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CARTEL DETERRENCE AND SETTLEMENTS: THE BRAZILIAN EXPERIENCE

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Cartel Deterrence and Settlements: the Brazilian Experience*

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Abstract

Settlements are an important part of a program of cartel deterrence, particularly when the likelihood of conviction and the litigation costs are higher. This type of negotiated procedure to reach finality is in essence complementary to the fully adversarial procedures associated to the trial by the administrative or judicial courts, and to other investigative instruments, such as the leniency agreement. The Brazilian experience provides some insights about the different models of direct settlement in cartel cases and the complex interaction among settlements, leniency agreements, and trial outcome. First, there is leeway for the complementary models of settlements, the first oriented mainly to increasing the likelihood of detection, and the second oriented to saving social costs of litigation. Second, the concern with the preservation of the demand for leniency agreements led the competition authority to restrict the use of settlements, which are effectively designed for the defendants that are likely guilty and give higher value to finality. The recent experience illustrates that the current settlement policy has not caused any adverse effect on leniency agreements, while reducing litigation costs and granting finality in some cases.

Key words: *settlements, plea bargaining, cartel deterrence, Brazilian competition policy*

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1. Introduction

There is not much controversy that settlements are an important part of a policy of cartel deterrence (Hammond, 2006a; Connor, 2007). Some authors emphasize the win-win feature of negotiated procedures to abbreviate the administrative and judicial disputes related to cartel prosecution as opposed to fully adversarial procedures (Landes, 1971; Scott and Stuntz, 1992; Wils, 2008). This almost consensus[1] in the literature is absolutely expected, provided that parties are rational and do not have

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[1] Although the literature is quite convergent about the potential benefits of settlements, there is a dissent regarding some actual results, mainly related to the punishment innocent defendants. About these critics, see Schulhofer (1992) and Bar-Gill and Gazal-Ayal (2006).

significant cognition problems. Inasmuch as litigation costs may be avoided and the fully adversarial procedure is always an alternative to the settlement, parties must be at least better off if they opt to settle a case.

More relevant and with important policy implications is the discussion about the appropriate design of this type of contract, particularly because it is not a trivial solution given the information asymmetry between the competition authority and defendants, and the complex interaction among settlements and other investigative mechanisms, such as leniency agreements. This paper addresses this issue both theoretically, by means of a simple game theoretical model, and empirically, by means of the Brazilian experience.

A quite straightforward model explores the relationship among three alternatives available to cartel participants: pursuing the trial, engaging in a leniency agreement, or settling the case. The model leaves out the well-know problem of asymmetric information about risk preferences (Grossman and Katz, 1983; Reinganum, 1988), focusing on the private information, unknown to the competition authority, about the costs of the admission of guilt and of pursuing the trial (i.e., the benefits of finality). As a traditional result in the contract theory with asymmetric information, a menu of contracts that separates the various types of defendants is the recommended solution. When it is difficult to design a mechanism that is able to separate the various types, the competition authority may opt to ration the access to the settlement (Stiglitz and Weiss, 1981).

The Brazilian experience with settlements, although very recent, is particularly interesting because the amendment in the Brazilian Competition Law allowing settlements in cartel cases delegated to the Competition Authority (CADE) great discretion in the design of such agreements. As a consequence, the Brazilian experience allows to analyse different models of settlements and the complex interaction between settlements and leniency agreements.

This article is organized as follows. First, it describes the historical and institutional background in order to provide the foundations for understanding the Brazilian case. Next, based on the international experience, it provides the basic principles for the design of settlements in cartel cases. As a core section, we then theoretically discuss two polar models for settlements (2nd Leniency agreement and

pre-judicial settlements) and the controversial issues of pleading guilty and the amount to be paid by applicants for settlement. Lastly, we draw some lessons from the recent Brazilian experience with settlements. As a main finding, we claim that there is leeway for the complementary models of settlements, the first oriented mainly to increasing the likelihood of detection, and the second oriented to saving social costs of litigation.

2. Cartel deterrence in Brazil

The Brazilian program for cartel deterrence experienced a substantial change in the first decade of 2000. This change has strict connection with the discussion regarding the convenience of the use of settlement agreements in cartel cases. Up to the 1990s, the vast majority of successful conduct cases prosecuted by the Brazilian Competition Policy System (SBDC[2]) were trivial to detect[3]. Cartel cases were rare and generally resulted from complaints or evidence brought from outside the SBDC usually by independent public prosecutors. These cases have the common characteristic of not requiring substantial investigative effort of the SBDC, because the complaints were often accompanied by evidence or the required evidence could be obtained from public sources such as public registrars or notaries. In short, the ability of the SBDC to investigate cartels was still to be developed.

The change began with the amendment of the Competition Law in 2000 by means of Law No. 10.149/2000, which allowed the SBDC to enter into lenience agreement with whistleblowers. The same amendment prevented the mechanism of settlements in cartel cases, aiming at providing more powerful incentives for cartel participants to engage in the lenience program, which was the single instrument of agreement between the SBDC and a member of a cartel. This was important to introduce the new institute as a concrete and attractive alternative for possible cartel's whistleblowers and, more importantly, to grant to the competition authority a fundamental instrument for detecting and punishing cartels (Brenner, 2005).

[2] Sistema Brasileiro de Defesa da Concorrência

[3] According to information compiled by CADE, 73% of CADE's convictions were imposed to medical cooperatives. Although such kind of cases are still common in the first decade of 2000, there was a clear diversification of the profile of convictions, particularly the increase of cartel cases.

The legal change was not yet sufficient to induce the use of this type of investigative instrument for cartel deterrence. Competition Law was not yet a self-enforcing institution[4], as there was not yet the general belief about punishment for cartel participants. Without expectations regarding the likelihood and the severity of the punishment, cartel participants did not have incentives to ask for full immunity as beneficiaries of a leniency agreement. This is probably the main reason why the first lenience agreement was concluded only in 2003, three years after its legal provision in the Brazilian Competition Law.

