Civil Justice Reform: A Mechanism Design Framework

by

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The main goal of the court system is to differentiate between those who obeyed the law and those who did not. We describe a mechanism design framework that facilitates the characterization of a set of procedural mechanisms that would minimize the resources used to achieve this goal. This framework can also help to formulate and evaluate procedural rules, and to identify necessary and sufficient conditions for deciding disputes according to substantive law with minimal costs of litigation and delay. We illustrate our approach using three examples: fee-shifting rules, discovery rules, and third-party alternative dispute resolution mechanisms. (JEL: C 72, D 70, D 82, K 40, K 41)

1 Introduction

Civil justice systems all over the world are experiencing a growing sense of crisis. Litigation costs and case loads increase as courts become too clogged to be able to provide meaningful administration of law and justice.

In response, legislators and courts have taken various measures intended to reduce cost and delay. Of the many procedural measures that have been taken, some have addressed issues of managerial and administrative efficiency of the courts, whereas others have focused on litigants' incentives. It is the latter that we discuss in this paper.

The main goal of the court system is to differentiate between those who obeyed the law and those who did not, and to administer the disputes that are brought before it according to substantive law. We describe a mechanism design framework that facilitates the characterization of the set of procedural mechanisms that would minimize the resources used to achieve this goal. This framework can also help to formulate and evaluate procedural rules, and to identify necessary and sufficient conditions for deciding disputes according to substantive law with minimal costs of litigation and delay.

The paper proceeds as follows. We first give a brief overview of civil justice reform around the world. Then, we identify a few inherent characteristics of the judicial process. We show that these characteristics make the judicial process apposite for modeling within a mechanism design framework, in which substantive law gives rise to a *social choice function,* and rules of procedure and evidence are captured by

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game forms or *mechanisms*. Finally, we illustrate our approach using three examples: the design of fee-shifting rules, the design of discovery rules, and the use of third-party alternative dispute resolution (ADR) mechanisms.[1]

2 *Civil Justice Reform*

A civil justice system must provide just and efficient resolution of disputes. It must protect the rule of law, offer redress to those whose rights were violated, and sanction those who infringed those rights. It must be accessible, accurate, and impartial. And it must consume as little social resources as possible.[2]

Most civil justice systems aspire to accomplish all these goals and more. Yet, perhaps not surprisingly, they fail to do so. Indeed, if there is one thing common to different legal systems around the world, it is a sense of crisis, a concern that delay and litigation costs are increasing, and that the judicial system is unable to satisfy demand for its dispute resolution services.[3] Public opinion often speaks of a litigation explosion, and calls on policymakers to respond.

Many civil justice systems (the U.S., England, and Australia, to name but a few) have gone through a significant revision of their procedural rules in the past twenty years. These reforms were all fueled by a similar sense of crisis, and they all share a common set of principles that underlie the reformed rules. Although their relative weight and exact formulation varies, the following objectives can be found in most modern reformed rules of civil procedure: *cost effectiveness*, *proportionality*, *expeditiousness*, and *equality*.

Cost effectiveness means efficient use of judicial, as well as parties', resources. Proportionality addresses the need to distinguish and prioritize among cases according to their value (private and social) and complexity, due to the judicial system's limited resources. Expeditiousness requires that cases be resolved as quickly as possible, cutting down the time between filing and disposal. And equality requires that litigation be conducted on equal footing between the parties.

Each legal system establishes the measures it deems necessary to satisfy these objectives. Here, too, a comparative study demonstrates close similarities among the proposed, and often adopted, procedural mechanisms. They can be divided into two main categories: The first category includes measures that are intended to render the management of courts in general and litigation in particular more cost-effective. These measures include early judicial case management, timetabling, and

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[1] The same framework may also be applied to analyze the rules of evidence. In fact, the approach advocated in this paper closely resembles that of SANCHIRICO [1997].

[2] See for example Rule 1 of the American Federal Rules of Civil Procedure; Rule 1.1 of the English Civil Procedure Rules.

