogeneity on appeal decisions from Goias Court of Justice. This information was the motivation to identify witch variable has more probability to influence on the judge decision. Obviously, a large number of variables could influence the judge decision, the majority of than could not be measured, like beliefs, psychological aspects. We tested the variables that were available on the lawsuits and variables related the profile of appeal court Judges, as explained in the next items.

3.1. Descriptive statistical analyses

Once received by the Court of Justice, each process is randomly allocated to a Civil Chamber[8]. In Goiás Court of Justice there are four Civil Chambers each composed by five or six Appeal Court Judges.

Table 1 shows how many lawsuits from the sample have been decided by each Civil Chamber.

The data presented in Table 1 suggests that judges on the soy forwards contracts conflict are divergent in terms of decisions. Seeking to understand the diversity of opinions on similar conflicts, the arguments presented in the appeal decisions have been analyzed. Judges may present a variety of arguments supporting their decisions. Some simplification was necessary in order to quantify the frequency of such arguments. In order to attain our goal we decided to choose the main argument that best represented each judgment.

The selected arguments were:

For Appeal decisions in favor of farmers:

[7] Interlocutory appeals and motions for attachment were not included. Appeals only partially granted have not been considered at the study sample, as well as those with pending procedural issues, as they were not representative of an eventual court decision on the merits of the case.

[8] This assignment is meant to balance out the individual chamber caseload and prevent appellants from choosing the panel before which their case will be judged.

- New orientation of contract theory, based on the social role of contract.
- Illegitimacy of Rural Product Bond.
- Theory of unforeseeable circumstances.
- Consumer Protection Code.

For Appeal decisions in favor of the industry (buyers/traders):

- Inapplicability of the theory of unforeseeable circumstances.
- Legitimacy of Rural Product Bond.
- Inapplicability of Consumer Protection Code.

In the sample, 75% of rulings in favor of farmers have been based on arguments grouped under "new direction of contract theory", that is, those based on the principles of the social function of the contract, good faith, and economic balance, as provided for in articles 421 and 422 of the Brazilian Civil Code. The argument most frequently presented in rulings favoring buyers/traders was that the theory of unforeseeable circumstances did not apply. In 92% of these cases, judges decided that the change in prices could not be considered unforeseen, so it did not constitute ground for contract termination.

Most Judges (64%) voted consistently in favor of growers or in favor of buyers in 100% of the cases. This evidence motivated the search for common characteristics to either trend.

The sample has the following characteristics:

- Appeal Court Judges decided 87% of cases and substitute judges decided 13%.
- Twenty-one Appeal Court Judges were involved in the rulings studied, ranging in age from 44 to 69.
- Time on the bench varied; the most senior Judge had commenced in the Goiás State Court of Justice in 1998, and its most recent members joined in 2007.
- Appeal Court Judges may be promoted for three reasons – seniority (which accounted for 32% of promotions in the sample), merit (other 32%), or administrative decision (36%).
- Most Appeal Court Judges (71%) were from Goiás. The remaining 29% were from neighbor states of Tocantins (14%) and the Southeastern states of Minas Gerais, São Paulo, and Rio de Janeiro (5% from each).

The first Supreme Court decision on soybean forward contracts was released on February 2006[9]. This decision and the following ones have maintained the original contracts. We found 20 relevant Special Appeals and only 8 decisions. It is a small number, however, it is possible to observe a growing body of jurisprudence in favor of enforcing such contracts. This trend explains changes in judge decisions after February 2006, as detailed in the next section.

3.2. Econometric analysis

In addition to the descriptive statistics, a limited dependent variable model was adopted, with court decisions at several levels as dependent variables:

- Appeal decision;
- Individual vote by Judge;
- Individual vote by Appeal Court Judge.

The sample is composed of 161 appeal decisions from the Goiás Court of Justice[10]. Each appeal decision is composed by the vote of three judges. By the analysis of the full text of the judgments, the name and the vote of each judge was identified, making it possible to look for characteristics common to judges associated to each decision.

The Department of Human Resources of the Goiás Court of Justice provided information about the profile of appeal court Judges. Particularly:

[9] REsp 722.130/GO, DJ 20/02/2006. In Brazilian case citation, *REsp* is an abbreviation of *Recurso Especial* (Special Appeal). *DJ* stands for *Diário da Justiça*, the official Brazilian law reporter. It is followed by the date of publication of the ruling or opinion.