Equally or more important than the change in the legal framework has been the fostering of expertise and adoption of more appropriate mechanisms for the detection of cartels, such as wiretapping and, in particular, dawn raids. This change started at the beginning of the first decade of 2000, but has been intensified considerably in its second half. According to the Secretary of Economic Law (SDE), between 2003 and 2005, only 11 search warrants had been granted. In 2006, 19 warrants were granted. In 2007, once again the number of warrants exceeded the accumulated throughout SBDC's history, reaching 84 warrants granted and accomplished[5].

Concomitantly, with the purpose of preservation of evidence, two orders of temporary arrest were granted between 2003 and 2005. This instrument was used with stronger intensity in 2007, when SDE, in partnership with the Public Attorney's Office, obtained, just in this year, 30 warrants of temporary arrest[6].

The use of new investigative mechanisms, such as dawn raids and wiretapping, increased the likelihood of cartel detection, and, as a consequence, the demand for leniency agreements, which also had an additional effect on the probability of the disclosure of a cartel. Within the next four years as of 2003 approximately ten

[4] The concept of self-enforcing institution is drawn from Greif (2006), who defines institutions as "a system of rules, beliefs, norms, and organizations that together generate a regularity of (social) behavior". The Competition Policy is an institution that has rules (Competition Law), beliefs (expectations that the unlawful behavior will be punished), norms (e.g. procedures to apply for a leniency agreement) and organizations (e.g. the competition authority). An institution is self-enforcing if "each individual, taking the structure as given, finds it best to follow the institutionalized behavior that, in turn, reproduces the institution in the sense that the implied behavior confirms the associated beliefs and regenerates the associated norms", that is to say, that the institution is "effective in generating a particular behavior".

[5] In 2008, from January to September, the number of search warrants was 54, close to the figures of 2007 for the same nine months.

[6] In 2008, from January to September, the number of temporary arrest increased to 32, denoting a more intense use of this type of instrument to allow collecting evidence on collusive behavior.

agreements were signed, including several which revealed antitrust violations yet unknown by the SBDC.

With the use of such investigative instruments, a more intense action against cartels was possible, including the selection of cases of greater economic relevance and which have higher probability of conviction, allowing a more efficient use of investigation resources. As SDE summarizes in its annual report, "the investigative operations took place in sectors of great relevance to the economy, including alleged domestic cartels, such as the ones involving cement and gasoline stations, as well as alleged international cartels investigated simultaneously within several jurisdictions, such as the ones involving marine hoses and air freight."[7]

Lenience agreements and the new investigative mechanisms caused a significant change not only in the profile of cases brought to administrative trial at CADE but also on the strength of evidence supporting the cases. Until 2003, cartels cases were based on indirect evidence and price parallelism. The discussion within the administrative proceedings focused on whether there was or was not a violation to the law. The denial of the existence of the conduct used to be the main content of the defendants' defense before CADE as well as of the appeals filed before the judiciary. In such cases, the role of the judiciary focused on reviewing the CADE's decision after the conclusion of the administrative proceedings and as of the issuance of a conviction decision. The judiciary used to review mainly aspects related to due processes and defendants' rights.

In contrast, in a context of direct evidence, which grows in relevance due to the lenience agreement and the new investigative instruments, the defense focuses on the legality or validity of each of the direct evidence, reserving a secondary role to the question of whether a violation to the law existed. In this new stage of the Brazilian program of combat to cartels, defendants access the judiciary predominantly while the administrative proceeding is still in progress, increasing the costs of litigation. Such resources, in the event of termination of the dispute, could be more efficiently used in new investigations and, thus, in the deterrence of violations to antitrust law.

The increasing costs of litigation with defendants fostered the demand for a negotiated procedure to end cartel cases. Settlements are pareto-efficient if they

[7] DPDE/SDE/MJ annual report, 2007, page 21.

eliminate the costs of litigation while maintaining or enhancing the dissuasive effect of the enforcement of the competition law. As a consequence, settlements are an important mechanism in a program of cartel deterrence, particularly when the success in detection is sufficient to generate relevant cartel cases and, hence, the effort of defendants to fully contest the entire administrative procedure. Next section exposes the main aspects of settlements in cartel cases, exploring its features as a contract between the competition authority and defendants.

3. Settlement as a contract

The settlement is a contract between the authority and individuals and companies accused of antitrust offenses, for instance engaging in a cartel. The main items of this contract are the waiver of rights or the waiver of the exercise of such rights. The ability to practice such disposal act has been granted by the competition law in the case of the authority and, regarding the defendant, belongs to his/her sphere of waiver powers.

As to the defendant, the waiver of rights may take various forms. It essentially takes the form of obligations of not acting which are usually accompanied by other types of obligations such as collateral ones. Brazilian law provides for some mandatory content in cartel settlements. Obligations other than those depend upon mutual agreement between the parties. The mandatory provisions of a cartel settlement are: (i) obligation to cease the unlawful conduct, (ii) setting a fine in cases of breach of the agreement, and (iii) the obligation to pay a pecuniary sanction[8]. Examples of provisions which depend upon the negotiation between the parties are: (i) implementation of a compliance program by means of which the defendant is obliged to adopt internal procedures to prevent further violations to the antitrust law, (ii) the obligation to cooperate with the investigation in progress within the SBDC by means of the production of additional evidence[9], (iii) admission of guilt, which has relevant

[8] The amount paid as a fine is granted to the Federal Fund of Diffuse Rights (FDD), which is then allocated to projects oriented to the benefit of general diffuse rights, such as environment conservation, cultural and history preservation, and consumer protection.

[9] This obligation may be split into sub-items, which allows setting various formats thereto. These sub-items may be the obligation to grant access to information and documents to the antitrust authority, or obligations such as instructing employees to provide information or documents.

implications to the credibility of the commitment to cease the dispute[10], and (iv) waiver of procedural rights, such as to continue litigating, both within the administrative proceeding and the judiciary[11].

The competition authority, in its turn, interrupts the administrative proceeding and, once the obligations therein are duly accomplished, closes the case. Furthermore, depending on the terms of the agreement, the amount that would be due upon conviction for violation of the competition law may be reduced.