[3] For a comparative perspective on the civil procedure crisis see ZUCKERMAN (ed.) [1999]. For more recent analysis see VARANO AND DE LUCA [2007] (Italy).

alternative calendar systems.[4] These measures can be analyzed using methodologies from management science, and are outside the scope of this paper.

The second category, which is of more interest to economists, includes procedural rules that affect litigants' incentives and decisions. Such decisions can be further divided into *filing* decisions, *litigation investment* decisions, and *settlement* decisions.[5] Filing decisions include the plaintiff's decision whether to file a lawsuit or not, and the defendant's decision whether to defend against it. Litigation investment decisions include each party's decision how much to spend on litigating her case. And settlement decisions include decisions when to settle and for how much.

As less lawsuits are filed and defended, as litigants' investments in each case decrease, and as more of the lawsuits are settled, the justice system becomes less costly and delay is reduced. Yet, these three categories of decisions are interrelated, and may consequently interact with each other. For example, if litigation expenditures decrease, this may reduce incentives to settle, whereas the motivation to file and defend will increase. Moreover, these decisions affect the court's accuracy, and consequently attainment of its basic goal, which is to distinguish between liable and nonliable defendants.

A comparative study of civil justice reforms points to some procedural mechanisms that are often constructed to reduce cost and delay: dispute resolution mechanisms based on third-party assistance; pretrial disclosure and discovery; fee-shifting rules; and pleadings procedures. Yet, there is little agreement about the effectiveness of these procedural mechanisms or their effect on the implementation of substantive law mandates. As we show, the mechanism design framework offers a fresh perspective on these issues.

3 Characteristics of the Civil Justice System

3.1 The Distinction between Substance and Procedure

One of the most fundamental distinctions in modern legal theory is the distinction between substance and procedure. Substantive law defines "rights, duties and powers of persons and institutions in their out-of-court relationships," whereas procedural law governs the "decision-making process by which substantive legal interests are maintained or redressed through courts." In its day-to-day application, the law of procedure implements substantive law (see JAMES, HAZARD, AND LEUBSDORF [1992, p. 2]).[6] Although the boundary between the two categories may be drawn differently depending on the context (see COOK [1933]), it is usually clear enough for practitioners to identify.

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[4] See for example the reform proposals in England (WOOLF [1996]), Hong Kong (CHIEF JUSTICE'S WORKING PARTY [2004]), and British Columbia (CIVIL JUSTICE REFORM WORKING GROUP [2006]).

[5] See HAY AND SPIER [1998], DAUGHETY [2000], SPIER [2005].

[6] On the history of this distinction see, for example, RISINGER [1982].

That such a distinction exists does not imply, however, that procedural rules do not affect primary behavior, *ex ante*, before any dispute arises. Since procedural law imposes costs on litigants and because it influences the accuracy with which questions of rights and remedies are decided *ex post*, it also affects behavior *ex ante* (see SCOTT [1975]). Therefore, any measure of efficiency of the justice system must incorporate its *ex ante* effects.

The incorporation of *ex ante* deterrence effects and *ex post* costs of the judicial system into a single framework is a complex task. Whereas it is conceptually feasible to construct procedural mechanisms that would make litigants internalize all *ex post* litigation costs, it is much more difficult to do the same for deterrence. The deterrent effect of litigation is an *ex ante* effect, on behavior that preempts (and sometimes may even prevent) the dispute. By the time the dispute is brought into court, that behavior is already "sunk." Litigants, therefore, do not internalize the deterrent effects of their litigation decisions. This is referred to in the literature as the divergence between the social and the private incentive to use the legal system (see SHAVELL [1982a], [1997]).

The problem of civil justice reform has thus far been approached in two ways. One approach, which has been adopted by most reformers, is to ignore the *ex ante* deterrence effects and focus on *ex post* minimization of litigation costs and delay. From a social planning perspective this approach is at best incomplete. The other approach, which is sometimes used in the law-and-economics literature, is to ignore the inherent distinction between substance and procedure and collapse all legal rules into one framework, in which the objective is to maximize *ex ante* efficiency. Because the distinction between substance and procedure is so fundamental in all legal systems, however, we believe that any design of mechanism should pay it sufficient respect. Furthermore, this distinction is not merely a formalistic construct, and it may be explained on economic grounds as well:

First, the time gap between *ex ante* behavior and *ex post* litigation (*ex ante* and *ex post* relating to the time of dispute) makes it difficult to identify and quantify the deterrence effects of procedural rules. Consequently, the problem of constructing *ex post* procedural rules that would be optimal from an *ex ante* perspective may be not only conceptually difficult but also practically intractable.