[10] Abstracts of appeal decisions were available online for all cases. The full text of the judgment, containing a brief report of the case, the name of judges and their vote was also available online for 77 cases, and 64 have been accessed directly from Goiás Court of Justice in Goiânia. It was not possible to obtain the full text of 20 decisions, which were in process of digital compilation and were therefore unavailable to consult.

- age;
- year of commencement at Goiás Court of Justice;
- vitae, including the Judges promotion from the City level (First Instance) to Court of Appeal, whether based on professional merit, time or other criteria; State of origin[11].

Court decisions on these cases have been considered as having a binary outcomes. They could take on one of two outcomes: favorable to enforcement of the contract or not, favoring farmers. The ruling or Court decision is modeled as a binary variable (LDV).

Values were as follows:

$$y = \begin{cases} 1 = \text{Favorable to enforcement of contract} \\ 0 = \text{Favorable to annulment of contract} \end{cases}$$

A probit model was used to measure the extent to which each explanatory variable affects the probability of the contract being enforced, *ceteris paribus*, as shown in Equation 1:

$$P(ruling = 1 \mid x) = \Phi(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + ... + \beta_n x_n) \quad [1]$$

A total of 161 rulings have been analyzed in three different models (A, B and C)[12], as following:

Model A

Model A comprises 161 observations. This regression has the Appeal decision as its dependent variable. The model is as follows:

- Dependent variable: Appeal decision (*Dummy*: enforcement of contract=1; termination of contract=0);
- Explanatory variables:
  - ♦ Goiás-based company (*Dummy*: Yes=1; No=0);
  - ♦ Contract involved advance payment or provision of supplies (*Dummy*: Yes= 1; No= 0);
  - ♦ Year (decision) (2003, 2004, 2005, 2006, or 2007);
  - ♦ Unanimous decision (Yes=1 or No=0);
  - ♦ Oral argument defended by farmer's lawyer (Yes=1 or No=0);
  - ♦ Oral argument defended by buyer's lawyer (Yes=1 or No=0);

Based on the theory, we have hypothesis for the variables: "Contract involved advance payment or provision of supplies" and "Goiás-based company": When the farmer received payment in advance, either money or supplies from the buyer, it is considered transference of property right of the soybean to the buyer. According the legal theory, the origin of the company should not influence the judge's decision.

The other variables were available in the process files: Year of decision, if the decision of three judges was unanimous, if the lawyers made oral defense of his client. The basic idea is to check whether the oral defense has significant impact on judge decisions.

Model B

Model B contains 419 observations. It includes the vote and argument of each of the three judges that compose the council, including the ones who dissented from the decision[13]. This sample seeks to test, through the influence of the following variables on a judge's individual vote:

- Dependent variable: Individual vote by Judge;
- Success: Enforcement of contract;
- Independent dummy variables:
  - ♦ Position (Court Appeal Judge =1 or Substitute Judge=0);
  - ♦ Gender (Male=1 or female=0);
  - ♦ Unanimous decision (Yes=1 or No=0);
  - ♦ Oral argument by farmer's lawyer (Yes=1 or No=0);
  - ♦ Oral argument by buyer's lawyer (Yes=1 or No=0);

[11] As the greater number (71%) is from Goiás, this information has not been included in the econometric model.

[12] All subsequent analyses were conducted in the Stata software package, version.

[13] The full text of the judgment was unavailable for 20 of the 161 Civil Appeals. As neither individual votes nor arguments underpinning the decision could be tabulated for these cases, they were removed from Sample B, which therefore contains 419 observations on the votes of 42 judges.

Table 2. Expected signals to the independent variables of model A, B and C.

	A	B	C
Advance payment/ supplies	+	+	+
Goiás-based company			
Year of decision	+		
Unanimous decision			
Oral argument (farmer's lawyer)	-	-	-
Oral argument (buyer's lawyer)	+	+	+
Position			
Judges Gender			
Decision postdates the first Supreme Court decision		+	+
Year of commencement at Court of Appeal			
Judges Promoted merit			

Source: primary data statistical analysis.

- ♦ Contract involved advance payment or provision of supplies to grower (Yes=1 or No=0);
- ♦ Decision postdates first Supreme Court decision (>02/2006) (Yes=1 or No=0).

As the dependent variable is the individual vote by Judge, the variables "position" and "gender" were included in sample B. When the Appeal Court Judge has some impediment to vote, a substitute judge is called. In this sample 13% of the votes were under the responsibility of substitute judges.

In this sample, we included the variable "Decision postdates first Supreme Court decision" to identity the influence of the first Supreme Court decision about this conflict on the Judge's vote after February 2006.