4. International experience

Settlements in Brazil[12] share several features with other negotiated mechanisms to finish litigation, which are applied in other jurisdictions, in that the U.S. plea bargaining is one of the most prominent. There is considerable international experience regarding these mechanisms to terminate judicial or administrative disputes. In order to provide some empirical foundations for the design of settlements, this section summarizes the main aspects of the international experience in using these types of agreement between the competition authority and participants of alleged cartels.

First, it is necessary to acknowledge that the legal framework providing for settlement agreements is embedded in the institutional environment of each jurisdiction, which varies significantly among countries (North, 1990; 2005). The institutional environments may vary in many aspects such as the functioning of the judiciary, the costs and benefits to litigate, and the possibility of negotiating administrative and criminal penalties in a single settlement. Thus, other jurisdiction experiences should always be examined taking into account these differences, which, generally, prevent the mere emulation of international practices to a particular country.

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[10] By pleading guilty, the defendant shall incur in higher costs to re-start the litigation, because his/her chances of success become lower once his/her involvement in the offense is admitted. Therefore, this fosters a credible commitment as to the end of the dispute with the antitrust authority, either in the administrative proceeding or within the judiciary.

[11] Specifically, this obligation may take the form of recognition of the legality and withdraw of contests of the search performed by the authority within defendant's facilities in order to gather evidence of the offense. The contests against searches performed by the authority usually block the use of such evidence within both the administrative and criminal spheres. Because all cartel members are usually prosecuted in a single administrative proceeding, such contests may block the progress of the proceeding as well as the overall prosecution of the members of such cartel.

[12] The settlement in Brazil is denominated *Termo de Compromisso de Cessação*, as disposed in the art. 53 of the Brazilian Competition Law (Lei 8.884/94).

Two recent studies prepared, respectively, by the OECD and the ICN[13], compiled the practice and opinions of various antitrust authorities with regard to the form and desirability of settlements in cartel cases. These studies show that legal boundaries and usage of these agreements are quite different among jurisdictions. According to ICN, within 20 surveyed jurisdictions, the legal statutes of only 9 of them allow antitrust agencies to enter into settlements in cartel cases[14]. The authorities who have more experience in the use of the instrument are the United States, Germany, France and Canada.

The main differences are the following:

i) Requirements to enter into the agreement.

Some jurisdictions require a plea of guilty and the commitment to active cooperate in the prosecution of others cartel members, such as the United States and Canada[15]. Others, like South Africa and France, do not make such requirements. Those countries allow the conclusion of agreements without explicit admission of participation in the offense, but the party shall not contest charged violations[16].

[13] OECD, 2008; ICN, 2008.

[14] The antitrust authorities in South Korea, Hungary and Sweden are studying the adoption of settlement instruments in cartel cases. The antitrust division of the European Commission have just introduced this mechanism but as yet without any concluded settlement.

[15] The regulations of the European Commission go in this same direction, restricting the bargaining possibilities of the defendants. In this sense, the European Commission clarifies that the regulations shall not allow negotiation regarding the existence of the violation or the sanction to be applied.

[16] The study published by the OECD (2008) discusses the possible strategies that may be adopted by antitrust authorities, and their consequences when the admission of guilt is required at the discretion of the authority. In their words, "*while in certain jurisdictions such as the United States a negotiated settlement will always include a defendant's admission of guilt that could be used as evidence in private follow-on litigation, in certain other jurisdictions the competition authority or prosecutor might not invariably insist on a guilty plea. In these jurisdictions, where the guilty plea is 'on the negotiating table', defendants are likely to resist a demand to plead guilty if they are concerned about the effects of a plea in follow-up civil litigation. Presumably, where the competition authority agrees to settle without a guilty plea, it can extract a higher fine. But that case might be the worst outcome for private litigants because they will end up without a formal decision finding liability and without a settlement admitting liability. That outcome might deprive at least some private litigants of the only realistic opportunity to bring an action against cartel members at reasonable costs. Without the evidence from a competition authority decision based on a settlement with guilty plea, they might find it too burdensome and risky to establish a full case in civil litigation. Conversely, if the competition authority insists on a guilty plea, it may have to lower the fine it can obtain in a settlement. Which solution a competition authority prefers should ideally be determined by the goal of maximizing overall deterrence. A lower fine in a plea agreement as a price to 'buy' a guilty plea might be justified if the guilty plea makes civil litigation more likely and litigation can lead to fines that exceed the discount granted in the plea agreement.*"

ii) Evaluation of the cooperation offered by the defendant.

The evaluation of the cooperation obviously varies according to the circumstances of the case. The difference fundamentally regards the degree of predictability that each jurisdiction provides for the mechanism[17]. In general, greater predictability as to the adopted criteria implies a smaller range of cooperation valuing[18]. In this regard, the most notable difference is in the models used in the U.S. and in the European Union (EU). While in the former the agreement is essentially a mechanism for obtaining evidence and reducing the costs of identifying perpetrators, in the EU, the agreements can only be executed after the completion of the investigation, and, therefore, their key role is to reduce the costs of defense of the antitrust authority decisions in the judiciary. Issues such as the valuation of the contribution to the investigations (Hammond, 2006b) are, therefore, irrelevant according to the method used by the EU. In part, such distinction may stem from the admissibility of lenience agreements with more than one defendant in the EU, in opposition to the U.S., where, like in Brazil, only the first-in applicant may qualify for the agreement.

iii) Assessment of the relationship between settlement and the leniency program.

Some authorities – notably in those of countries of Common Law, where negotiated procedures are more usual – believe that settlement and lenience agreements are integrated policies. Nevertheless, both surveys of ICN and OECD note that

[17] In order to provide greater predictability regarding the expected value of the cooperation with the authorities, the US Department of Justice, through speeches of its Deputy Assistant Attorney General, Mr. Scott D. Hammond, reports that the following factors largely determine the value of that cooperation, taking in consideration the experience in the previous cases: (i) the cooperation must be provided at a time when investigation is benefited, (ii) the importance of the cooperation and its value to significantly advance the investigation, and (iii) whether the company is able to bring additional evidence of collusive behavior in other markets, thus qualifying for the "Amnesty Plus" program. Regarding the importance of the last factor, Mr. Hammond emphasizes that a large number of investigations were initiated because of evidence brought under the "Amnesty Plus" program.