Second, the *ex ante* deterrent effect of the same procedural mechanism may depend on the context in which it is applied. For example, the same discovery rule may influence behavior differently when the litigating parties are in a close relationship *ex ante*, as in a contractual setting, and when they are unaware of each other before the dispute, as in a typical tort case. Theoretically, then, it may be optimal to devise different discovery rules for different substantive contexts.

Yet, one inherent manifestation of the distinction between substance and procedure is that most modern procedural rules are transsubstantive. That is, they apply to all lawsuits irrespective of their substantive cause of action. Therefore, associating an optimal procedural mechanism with a substantive context is usually unacceptable. A practicable framework for analysis must therefore allow for constraining the variability of procedural mechanisms across substantive contexts.

Finally, most people are unaware of procedural rules when conducting their out-of-court behavior. Procedural rules are usually in the realm of lawyers only. Hence, it may often be the case that the rules of procedure have no actual *ex ante* effect whatsoever. Distinguishing between rules that carry such effects, since individuals are aware of them *ex ante*, and those that do not, proves to be a difficult task.

To summarize, civil justice reforms have tended to ignore the *ex ante* effects of procedural rules, whereas the economic literature has often overlooked the inherent distinction between procedural rules and substantive law. We suggest a third alternative, that respects the distinction between substance and procedure, yet allows for the influence of procedural rules on the implementability of substantive law. As explained in the next section, we do so by using a mechanism design framework, in which the social goal is to minimize litigation costs subject to the mandates of substantive law. Procedural rules are used to determine game forms, or mechanisms, for litigants to "play." We then look for procedural rules that would implement the social goal.

3.2 Private Information and Conflicting Interests

The goal of the judicial process is to convey information to the court (judge or jury) so it can decide the dispute according to substantive law. Procedural rules regulate pretrial and trial activity, and consequently influence the progress of information sharing between the parties and its conveyance to the court.[7]

There are two types of information that the court does not hold. The first type is information shared by both litigants, but not by the court. This includes not only information regarding past events, but also information concerning specialized issues that require expert evidence in court. More generally, this is information which is observable by both parties, but is costly to verify in court.

The second type is information that is privately held by only one of the litigants, which the other litigant, as well as the court, does not know. Very often the defendant is privately informed about various aspects of her liability (what level of care she took, what information she had, etc.), whereas the plaintiff holds private information regarding her losses.

The lack of information makes the just and efficient implementation of procedural rules difficult. An uninformed court cannot apply such rules optimally without first learning the litigants' private information. Thus, for example, the decision whether to allow the plaintiff to use discovery measures against the defendant depends on the utility of such discovery and its costs, both unknown to the court. To take another example, a court contemplating whether to employ a provisional remedy against the defendant must weigh its costs against its utility in case the plaintiff prevails. Yet, the weights depend on the probability of plaintiff victory on trial, which the court does not know at the early stages after the lawsuit is commenced.

[7] The law of evidence, which is not analyzed here, determines which information can be brought to the court's attention, how, and what weight it should be given in the court's decision.

To overcome its lack of information the court relies on the adversarial nature of the lawsuit (even under inquisitorial systems[8]), which motivates litigants to produce the relevant information and educate the court. Yet, it is exactly the adversarial behavior of the parties, or, more concretely, their conflicting interests, that require innovative design of procedural mechanisms and active involvement of the court. Without such involvement, the litigants may engage in wasteful competition, spending more resources than socially optimal.

This combination of private information and conflicting interests complicates the design of an optimal procedural system. The more adversarial the system, the more information is uncovered, but the more costly the whole judicial process. On the other hand, if the court is endowed with greater powers to regulate and interfere in litigation decisions, then total litigation costs may be reduced and less information may be conveyed to the court. Consequently, the court's decision would become less accurate, which often implies its decision is less just and efficient. The challenge is therefore to harness the litigants' private information in a way that will motivate them to educate the court about it, without increasing costs.