Model C

The same procedure was adopted, the dependent variable being the vote of only Appeal Court Judges[14]. At this time we included variables related to their personal characteristics, like year of commencement at Court of Appeal and if the promotion was for merit or for other reasons. The sample consisted of 303 observations. The model considers the following variables:

- Dependent variable: Individual vote by Appeal Court Judge
- Success: enforcement of contract
- Independent variables:
- ♦ Year of commencement at Court of Appeal;
- ♦ Promoted for merit (*Dummy*: Yes=1 or No=0);
- ♦ Unanimous decision (*Dummy*: Yes=1 or No=0);
- ♦ Oral argument by farmer's lawyer (*Dummy*: Yes=1 or No=0);
- ♦ Oral argument by buyer's lawyer (*Dummy*: Yes=1 or No=0);
- ♦ Contract involved advance payment or provision of supplies to grower (*Dummy*: Yes=1 or No=0);
- ♦ Decision postdates first Supreme Court decision (>02/2006) (*Dummy*: Yes=1 or No=0).

Based in the theory, the expected signals are presented in Table 2.

The probit regressions have been designed to test the hypothesis. The model permit to identify the effect that the explanatory variables have on the probability of judges decisions. Table 3 shows the results of regressions.

In Model A, variables *Contract involved advance payment or provision of supplies* and *year of decision* reached statistical significance. The data

[14] The vote of substitute judges were excluded.

Table 3. Probit analysis of Appeal decisions.

Variables	Model A	Model B	Model C
Advance payment/supplies	0.990* (0.534)	1.496*** (0.312)	1.480*** (0.415)
Goiás-based company	0.232 (0.227)		
Year of decision	0.290** (0.114)		
Unanimous decision	-0.096 0.267	-0.386** (0.165)	-0.616** (0.247)
Oral argument (farmer's lawyer)	-0.256 0.355	-0.193 0.194	-0.086 (0.236)
Oral argument (buyer's lawyer)	0.334 (0.319)	0.384** (0.165)	0.571*** (0.210)
Position		0.503*** (0.194)	
Gender		0.316 (0.196)	
Decision postdates the first Supreme Court decision		0.395*** (0.132)	0.427*** (0.165)
Year of commencement at Court of Appeal			0.218*** (0.048)
Promoted for merit			0.441** (0.185)
Constant	-582,044 (229,590)	-0.783 (0.247)	-436,432 (97,009)
N	161	419	303

*p < 0.10; **p < 0.05; ***p < 0.01. Robust standard errors are displayed in parentheses.

Source: primary data statistical analysis.

Table 4. Probability of ruling in favor of contract enforcement for the years 2003, 2004, 2005, 2006, or 2007, *ceteris paribus*.

Year	2003	2004	2005	2006	2007
Appeal Decision=1	25 %	35 %	47 %	58 %	69%

Source: primary data statistical analysis.

confirmed our hypothesis: when the contract involved advance payment or provision of supplies, the transference of property right of the soybean is clear: The probability of decision be in favor of contract enforcement was 82%, versus 47% when payment is not made in advance.

Data also suggest that the probability of the contract being upheld increased steadily through time. Yearly probabilities may be found in Table 4. This result indicates that a convergence effect is expected as more decisions are published.

Model B presents judges' individual vote instead of the committee's decision, as dependent variable. The following variables were found to be significance to explain the decisions: *Contract involved advance payment or provision of supplies*, *unanimous decision*, *oral argument presented by company lawyer*, *Position of Judge* (Court Appeal Judge or Substitute Judge) *and Decision postdated the first Supreme Court ruling*. As indicated by the coefficient sign, *unanimity of decision* was the only significant variable negatively correlated with a judge's vote to uphold the contract. Estimated probabilities are displayed in Table 5.

The results indicate that rulings by Appeal Court Judges are more likely to favor enforcement of the contract than those by substitute judges.

Table 5. Probability of a judge voting in favor of contract enforcement according to value of the variables: position, unanimous decision, oral argument by buyer's lawyer, advance payment or provision of resources, and decision postdating or predating first Supreme Court ruling on the matter, *ceteris paribus*.

Significant variable	Probability with value = 0	Probability with value = 1
Judge's Position	30%	49%
Unanimous decision	59%	44%
Oral argument (buyer's lawyer)	44%	59%
Advance payment/ provision of supplies	42%	90%
Decision postdates first SC decision (Feb '06)	40%	56%

Source: primary data statistical analysis.

Table 6. Estimated probability of an appellate judges voting in favor of contract enforcement according to value of the variables.