[18] Generally, the jurisdictions have adopted more flexible criteria, which involve greater discretion in setting the conditions of the agreement. Regarding a possible trade-off between transparency and predictability about the terms of the plea bargaining, Hammond (2006b) states that "*if the Division [DOJ] were to establish an absolute, fixed discount for second-ins without consideration of these types of variables [cooperation, etc.], then the need for proportionality would be sacrificed for increased transparency. Proportional treatment also often requires consideration of factors shared only with the sentencing court and not the public, factors such as the state of the investigation at the time of the cooperation, the nature and extent to which the cooperation advanced the investigation, and whether the cooperation earned Amnesty Plus credit for disclosing undetected cartel offenses. The Division carefully weighs all of these variables in measuring the value of a company's cooperation to ensure proportional treatment of cooperating parties across all Division matters*".

settlements may undermine the demand for lenience agreements; therefore, they might be conflicting policies.[19] This complex interaction between lenience agreements and settlements are the main subject of the theoretical analysis presented in the next section.

iv) Differences concerning the tradable rights.

According to each legal system, some rights may not be waived or granted, which reduces the scope of the agreement and prevents some arrangements that could be of mutual interest for the parties. For instance, the legal literature regarding plea bargaining sometimes express the concern about the fact that such agreements might undermine the right to defense or subvert the justice within punitive system. This would happen if an innocent pleads guilt in order to avoid a more severe penalty (Schulhofer, 1992; Bjerk, 2007).

There seems to be some consensus points, which are briefly summarized as follows:

1. Settlements may be an efficient way to successfully terminate cartels cases, promoting a better allocation of investigative and processing resources and increasing the detection and punishment of offenses to antitrust law[20]. Such agreements may also provide certain benefits to defendants which are socially desirable, such as saving litigation costs and reducing the uncertainty about the punishment. The reduction of uncertainty is beneficial both for the defendant since it reduces his/her degree of exposure to a unknown penalty – as well as to society – because spending substantial resources and extensive prosecution do not always result in an appropriate punishment.

2. A reputation of consistency and fair negotiation may be important for effectiveness of a settlement. Uncertainty and asymmetric information about the negotiation process may be undesirable for both parties[21]. Similarly, there seems to be

[19] The OECD emphasizes that if the antitrust authorities can obtain substantial punishment by means of a negotiated instrument, in theory, negative effects upon the demand for leniency should not exist. (OECD, 2008: 9).

[20] Such agreements may maximize the deterrence effect by promoting better use of existing resources. Thus, even if the agreement involves a slight reduction in punishment of the defendant, the saving of public resources could be used to detect and process new offenders, thereby enhancing overall punishment and deterrence.

[21] In this sense, the OECD recommends that "*Negotiated settlements will work best if the competition authority can establish a public record of its settlement practice and a reputation of being transparent, consistent and fair in settlement negotiations. Publishing negotiated settlements, guidelines, and public speeches can contribute to these goals."* (OECD, 2008: 9).

consensus that an antitrust authority may only conclude an agreement if it has sufficient information about the relevant facts of the case.

3. A concern of most jurisdictions regards to possible effects that negotiated agreements may have in reducing punishment and thus undermine the enforcement of antitrust law. In this regard, a history of credible threats based on substantial punishment imposed in previous cases may decrease or even eliminate the negative effect such agreements may have on general deterrence of antitrust violations[22].

5. Principles that should govern settlement design

5.1. Introduction

Roughly speaking, actual or potential defendants in a cartel case have three options: (i) application for a lenience agreement, (ii) application for a settlement, and (iii) pursuing the trial, being subject to possible conviction for violation of competition law. As a consequence, the design of a settlement has possible effects not only on the continuity of litigation, but also on the demand for lenience agreements, one of the main instruments for detecting cartels.

The interaction between these instruments has important implications on the controversial issues of admission of guilt and the amount to be paid as a pecuniary sanction. In this session, these and other issues are explored in more detail in order to ground the analysis of the Brazilian experience.

The analysis of defendant's decision comprehends the identification of costs and benefits in each possible option. Such options may have great variability and complexity. They may be affected by characteristics of the defendants themselves, the businesses affected by the unlawful conduct, and the cartel's *modus operandi*. For sake of clarity, this section will present a simple model of defendants' choice, which points out the main principles relevant to the design of a settlement. Therefore, the section

[22] The OECD recommends that negotiated instruments for termination of cartel cases should be used with caution in jurisdictions in which the program of combat to cartels is still developing and the threat of future sanctions have some degree of uncertainty due to the lack of confirmation of sanctions imposed in previous cases by the judiciary.

begins with a discussion of the goals pursued by the antitrust authority. Such goals shall be the basis for the evaluation of the most appropriate design of a settlement. Then, the choice model is presented, emphasizing items such as the need of admission of guilt, commitment to cooperate with the investigation, and the level of the pecuniary sanction.

5.2. Authority's and defendants' goals in a settlement

In order to assess the convenience of a settlement, it is necessary to consider the goals each party pursues within such contract. As usual in Economics, it is reasonable to assume that a defendant chooses the alternative (e.g. entering into a settlement *vis-à-vis* pursuing the trial) which offers the greatest return, taking into account the expected fine at the end of the trial, pecuniary sanction in the settlement, collateral obligations, litigation costs and his/her degree of risk aversion.

In its turn, the goal of the antitrust authority is the enforcement of competition law as provided for in most of the jurisdictions legal statutes. What is generally understood as enforcement of the competition law is the ability of the authority to prevent and guide individuals' and companies' behavior, more specifically, to prevent anticompetitive behavior and mergers which may harm the consumer or social welfare by means of anticompetitive actions (Farrel and Katz, 2006). Therefore, agreements between defendants and the authority must be signed if, and only if, they enhance the deterrence of anticompetitive behavior.