Mechanism design is a theoretical framework that is based on the two attributes described above: private information and conflicting interests. It allows the analyst to examine current and proposed mechanisms in situations that have these two attributes, and determine whether they are capable of implementing what is defined to be the social choice function. The next section presents the basic model for such analysis and demonstrates some of its possible applications.

4 The Mechanism Design Approach

A mechanism design framework requires the analyst to define a social choice function or correspondence $f : \Theta \to C$ that maps every *state of the world* into an *outcome*. Given the distinction between substance and procedure, and their given characteristics, we define the social choice function according to *substantive law* as follows.

The set of states of the world, denoted Θ with typical elements $\theta \in \Theta$, describes everything that is relevant as far as the substantive law and the parties involved are concerned, including the parties' preferences and past actions. The states of the world are therefore not the *ex ante* states, before the dispute, but the *interim* states, after the dispute yet before litigation.

The set of outcomes, denoted C with typical elements $c \in C$, describes the set of all possible consequences, as conceived by substantive law. This set is independent of the procedural rule that is adopted to implement substantive law.

To take a simple example – the law of torts prescribes, for any past action or omission of an alleged tort-feasor, a remedy for the victim. Suppose that the alleged tort-feasor could have taken any one of n different actions, $a_1, \ldots, a_n$. Suppose that

[8] On the adversarial nature of civil procedure in continental (usually perceived as inquisitorial) systems such as France, Italy, and Germany, see DAVIES [2002].

according to substantive law, if the alleged tort-feasor has taken any one of the actions $a_1, ..., a_k$, then he is liable and should compensate the victim accordingly, and if he has taken any one of the actions $a_{k+1}, ..., a_n$, then he is not liable and should pay the victim anything. Hence, the state of the world consists of the action taken by the alleged tort-feasor, or $\Theta = \{a_1, ..., a_n\}$, and the set of outcomes is given by the set of pairs (x, y) of nonnegative real numbers where x is the defendant's total liability and y is the plaintiff's total recovery. If the damage to the victim is normalized to 1, then the social choice function under a negligence standard is

$$f(\alpha_i) = \begin{cases} (1,1) & \text{if } i \in \{1, ..., k\}, \\ (0,0) & \text{if } i \in \{k+1, ..., n\}. \end{cases}$$

That is, the tort-feasor pays the victim's loss if the act or omission was negligent, and pays nothing otherwise.

Notice that the states of the world in this example are defined after the tort-feasor has already acted (and a loss was incurred). Thus, this formulation restricts attention to *liability rules*, which determine the possible remedy after an action has been taken.[9]

Substantive law features twice in this model. First, it is instructive upon the court in its decision. Second, it describes the social choice function. The two are not the same, because not all cases end in trial. The set of outcomes, C, describes the expected liabilities of the alleged tort-feasor and the expected recovery of the victim, which consists of cases that are litigated to judgment, as well as cases that are settled before or after they are brought to court. In particular, the case where the tort-feasor pays 100 in court with certainty, and the case where she pays 200 in settlement with probability 0.5, are treated as the same outcome for our analysis, assuming no litigation costs. The cases would be different if litigation costs were positive.

The problem of mechanism design is how to design a *game form,* or *mechanism,* M whose solutions will belong to $f(\theta)$ for every state of the world $\theta \in \Theta$.[10] We interpret the choice of a mechanism as a choice of a procedural rule. Thus, the problem of finding a mechanism that accomplishes a certain goal or implements a certain social choice function becomes a problem of how to design a procedural mechanism that will implement substantive law.