Significant variable	Probability with value = 0	Probability with value = 1
Promoted for merit	37%	54%
Unanimous decision	63%	39%
Oral argument (buyer's)	38%	60%
Advance payment/ provision of supplies	39%	88%
Decision postdates first SC decision (Feb '06)	37%	53%

Source: primary data statistical analysis.

Table 7. Probability of an Appeal Court Judge who joined the Court in 1998, 2000, 2002, 2005, or 2006 voting in favor of contract enforcement, *ceteris paribus*.

Year of Commencement at Appeal Court	1998	2000	2002	2005	2006
Vote=1	14%	26%	41%	67%	74%

Source: primary data statistical analysis.

On the other hand, the probability of a result favoring enforcement of the contract was lower in unanimous opinions than it was in opinions where judges dissented. The likelihood of a favorable judgment also increased, from 44 to 59%, when the buyer's lawyer made an oral argument during the judgment. The variable most likely to change the outcome of the decision was whether the contract involved an advance payment or provision of supplies. Contracts involving forward payment were 90% likely to be enforced on appeal, while contract modalities not involving such payment (or provision of supplies) were only 42% likely to be upheld by the court.

After February 2006, when the Supreme Court issued a ruling in favor of enforcing a soybean forward contract, Judges were more likely to rule in a similar manner (56%, versus 40% before the SC decision). This result expresses the effective signaling effect of superior courts.

Sample C featured the individual vote of Appeal Courts Judges as its dependent variable. Variables reaching statistical significance were: *Contract involved advance payment or provision of supplies*, *unanimous decision*, *oral argument presented by company lawyer*, *Decision postdated the first Supreme Court ruling*, *year of commencement at the Appeal Court*, and *promotion for merit*. Estimated probabilities for each variable value (0 or 1), *ceteris paribus*, may be found in Tables 6 and 7.

Appeal Court Judges promoted for merit appeared more likely to rule in favor of enforcing contracts. We observe 54%, versus 37% for those promoted due to seniority or administrative decisions. The unanimous decision, oral argument, advance payment, and year of decision variables shown similar results as they did in the

model B, it was expected, since 87% of cases were decided by Appeal Court Judges.

Another relevant factor was the year of commencement at Appeal Court: the probability of upholding contracts increased steadily with more junior judges – those who joined the Court in 1998 had a 14% chance of ruling in favor of farmer, while those who joined the bench in 2006 were 74% likely to decide in favor of enforcement the contract.

4. Effect on stability of the economic environment

After identifying the conflict and the results of court decisions, this section seeks to present some of their effects on the economic environment. This part of the study is based on qualitative interviews with farmers, entrepreneurs, lawyers, and trade association representatives. The objective is to identify a profile of farmers and purchasers, in order to add context and depth to study of the sector, and particularly to identify the main perceived challenges to contract performance, as perceived by real players. Meetings with small groups of players, meant to provide suggestions and validate preliminary results. After two years, industry representatives were once again interviewed in order to gather evidence of sector instability following the court decisions.

Results of the qualitative analysis were used to devise a roadmap for farmers data collection, seeking to identify some specific variables, namely: Contract characteristics; changes related with contract incentives and penalties over the preceding three years; whether strategies adopted by soy purchasers were altered after breach of contract episodes and subsequent court rulings; and, finally, to identify private conflict resolution mechanisms arose from these events.

Seventy questionnaires were applied, to soy growers who made at least one forward sale during the three harvests preceding our study (2002/2003, 2003/2004, and 2004/2005). The survey considered the regions that have relevant soybean production in Brazil[15]. Questionnaires have been applied from September through November 2005.

In a workshop[16] attended by farmers, entrepreneurs, and legal professionals in June 2005, soy farmers reported as effects of breach of contract: a decrease in soybean purchases and a temporary disappearance of forward contract offers. Another consequence of conflicts between growers and buyers was the credit reduction and subsequent reduction in rural output; according to workshop participants, government credit is simply not enough to maintain production levels. This analysis is superficial and does not control for other possible causes, like price decline effects.

The survey of growers considering contracts signed in 2002/2003, 2003/04 and 2004/05 harvests pointed out a drop of 44% fixed-price contracts between the 2003/04 end 2004/05 harvests. There was also a reduction in those involving advanced payment, but to a lesser extent. Contracts involving supply advances remained constant. In the survey, growers were asked about the after effects of breach of contract episodes; Table 8 shows the consequences as reported by growers. Half of farmers interviewed claimed that credit collateral requirements were more stringent in the 2005 harvest, 46% stated that negotiation with buyers became more difficult, and 30% entered into fewer forward contracts.