Negotiated mechanisms between the competition authority and defendants, the lenience agreement included, affect the effectiveness of the competition policy in two ways. First, the agreement may exchange punishment for cooperation with the authorities. On the one hand, the punishment of a cartel member who cooperates with the authority is reduced. *Ceteris paribus*, this under-punishment mitigates the deterrence effect of the policy. On the other hand, the cooperation with the authorities offered in exchange will raise the likelihood of detection of illegal conducts, which is especially relevant in cartel cases since this practice is undoubtedly known to be unlawful, and, as a consequence, the offenders often try to hide any evidence of such behavior, making it more difficult for the authority to build the case.

The second way whereby a contract between the competition authority and defendants may affect the enforcement of the competition policy is reducing litigation costs. Eliminating costs regarding investigation, advocacy and legal representation saves time, as well as financial and human resources, which *ceteris paribus* leads to greater efficiency of the competition policy. The enforcement of competition policy being more efficient, the authority may, with the same budget, increase the deterrence of anticompetitive behavior. The economic literature also defines as additional benefits derived from settlements (i) the reduction in risks, since it was not possible to precisely anticipate the authority's decision, only to be known as of the administrative trial, and (ii) the screening mechanism which may help to distinguish guilty from innocent defendants (Grossman and Katz, 1983).

The analysis of the appropriate design of a settlement shall consider the increase effect in the deterrence of anticompetitive behavior and possible undesirable effects related to inadequate punishment of the agreement applicants, whether punishing innocents or under-punishing perpetrators. The interaction between these effects is detailed below, using a simple model of the defendants' choice.

5.3. A simple model for defendant choice

The defendant faces the three basic alternatives already mentioned: leniency agreement, settlement, and trial. The timing of this decision is variable and its outcome may depend on actions of other defendants in a cartel case (Baker and Mezzetti, 2001; Perloff *et al*., 1996). For example, if a defendant engages in a lenience agreement, this alternative will not be available to any other defendant. In addition, the applicant for a lenience agreement is eligible for full immunity only if the competition authority has not yet opened investigations against that particular cartel. Similar incentives for early application are provided for in CADE's Resolution No. 46/2007 regarding settlements. Such resolution explicitly determines that the timing of the settlement proposal be taken into account for evaluation of the amount of the discount that the applicant is eligible. The presentation that follows aims to isolate in a simple model the alternatives available to the defendants. Therefore, it deliberately ignores two

aspects of defendants' decision process: the timing of the decision and the strategic interaction among defendants.

Cartel deterrence is based on three main instruments: (i) administrative sanctions, especially the imposition of fines and collateral obligations, (ii) criminal sanctions, and (iii) compensatory private suits by those who were directly damaged by the cartel. These instruments may be set by a single judicial body, as is the case of the U.S., or by different bodies, as is the case of Brazil and France. In the latter, the decision about an administrative sanction or settlement, taken by an administrative tribunal, may have unknown consequences on the likelihood of the decisions in other areas, inasmuch as the information about the conviction in the administrative tribunal may affect the decision in the other judicial bodies. In our model, we allow for these indirect effects and take the single judicial body as a special case.

In addition to these burdens related to cartel deterrence, the administrative proceeding results in costs related to defense, representation, and loss of reputation, which does not distinguish guilty from innocent defendants. As a consequence, those costs do not play the role of inhibiting the unlawful behavior, as they do not provide different pay-offs related to different conducts. These costs incurred by both guilty and innocent are net social costs, even if privately incurred[23].

In our model, these privately incurred costs related to the development of the administrative proceedings are separated into two groups: dissuasive punishment, which gathers the administrative sanctions and possible changes in the likelihood of conviction in criminal and civil areas, and other costs of pursuing litigation up to the administrative trial. These costs are respectively represented herein by X_T and C_T, where the subscript 't' is mnemonic for 'trial'[24].

The lenience agreement, in turn, may or may not involve costs of cash disbursement, according to the timing of its application, and provides for criminal immunity. In contrast, there are costs related to the admission of guilt and the effective cooperation with the investigation, which may vary significantly among defendants of a

[23] In addition to these social costs incurred privately by guilty and innocent defendants, the dispute between the authority and defendants involves direct costs to the authority itself and the judiciary, the latter used in the arbitration of the dispute.

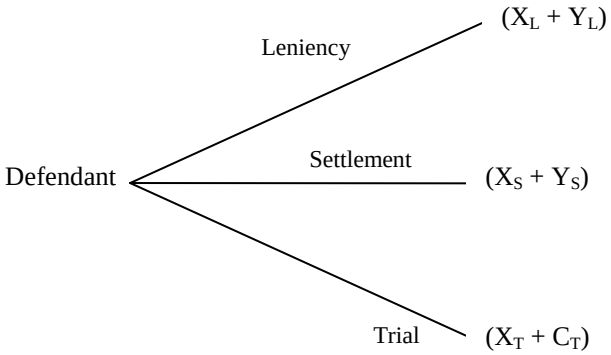
[24] These values correspond to the certainty equivalent of the yet unknown trial outcome, taking into account the defendants risk aversion and the discount rate. The certainty equivalent is the value whose utility is equivalent to the expected utility associated to an uncertain outcome (e.g. a lottery).

cartel case. Such costs may result both from changes in the likelihood of success of claims for civil damages as well as from retaliation by cartel members. For the sake of comparison between the lenience agreement and the settlement, these costs are divided into two: X_L, which corresponds to pecuniary sanction and other obligations included in the agreement, and Y_L, which corresponds to the costs of pleading guilty and the effective cooperation with the authorities, where the subscript 'L' is mnemonic for 'leniency'.

Finally, the settlement implies costs of cash disbursement and collateral obligations, represented herein by X_S, and, as the lenience agreement, costs related to pleading guilty and effective cooperation with the authorities, represented herein by Y_S, where the subscript 'S' stands for 'settlement'. Y_S can be zero if the settlement does not include the admission of guilt and obligations of effective cooperation with the authorities. Some relevant aspects to the decision of the parties, such as if the transaction encompasses both criminal and administrative spheres, are ignored at present, but they will be taken into consideration later when the details regarding the principles that should govern the design of settlements are explored.

The defendant's decision problem may be represented in Figure 1, which links each alternative to its costs.