More formally, a procedural mechanism consists of a pair $M = (A, m)$ where the set A describes the set of actions that each party can take, and the mapping $m : A \times \Theta \to C$ describes the expected consequences of a profile of actions $a \in A$ when the state of the world is given by θ. The mechanism design problem can be conveniently described diagrammatically as shown in Figure 1.[11]

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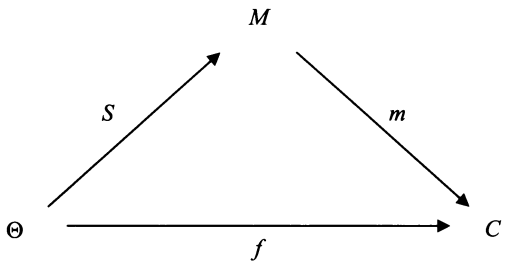
[9] This is opposed to *property rules*. The distinction between liability rules and property rules goes beyond the scope of this paper. See, e.g., CALABRESI AND MELAMED [1972].

[10] Sometimes, the more stringent requirement that the solutions of M *coincide* with $f(\theta)$ for every state of the world $\theta \in \Theta$ is invoked.

[11] This diagram appeared in MOUNT AND REITER [1977].

Figure 1
The Mount–Reiter Triangle



The mapping f describes the social choice function that maps states of the world in Θ into consequences in C. The mechanism M defines a set of rules that, together with the parties' preferences and relevant history that are described in the relevant state of the world $\theta \in \Theta$, induce a game. The letter S denotes the *solution concept* that is applied to this game. For example, in some situations it may be reasonable to assume that the parties will play a Nash equilibrium; in other situations, a stronger solution concept such as dominant strategy equilibrium, or a weaker solution concept such as the sequential elimination of strictly dominated strategies, may be more appropriate. The point is that different states of the world will give rise to different games and different equilibrium outcomes, which will be mapped by the function m into different consequences. As explained above, the objective is that the outcome function m is to map every relevant state of the world $\theta \in \Theta$ into $f(\theta)$.

Going back to the tort example, one procedural mechanism that can be examined is a pleadings rule. The defendant-alleged tort-feasor may be required to choose to acknowledge her liability or not. If she acknowledges her liability, then she pays the plaintiff some amount. If she denies her liability, then the plaintiff decides whether to pursue the case to trial or drop it. If he drops the lawsuit, then each litigant gets some (possibly negative) payoff. If the plaintiff decides to proceed to trial, then the court decides the case accurately, and depending on its decision awards each litigant some (possibly negative) payoff.

Different assumptions about the knowledge and beliefs of the parties, and about the appropriate solution concept S to apply, translate into different mechanism design problems. In the tort example, for example, the state of the world is privately known to the defendant, and so the appropriate solution concept to apply may be that of Bayesian Nash equilibrium.

Two remarks are in order. First, we assume that the outcome function $m : A \times \Theta \rightarrow C$ depends on the parties' actions and on the state of the world. This formulation is more general than the common assumption in the implementation and mechanism design literature, where the outcome function depends only on the players' actions. The difference is due to the fact that a procedural mechanism typically involves

a judge or an arbitrator, who may be able to observe the state of the world and to condition its decision on its realization.

Second, sometimes there are several procedural mechanisms that implement the same substantive rule. In such a case, we are interested in finding the mechanism that is optimal according to some other criterion of social welfare, such as the minimization of the sum of costs to the parties.

The following subsections illustrate the usefulness of the mechanism design approach with three examples: the design of fee-shifting rules, the design of discovery rules, and the use of third-party alternative dispute resolution (ADR) mechanisms.

4.1 The Design of Settlement and Fee-Shifting Procedures

One important mechanism for inducing litigants to change their main litigation decisions is the shifting of litigation costs. Fee-shifting rules determine when and to what extent one litigant should reimburse another for her litigation costs. Fee-shifting rules can be divided into two main categories: First, there are outcome-based fee-shifting rules, which condition cost reimbursement on the outcome of trial. The two prominent fee-shifting rules in this category are the American rule, according to which each litigant bears her costs irrespective of the trial's outcome, and the English rule, in which the loser on trial fully reimburses the winner for her costs. Second, there are offer-of-settlement (sometimes called "offer of judgment") rules, which condition cost reimbursement on settlement offers that are rejected during litigation. One such rule is Rule 68 of the American Federal Rules of Civil Procedure, according to which "if the judgment finally obtained by the offeree is not more favorable than the offer, the offeree must pay the costs incurred after the making of the offer."