Most companies interviewed claimed no longer to adopt fixed-price forward contracts without advance payment or provision of supplies. They did claim to continue using contracts involving advance payment and provision of supplies and resources, as, according to company representatives, few courts ruled in favor of their annulment. The empirical portion of this study confirmed this result.

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[15] The sample was balanced by states as follows: 68% came from the state of Goiás, 15% from Mato Grosso, 13% from Paraná, and 4% from Rio Grande do Sul, Mato Grosso do Sul, Bahia, and Maranhão.

[16] Conducted at the Federal University of Goiás School of Agronomy in Goiânia.

Table 8. Effects of breach of contract on soy growers.

Consequences of other farmers breaching their contracts	% growers
More stringent collateral demands from lenders	50%
Negotiation with buyers is more difficult	46%
Less forward contracts as compared to previous harvests	30%
Less resources available to finance harvest	27%
No appreciable effect	19%
Reduction in farmed area	11%
Reduction in grain sales	11%

Source: primary data statistical analysis.

5. Conclusions

Soybean forward contracts have proven to be ineffective as a mechanism to mitigate the impact of substantial price fluctuations. Companies interviewed claimed no longer to use fixed-price soybean forward contract, only those involving advance payment and provision supplies – and, even so, with reformulated credit criteria. Demands for collateral have become far more stringent, as has monitoring of rural output. Furthermore, credit is only offered to farmers holding a good financial position with a perfect reputation in the soy market.

On interviewing soy growers and industry representatives, it has been found that forward contracts were widely used without restrictions until 2002/2003 and 2003/2004 harvests, at which time spot prices far exceeded those originally agreed upon, running opposite to the pattern of previous years. External shocks causes by high Chinese demand for soybeans and U.S. harvest losses, altered the contractual relationship, leading some growers to believe that breaching the contracts would be more advantageous than performing under their terms. Such farmers chose short-term profits over long-term gains that could have resulted from maintaining a strong relationship with the industry and soy traders.

Other growers, however, felt unfairly punished by companies, which they claim responded indiscriminately to contract breaches and "lashed out" against all soy farmers, even those who had always honored contracts. According to interviewees, the number of breached contracts was quite small when compared to those honored. There is no consensus on an actual figure, which varies widely – between 0 to 70% – according to farmers' perceptions.

Most farmers interviewed for the present study claimed to have suffered ill effects due to other growers breaching their contracts. The most oft-cited general consequences were companies' greater demands for collateral, greater difficulty in negotiating with companies, and a reduction in the volume of traded forwards. According to growers and industry alike, this drop in forward trading was due to three reasons, namely: 1) low price of soy because of over supply; 2) growers' expectations that prices would rise during the season, as they did in 2003 and 2004; and 3) contracts have been breached by growers in the two previous harvest seasons.

It was found that soy buyers and traders entered into fewer forward contracts in the year following the breach of contract episode than they had in the year before these events. It is unclear whether there is a causal relationship between this decrease and the judicial insecurity. The quantitative study of court decisions showed divergences even between Chambers of the Goiás Court of Justice. The data offers an example of the unpredictability of the Brazilian legal system.

Contracts exist as a means of reducing and safeguarding against uncertainty; nevertheless, in these cases, contracts were fragile and unable to fulfill this purpose, largely due to an unstable institutional environment. Reduction in the number of forward contracts used by companies and traders, more stringent demands of collateral to ensure

performance under the terms of contracts, and a selection process used to screen which growers are less likely to breach them were put in place as private conflict resolution mechanisms, but their use led to increased transaction costs for both parties.

The manner in which courts rule on breach of contract markedly affects organizational strategy. The results of this study are aligned with the new institutional economics theory, which states that institutional environment affects organizational transaction costs, and particularly influence their capacity to guarantee formal or informal contracts. If the "rules of the game" (NORTH, 1990) are unclear to agents, the institutional environment is expected to generate uncertainty, increasing the cost of subsequent transactions and the importance of economic sanctions.

The judicial system influences the business environment, as court decisions have repercussions in the actions of private agents. When a judge or justice rules in favor of one in a lawsuit, this produces secondary effects leading to a decrease in the use of contracts, which in turn makes future negotiations more difficult and complex for all involved. In this case, companies become fearful of negotiation, as they are unable to rely on the legal system to ensure that contracts would be honored. This disregard for secondary economic effects of rulings and decisions may be interpreted as "economic shortsightedness" on the part of the Judiciary.

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