Figure 1: A simple model of defendant's choice



The competition authority has all the bargaining power to define the administrative sanctions, including the cash disbursement and collateral obligations, as

well as to determine the need of admission of guilt and cooperation with the investigation. On the other hand, the competition authority does not know the magnitude of the costs related to the admission of guilt and cooperation with investigation (Y_S and Y_L), and the costs of carrying on with the trial (C_T). In addition, the authority does not know if defendants are guilty or innocent. Even in possession of sufficient evidence to file administrative proceedings against the defendants and of additional evidence gathered during the investigation of a case, it is not possible to conclude at the time of the settlement (i.e. before the administrative trial and closing of the case in the administrative sphere) if defendants are guilty.

Since the authority does not have complete information regarding such variables, there is the risk that the design of the agreement may under-punish perpetrators (i.e. $X_S + Y_S < X_T$) or punish innocent (i.e. $X_S + Y_S < C_T$), which are both undesirable from a social perspective. As it is relatively consensual in economic and legal literature, agreements such as the settlement should be designed to avoid the under-punishment of guilty defendants as well as the punishment of innocent ones. This can be done, even if imperfectly, by raising the cash disbursement (X_S) to an amount sufficiently high to dispel the interest of innocent defendants in seeking a settlement[25].

The information asymmetry regarding the costs of admission of guilt and cooperation with the investigation may also limit the ability of the authority to design agreements which might reduce administrative costs, and, therefore, increase the enforcement of the competition policy. On the one hand, the requirement of admission of guilt is desirable in order to potentially increase the deterrence effect of the administrative sanction, in particular because it undermines trust among cartel members, which is an important component of the enforcement of informal contracts (Lazaric and Lorenz, 1998). On the other hand, costs of pleading guilty usually vary among defendants, especially in hard-core cartels, whose mechanisms of punishing defection often go beyond purely economic retaliation. Such costs may be higher than those of a conviction, as suggested by the fact that there is not lenience agreement in several hard-core cartels. In other words, in such cases, even the greatest of prizes – i.e., full immunity to criminal and administrative sanctions is not enough to attract potential applicants for lenience agreements. When this occurs, any agreement between the

[25] This is the main conclusion reached by Grossman and Katz (1983) and further by Bjerk (2007).

authority and defendants that requires admission of guilt, either settlement or lenience agreements, is, in the defendant's perspective, worse than carrying on with the trial, and, therefore, unfeasible.

The differences in costs of pleading guilty define two groups among those who participate in a cartel. A first group gathers the potential applicants to a lenience agreement and is characterized costs of pleading guilty and cooperating with the investigations that are not too high so that $(X_L + Y_L) < (X_T + C_T)$. In other words, the lenience agreement is preferable to the risk of prosecution by means of an administrative proceeding and possible conviction. The second group includes those whose costs of pleading guilty and cooperating with the investigations (Y_L) is sufficiently high so that $(X_L + Y_L) > (X_T + C_T)$. Inasmuch as there are several cartel cases which go to administrative trial without lenience agreements, this second group is probably fairly large.

As to the request for a settlement, there are two possible scenarios. If the proceeding has already a lenience agreement, then the costs of pleading guilty and collaborating with investigations is not so high [i.e., $(X_L + Y_L) < (X_T + C_T)$], which means that this case fits in the first group. Thus, even assuming that the costs of pleading guilty and cooperating with the investigation is different among the members of a same cartel, it is reasonable to assume, as a general rule, that requiring a plea of guilt in those cases will not dissuade potential applicants for settlement[26]. Moreover, there is no need to discuss possible negative effects on the leniency program since the lenience agreement was already executed. In this case, the settlement shall require admission of guilt and the obligation to cooperate with the investigation, as CADE's Resolution No. 46 appropriately provides for.

If the administrative proceeding has not benefited from a lenience agreement, there are two cases. First, the costs of pleading guilty and collaborating with investigation are comparatively lower [i.e., $(X_L + Y_L) < (X_T + C_T)$], which means that there are potential applicants to a lenience agreement. Second, those costs are sufficiently high [i.e., $(X_L + Y_L) > (X_T + C_T)$] so that a lenience agreement will not be reached, even if a settlement is not an available. The abundant evidence about cartel prosecutions without leniency agreements before settlements were allowed, in mid

[26] This conclusion does not necessarily apply to cases where individuals are parties in lenience agreement due to their limited liability, which reduces the costs of civil damages they may be obliged to pay.

2007, suggests that this second case is empirically relevant, perhaps more likely than the first. Furthermore, there are relatively few cases of lenience agreements executed after the beginning of an administrative proceeding, even at the time settlements in cartel cases were prevented, suggesting that the likelihood of potential applicants for lenience agreement is much lower in cases in which the administrative proceeding is already in progress.

In such cases, offering a single contract schema to the defendants[27] – e.g., requiring the admission of guilt and collaboration with investigation in all cases – would clearly under-use settlements, and, thus, prevent saving litigation costs. As part of the defendants may present high costs of pleading guilty [i.e., $(X_L + Y_L) > (X_T + C_T)$], such requirement would eliminate the possibility of settlement by members of that group.

This single contract schema for settlements, in which only the value of the collaboration with investigation is variable, is, in essence, the practice in U.S., the jurisdiction that most intensely uses negotiated proceedings to finish cartel cases. This practice implies that settlements in situations where $(X_L + Y_L) > (X_T + C_T)$ – i.e., when no lenience agreement would be feasible regardless the possibility of settlement – would be discarded *prima facie*. Additionally, since the lenience agreement provides for the maximum punishment reduction (i.e., $X_L < X_S$), a settlement with admission of guilt would never be signed in cases in which no lenience agreement is reached. As a result, this practice reduces the settlement to a second lenience agreement, which is exactly the role of plea bargaining in U.S. jurisdiction.

There are three plausible explanations for why the U.S. model of settlements is widely used, despite the obligation of pleading guilty. First, the costs of admission of guilt are probably much lower in the U.S. due to the fact that all possible sanctions to cartel participants are decided by a single judicial body. As a consequence, a settlement does not generate spillovers or unintended consequences to other areas, such as criminal prosecution. Second, the litigation costs for the authority are probably lower in the U.S. since the conviction is not subjected to judicial review as it is the case of ordinary administrative decisions. Inasmuch as litigation costs are lower, the benefits resulting from abbreviating the trial and giving finality are relatively lower. Third, as

[27] This strategy is also known in the Economics of Contracts as ‘pooling’.

suggested by Scott and Stuntz (1992), the pecuniary discounts may be so attractive that some innocent defendants opt to plead guilty.