The law-and-economics literature has extensively analyzed the effect of both outcome-based fee-shifting rules[12] and offer-of-settlement rules[13] on the incentives to sue, settle, and invest in litigation. Yet, most of these studies have not attempted to identify the optimal settlement procedure and fee-shifting rule when the goal is to minimize the cost of litigation subject to the constraints imposed by substantive law, such as maintaining deterrence.

An important exception is SPIER [1994], who offers a characterization of the fee-shifting rule that minimizes expected litigation costs or maximizes the likelihood of settlement but does not consider deterrence. In KLEMENT AND NEEMAN [2005] we extend her work by explicitly incorporating deterrence, and thus substantive law, into the analysis. We show that a settlement procedure that we call a *pleading mechanism* – together with the English fee-shifting rule, according to which the loser in trial bears the legal costs of the winner – maximizes the likelihood of settlement, and maintains deterrence, as required by substantive law. We outline the main argument below.

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[12] See, for example, SHAVELL [1982b], BRAEUTIGAM, OWEN, AND PANZAR [1984], and KATZ [1987].

[13] See, for example, MILLER [1986], CHUNG [1996].

Recall the tort example above. Suppose, for simplicity, that $n = 2$. That is, the tort-feasor is either liable or not, and the social choice function that one would like to implement, if possible, is $f(a_1) = (1,1)$ and $f(a_2) = (0,0)$. We show that this social choice function cannot be implemented. Intuitively, the reason for this is that implementation of this function requires the parties to go to trial with a positive probability, which imposes additional litigation costs on the parties that are not captured by the substantive liability rule.

We therefore examine a weaker substantive standard, which only mandates that the difference between the defendant's expected liability if she is liable and if she is not is 1. A liable defendant is thus still required to compensate the plaintiff for the entire damages caused, as under the original social choice function, but because of litigation costs and the necessity of (*ex post*, inefficiently) going to trial in order to achieve justice, it is impossible to ensure that the expected payoff to the plaintiff will be equal to the damage caused when the defendant is indeed liable, and be equal to zero otherwise.

We maintain the assumption that if the parties go to trial, then the court discovers whether or not the defendant is liable. And we further assume that the court requires the defendant to compensate the plaintiff for her loss, 1, if she is found liable. We therefore assume a substantive law that does not allow decoupling, on the one hand, or punitive damages, on the other. In this example as well as in other contexts, substantive law imposes certain constraints, and procedural law provides the mechanism that satisfies these constraints.

However, since going to court is costly for both the plaintiff and the defendant, the objective is to design a settlement procedure that will compensate the plaintiff if and only if the defendant is indeed liable, and that will maximize the likelihood that the parties will settle outside of court and thus save the associated legal fees. The instrument that can be used for this purpose is fee-shifting rules.

As mentioned above, in KLEMENT AND NEEMAN [2005] we show that a *pleading mechanism*[14] together with the English fee-shifting rule maximizes the likelihood of settlement. The mechanism allows the plaintiff to make a take-it-or-leave-it settlement offer, which the defendant may either accept or reject. If the defendant rejects the offer, then the plaintiff must decide whether to proceed to trial, and if she does, then the court finds whether the defendant is liable or not, and allocates litigation costs according to the English fee-shifting rule.

The intuition for this result is the following. If it had been commonly known whether the defendant was truly liable or not, then under the optimal mechanism – the mechanism that maximizes the *interim* likelihood of settlement subject to a minimal deterrence constraint – the plaintiff and defendant would have settled with probability one, and because of the deterrence constraint, the difference between the expected settlements of liable and nonliable defendants would have been equal

[14] In Klement and Neeman's pleading mechanism the defendant is asked to plead whether it is liable or not. If it pleads liable, then it has to fully compensate the plaintiff for the damage caused. If it pleads not liable, then the plaintiff decides whether to litigate to trial or drop the case.

to the extent of the damage caused to the plaintiff. Obviously, such a mechanism is not incentive-compatible. In a world in which the defendant's true liability is not known to anyone but herself, a liable defendant has an incentive to pretend she is not liable so she can settle for less. It follows that an optimal mechanism must provide an incentive for liable defendants to admit their liability.