For the general case, requiring admission of guilt for all cartel proceedings implies underutilization of the settlement. The question that remains to be answered is whether one can design different contracts for the group that has potential interest to negotiate the admission of guilt and collaboration with investigation [i.e., ($X_L + Y_L < X_T + C_T$)] and for the group whose costs of pleading guilty are high enough to exclude them as potential applicants to the lenience agreement [i.e., ($X_L + Y_L > X_T + C_T$)].

For those who are in the first group – i.e., who want to negotiate a plea of guilt and the cooperation with the investigation) – just offering a slightly less favorable agreement than the leniency agreement would make the defendants prefer the latter. Since the demand for leniency agreements remains unaltered, there is no adverse effect on the likelihood of cartel detection. Moreover, all the potential applicants for settlements that have a low cost of pleading guilty will probably be willing to settle as a 2nd leniency, thereby decreasing litigation costs and bringing about new evidence about the same or other antitrust offences.

For those who do not intend to negotiate the admission of guilt and collaboration with investigations, the authority can offer a contract in which the pecuniary sanction is equivalent to the present value of the punishment that the defendant would receive by the time of the conviction in the administrative trial, discounted by an amount just enough to induce the defendant to settle [i.e., $X_S = (X_T + C_T - \varepsilon)$]. In this case, the settlement is featured as a pre-judicial agreement, since the reference for the agreement is the administrative decision, which could, in turn, be reviewed in the judiciary.

It is important to note that the authority does not know who the potential applicants for the lenience agreement are. Therefore, these potential applicants may apply for a settlement without a plea of guilt, which, if accepted, would reduce the ability to identify new cartels, and, hence, decrease deterrence. Therefore, the settlements without a plea of guilt should be sufficiently unattractive to the group who has relatively lower costs of admitting guilt.

Due to this interaction between the settlements and the demand for lenience agreements, the size of the discounts offered to induce the defendants to sign the agreement (ε)[28] should be carefully analyzed for an optimal design of a settlement without pleading guilty. The greater the discount, the greater the likelihood of the execution of a settlement, and the greater the benefits from the interruption of the dispute in terms of resource saving. This saving of resources allows deepening the investigation, both in the cartel case in which the settlement was executed as well as in other cartel cases, and enhances the enforcement of the antitrust policy as a whole. On the other hand, if the discount is excessive, it may happen that potential applicants for the lenience agreement will prefer the settlement without admitting guilt, which would occur if $\varepsilon > (X_T + C_T)$ $(X_L + Y_L)$. As a result, the ideal size of discount (ε) is defined by this trade-off, in which rising (ε) increases deterrence by reducing inefficiency due to litigation (finality of the proceedings) and reduces deterrence directly by decreasing the punishment and, indirectly, by reducing the demand for the lenience agreement.

It is worth mentioning that the requirement of admission of guilt for all settlements only maximizes the enforcement of the antitrust law if the benefits arising from the interruption of the administrative proceedings are negligible in comparison to the costs arising from the possible reduction in the demand for lenience agreements. As mentioned in Section 2, the costs of litigation are particularly relevant at this stage of the Brazilian program of cartel deterrence, so that the benefits of a negotiated mechanism are significant.

In addition to saving litigation costs, even with no admission of guilt, the settlement brings finality and as a consequence mitigates the risks associated to the final outcome. Given that defendants are likely risk averse, they are better off paying the expected value of their probable fines for certain (Grossman and Katz, 1983). It is expected that the defendants that are most likely to apply for a settlement, with or

[28] If the authority had complete knowledge of all variables and there was common knowledge about their values, a discount equivalent to one monetary unit would be sufficient to motivate the execution of a settlement without any loss of demand for the lenience agreement. As the authority does not know the defendants' reservation value, it is reasonable to assume that the probability of concluding a settlement (and thus achieving the benefits of interruption of the dispute) will grow as the discount increases, i.e., $\frac{\partial p(Settlement)}{\partial \varepsilon} > 0$. However, it is expected that this effect is mitigated as the discount grows, i.e. $\frac{\partial^2 p(Settlement)}{\partial^2 \varepsilon} < 0$.

without admission of guilt and full collaboration with investigation, are those with a higher cost of carrying on with the trial, or, alternatively, those for whom finality is more valuable [i.e., C_T is significantly high].

In short, the flexibility of the settlement allows the negotiation of two models of agreements that may enhance the deterrence of anticompetitive behavior: a) an agreement requiring the admission of guilt and full collaboration with investigation, taking the form of a second lenience agreement; and b) an agreement which, although it does not require the admission of guilt, involves the payment of the expected value of the punishment on the part of the applicant, taking the form of a pre-judicial settlement.

6. The Brazilian experience with settlements: some preliminary conclusions

Within the first year since the amendment in the Brazilian Competition Law allowing settlements in cartel cases, several companies and few individuals applied for settling their cases. The variety of proposals by defendants in different industries and cartel cases permit to draw some lessons from the Brazilian experience.

The number of applicants was substantial for a first year, particularly taking into account the experience with the introduction of the leniency program in Brazil, which took three years to conclude the first agreement. Although substantial, the number of proposals is still much lower than the number of potential applicants. Within the first year, sixteen companies, three trade associations and ten individuals (all managers) applied for a settlement, whereas the number of defendants currently being prosecuted in cartel cases, considering only cases of hard-core cartels with direct evidence obtained by dawn raids or communication interception, exceeds 200[29].

More remarkable is the rate of rejection of settlement proposals by CADE. The competition authority has approved four out of sixteen settlements proposals presented by companies in cartel cases so far: JBS/SA (slaughterhouse soft cartel), Lafarge Brasil SA (alleged cement cartel), Alcan Embalagens do Brasil (alleged aluminum bags cartel) and Bridgestone Corporation (alleged marine hoses cartel). Three

[29] These are cases with a very high probability of conviction as a trial outcome. The number of defendants in all cartel cases probably exceeds one thousand. Among the actual applicants for settlements, the majority is from those cases with direct evidence, but there are also some proposals from soft cartels.

individuals that applied for settlements, all of whom were managers of those companies, also had their proposal accepted: two from JBS/SA and one from Alcan.

Five of the rejected proposals are related to cases that have at least one proposal accepted – the alleged cartel of cement industry and that of aluminum bags – which is evidence that there is, indeed, significant variability in the costs and benefits of settling a case within the same industry. In those cases, not only the applicants offered a settlement sum considered insufficient to deter collusion, but also they did not offer any effective collaboration with the investigations. The remaining rejected proposals, all from the security guard services cartel, were set forth on the day of CADE's final decision, in that they were rejected for not meeting some requirements of CADE's Resolution No. 46/2007 and for being requested too late.

Regarding the model of settlement, as described in the theoretical discussion, three out of four settlements with companies did not require the admission of guilt and full collaboration with investigation (pre-judicial model), whereas just one proposal, in a case that had benefited from a leniency agreement, followed the 2nd leniency model. It is noteworthy that no settlement with individuals included the admission of guilt, which may be due to the higher cost of pleading guilty when criminal prosecution is investigated by a different judicial body, as is the case of Brazil.

The chart below shows the timing, requirements, amounts paid and existence of leniency agreement.

Table 1: Settlements concluded in Brazil

Company	Alleged Conduct	Affected market	Timing	Requirements	Contribution	Leniency Agreement
Bridgestone Corporation	Hard core cartel	Marine hose	After dawn raid, during investigation (08/2008)	Admission of guilt; Brazilian market only; effective and full cooperation	R$ 1,594,000.00 (appr. 13% equivalent to the present value of a fine of roughly 20%)	yes
Lafarge Brasil S/A	Hard core cartel	Cement	After dawn-raids, during investigation (11/2007)	No admission of guilt; compliance program	R$ 43,000,000.00 (appr. 10% of the annual gross turnover; equivalent to the present value of a fine of roughly 15%)	no
JBS/SA	Soft cartel	Slaughter-house	By the time of the judgment (11/2008)	No admission of guilt; compliance program	R$ 13,761,944.40 (appr. 2,5% of total gross turnover in the relevant market)	no
2 individuals (manager and employee)					10% of the company's contribution (manager) and approx. US$ 3,600.00 for the other one (employee).	
Alcan Embalagens do Brasil	Hard core cartel	Aluminum bags	During investigation	No admission of guilt; compliance program	R$ 24,218,550.57 (appr. 10% equivalent to the present value of a fine of roughly 15%)	no
1 individual (manager)					10% of the company's contribution (manager)	

The comparison between accepted and rejected proposals shows a remarkable regularity. In all accepted proposals the applicant valued significantly finality [i.e., C_T was significantly high]. JBS, for instance, was planning an IPO that could be adversely affected by its antitrust uncertainty. A similar situation led Alcan to apply for a settlement, as it was about to sell the business unit that was under investigation, and was willing to clear it for sale. Finally, Lafarge and Bridgestone applied for settlements in Brazil as a result of the company transnational policy,

probably related to their application for settlements in other jurisdictions. Pleading guilty or committing to collateral obligations in one jurisdiction may have adverse spillovers on the prosecution of a cartel in other jurisdictions, particularly in the case of international cartels. That is probably why part of the demand for settlements in Brazil, similar to the experience with leniency agreements, is from multinational companies that are settling simultaneously in several countries.

Finally, there is no evidence that the current settlement policy has any adverse effect on the demand for leniency agreements. On the contrary, as stated in the Brazilian submission to OECD, Working Party No 3, 2008, "there is a growing number of candidates to the [leniency] program, including members of international cartels". This positive result may be due to the rationing of settlements, which are actually designed for guilty defendants with a higher reservation value for finality. Expanding the settlements for a larger group of applicants, by means of a higher discount on the expected fine, may have the adverse effect of attracting innocent defendants with a higher value for finality and/or those who would be otherwise candidates for leniency agreements. In short, although the Brazilian experience with direct settlements in cartel cases is still incipient, it shows that the leniency and settlement agreements, when properly designed, are complementary mechanisms in a program of cartel deterrence.

7. Concluding Remarks

Settlements are an important part of a program of cartel deterrence, particularly when the likelihood of conviction and the litigation costs are higher. This type of negotiated procedure to reach finality is in essence complementary to the fully adversarial procedures associated to the trial by the administrative or judicial courts, and to other investigative instruments, such as the leniency agreement.

The Brazilian experience provides some insights about the different models of direct settlement in cartel cases and the complex interaction among settlements, leniency agreements, and trial outcome. Brazil has experienced a substantial change in cartel prosecution since 2000. The use of new investigative instruments, such as dawn raids, communication interception, and the leniency program,

caused a significant increase in the likelihood of cartel detection, bringing about cases of major economic relevance, in sectors such as the cement industry, chemicals, among others. As an unintended consequence, the costs of litigation increased substantially, fostering the demand for a mechanism of settlement, launched in 2007.

Within the first year of the settlement program several proposals from different industries and cartel cases were submitted, allowing the identification of some patterns of the current policy. First, there is leeway for the complementary models of settlements, the first oriented mainly to increasing the likelihood of detection, and the second oriented to saving social costs of litigation. The two models are designed to separate those defendants that have lower costs of admitting guilt and collaborating with investigations from those with higher costs, particularly managers that may still be subjected to criminal prosecution by a different judicial body. Second, the concern with the preservation of the demand for leniency agreements led the competition authority to restrict the use of settlements, which are effectively designed for the defendants that are likely guilty and give higher value to finality. The recent experience illustrates that the current settlement policy has not caused any adverse effect on leniency agreements, while reducing litigation costs and granting finality in some cases. The more intense use of this type of negotiated procedure shall be made with caution. On the one hand, greater discounts for settlements increase efficiency but, on the other hand, decrease the dissuasive effect of direct sanctions, and the likelihood of detection of new cartel cases by means of leniency agreements. This fine tuning adjustment is a major challenge for competition authorities.

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