Because the defendant's true liability can only be verified in court, the only way to do this involves going to court with a positive probability. Because going to court is costly, the probability of going to court has to be minimized under the optimal mechanism. Conditional on the case going to trial, the English fee-shifting rule is the one that maximizes the difference between the expected payments of liable and nonliable defendants. Therefore, because the optimal mechanism should provide the "cheapest" possible incentives for being truthful, deterrence implies that it must rely on the English rule, because in this way it is possible to satisfy the deterrence constraint with the lowest possible probability of going to trial. The reason is similar to the well-known argument that efficiency requires setting very large fines for those caught violating the law, but very small probabilities of detecting offenders (BECKER [1968]).

One interesting outcome of the model is that the maximum probability of settlement equals the probability that the defendant is liable, and it is independent of the litigants' litigation costs. This conclusion contradicts most theoretical and empirical findings, which identify a positive correlation between the probability of settlement and litigation costs. The intuition here is that under the English fee-shifting rule any increase in litigation costs renders litigation less profitable for the plaintiff, and she is therefore less willing to proceed to trial. But then, liable defendants have stronger incentive to deny their liability and refuse to settle, hoping that the plaintiff will drop the suit. Under the optimal mechanism these two effects cancel out, and therefore the probability of settlement is kept constant.[15]

4.2 The Design of Discovery Rules

Historically, the common law has relegated all information transmission between the parties to the trial stage.[16] Modern civil justice systems have recognized, however, that pretrial discovery and disclosure devices are necessary. These may include depositions, which are oral or written questioning of witnesses; interrogatories, which consist of written questions to a party; production of documents; physical or mental examinations of parties or persons under legal control of a party; and requests for admissions, which require a party to admit a proposition of fact tendered in a written request.

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[15] For a similar conclusion see NALEBUFF [1987, Proposition 3].

[16] Equity cases were different, in that the law facilitated documentary evidence before trial. This was meant to overcome a party's privilege at common-law trials not to testify against his own cause. See JAMES, HAZARD, AND LEUBSDORF [1992, pp. 232f.].

Discovery can serve various objectives: It may eliminate fictitious controversies, upon which the parties would agree after discovery, and may even encourage pretrial settlement based on the information discovered; it can simplify the presentation of evidence at trial by allowing the parties to exchange documents and review them before trial, and reduce the "gaming" effect of litigation; and it can secure the submission of accurate evidence, not deteriorated by the passage of time until trial. To put things more generally, pretrial discovery has two main goals: to encourage early settlement and to raise the accuracy of trial.

Yet, pretrial discovery has its faults. Most significantly, discovery is costly. Since it is not limited to evidence that is admissible at trial, and since it is not constrained by the court's time, discovery usually increases total litigation costs for cases that are not settled (see KAKALIK et al. [1998]). Moreover, litigants can use discovery strategically, to force litigation costs upon their rivals. The question therefore stands whether discovery's benefits outweigh its costs, and if they do, whether and how it should be regulated by the court.

A large part of the literature has focused on the proper standard to implement in discovery disputes. That is, it has attempted to draw guidelines for deciding whether a specific discovery application is justified and should therefore be allowed, and possible mechanisms to induce litigants to take mostly justified discovery measures.[17]

One exception is MNOOKIN AND WILSON [1998], who used a mechanism design framework to show that under the optimal mechanism the initial allocation of information between the parties does not affect their expected *ex ante* gains from a joint discovery plan. In their model, therefore, the tension between the direct costs of discovery and its benefit in encouraging settlement and consequently saving litigation costs may be resolved through Coasian prediscovery bargaining. Yet, their model does not allow for the effect of discovery on the implementation of substantive standards.

In KLEMENT AND NEEMAN [2005] we have considered whether the likelihood of settlement under the optimal pleading mechanism and fee-shifting rule can be increased by the addition of a discovery phase. We showed that this is impossible, since under the assumptions of the model the probability of going to trial is a martingale. Following discovery, the expected posterior belief that the defendant is liable equals the prior belief before discovery. Since the maximum probability of settlement equals the probability that the defendant is liable, discovery cannot increase the probability of settlement. Thus, any gain that discovery would produce in the probability of going to trial in some states of the world must be offset by corresponding losses in other states of the world.

4.3 The Design of Third-Party ADR Mechanisms

Most proposals for judicial system reform include detailed plans to encourage litigants to use alternative dispute resolution (ADR) mechanisms. Among those, two

[17] See for example SOBEL [1989], COOTER AND RUBINFELD [1994], HAY [1994].

stand out: *arbitration* and *mediation*. Arbitration is an adjudicative procedure, in which a privately hired third party hears the evidence and then delivers a (potentially) binding decision. Mediation is a facilitative procedure, where the third party assists the litigants to reach an agreement and settle their dispute.

There is vast theoretical and empirical literature on the use of third-party ADR mechanisms.[18] Yet, none of this literature seems to answer a fundamental puzzle: how can third parties improve either the quality of decision-making or the efficiency of settlement negotiations? Indeed, a number of results in the mechanism design literature that describe how in some contexts it is possible to decentralize any social choice rule suggest that they cannot.[19]

Both mechanisms have many effects that go beyond the scope of a simple rational behavior model. Nevertheless, it would be interesting to examine their more limited implications within such a model. ADR mechanisms may figure in our framework in two possible variations – arbitration and mediation. In the first, one would replace the court with an arbitrator, who may deliver an *intermediate* judgment. That is, the arbitrator, unlike the court, would not be required to decide the dispute on an all-or-nothing basis, and might therefore decide that the defendant should compensate the plaintiff for only part of his losses. More generally, an arbitrator would not be bound by substantive law. The question, thus, is whether relaxing this constraint can help implement substantive standards more efficiently.

Notice that the parties may opt for arbitration either before the dispute or after it. Signing an arbitration agreement before the dispute is not always possible. Yet, when it is possible, the parties will do so only if it will minimize their litigation costs, subject to the substantive-law constraint (assuming, of course, that substantive law is efficient). That is, they will choose arbitration only if it is *ex ante* efficient. On the other hand, if the arbitration option is available only after the dispute, the parties will attribute no value to maintaining the substantive-law constraint. They will, therefore, select arbitration only if its outcome is *ex post* efficient for both. It is interesting to examine the effect of the different timing of selection on the optimal structure of arbitration mechanisms.

In the second variation, we may want to allow the litigants to use a mediator who can transfer information between them before they decide whether to settle, and to help them coordinate on a specific correlated equilibrium. Referring back to our diagram, the mediator can affect both the mechanism, M, and the appropriate solution concept, S. Some important work on these questions has already been done by BROWN AND AYRES [1994]. Yet, they too, have not allowed for the effects of mediation on the implementation of substantive standards.

A crucial first step towards addressing these issue hinges on the question of when and how it is possible to find simple, practicable game forms that would implement the same social choice function as some given abstract direct revelation mechanism.

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[18] See for example SHAVELL [1994], BERNSTEIN [1992].

[19] For example, the second-price auction is a decentralized mechanism that implements the optimal allocation in a single-good auction.

This question, which is still very much an open one in mechanism design theory, can be answered in some contexts (e.g., auction theory). The challenge is to come up with a general answer that would shed light on the question of mediation versus arbitration versus abstract mechanism design.

5 Concluding Remarks

This paper draws a template for future research. It introduces a framework that respects the ingrained distinction between substance and procedure, yet does not undermine the substantive (or primary) effects of procedural rules. Using a mechanism design approach, in which substantive law defines the social choice function and procedural rules describe possible game forms that may implement it, may prove useful in realizing possible effects and limitations of various procedural mechanisms.

However, like any other model or approach, mechanism design also has its weaknesses. It tends to abstract away from many complicating factors that often prove very important in practice. And it may prove to be sensitive to the allocation of information between the litigants, to their renegotiation opportunities, and to various sources of bounded rationality.

Mechanism design is therefore one more instrument in the policymaker's toolkit. It may offer a fresh perspective over long-debated issues. Combining it with other theoretical and empirical methodologies would prove fruitful in legal systems' search for more efficiency and justice.

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