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Costly Pretrial Agreements

Luca Anderlini, Leonardo Felli and Giovanni Immordino

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University of Naples Federico II
University of Salerno
Bocconi University, Milan

CSEF - Centre for Studies in Economics and Finance
DEPARTMENT OF ECONOMICS – UNIVERSITY OF NAPLES
80126 NAPLES - ITALY
Tel. and fax +39 081 675372 – e-mail: csef@unina.it

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Abstract

Legal disputes are either settled or end up in Court. Settling a dispute involves some costs (time and money invested in preparations) that the parties have to incur ex-ante, in order for the pretrial negotiation and possible agreement to become feasible. Even in a full information world, if the distribution of these costs is sufficiently mismatched with the distribution of the parties' bargaining powers, a pretrial agreement may never be reached even though actual Court litigation is overall wasteful. As parameters vary, the equilibrium of our full information model with costly pretrial agreements sheds light on two key features of how disputes are initiated and subsequently handled. First, in some cases a Plaintiff may initiate a law suit even though the parties fully anticipate that it will be settled out of Court. Second, the "likelihood" that a given law suit ends up in Court is unaffected by the way trial costs are distributed among the litigants (e.g. English Rule or American Rule). The choice of *fee-shifting* rule can only affect whether the Plaintiff files a law suit in the first place. It does not affect whether a given suit is settled before trial or litigated in Court.

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* Georgetown University

** London School of Economics. Address for correspondence: Department of Economics, London School of Economics and Political Science, Houghton Street, London WC2A 2AE, United Kingdom. E-mail: lfelli@econ.lse.ac.uk

*** Università di Napoli Federico II and CSEF

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1. Introduction

1.1. Overview

Potential legal disputes become actual ones when a Plaintiff ($\mathcal{P}$ throughout the rest of the paper) files a suit against a Defendant ($\mathcal{D}$ throughout the rest of the paper).[1] After a suit is filed, it can either be settled before it goes to Court, or it can be actually litigated in Court. Throughout the process $\mathcal{P}$ can drop the suit at any point in time. Our highly stylized model below captures these basic elements.

Court litigation is generally a wasteful way to resolve disputes as it involves large costs. Settling out of Court also involves costs, but these are generally lower than Court costs, and this is what we will assume throughout. The fact that these costs are present is often ignored, but plays a key role in our analysis.

If Court litigation is inefficient, and the parties are fully informed, is there a good reason for a law suit to be ever litigated in Court? Will it not be the case that some version of the Coase theorem (Coase, 1960) prevents Court litigation from ever actually taking place?

We present here a robust reason for some disputes between rational fully informed parties to be inefficiently litigated in Court.

Our model also sheds light on two key features of how disputes are initiated and subsequently handled.

First, in some cases $\mathcal{P}$ will initiate a law suit even though he fully anticipates that it will be settled out of Court. Very roughly speaking this is because filing a suit changes the outcome in case of disagreement in the bargaining process leading to the out-of-Court settlement.

Second, contingently on $\mathcal{P}$ deciding to actually file a law suit against $\mathcal{D}$, the "likelihood" that it is litigated in Court versus settled out of Court does *not* depend on how the Court costs are apportioned between $\mathcal{P}$ and $\mathcal{D}$, but only on the *total* Court litigation costs. In other words, the choice of *fee-shifting rule* does not affect whether a given suit is settled before trial or litigated in Court.[2] This is because the (Nash) bargaining between the parties will fully anticipate and compensate any shift in the Court costs, which will be fully reflected in the amount that $\mathcal{P}$ pays $\mathcal{D}$ *if* the suit is settled out of Court.

[1] Of course, there could be multiple Plaintiffs and/or multiple Defendants, but this is not our focus here.

[2] We consider the four systems discussed by Shavell (1982): the American rule (each side bears its own costs), the English rule (the losing side bears all costs), the rule favoring the Plaintiff (he pays only his own cost if he loses and nothing otherwise), and the rule favoring the Defendant (she pays only her own costs if she loses and nothing otherwise).

So, why some disputes between fully informed parties end up being inefficiently litigated in Court? As we noted above this requires a failure of the Coase theorem.

The bare-bones mechanism that generates a failure of the Coase theorem in this paper is similar to what happens in a different context in Anderlini and Felli (2006). Key to our result is the observation that parties to a dispute may have to incur certain costs prior to any potential settlement negotiation. That is, parties may have to pay *ex-ante transaction costs* (invest some time) to prepare for the negotiation that might lead to a settlement. The need to incur these costs prior to the negotiation implies that these costs are sunk by the time the pretrial negotiation takes place and hence they will not be taken into account in the negotiation. What this means is that the parties find themselves in a version of the hold-up problem. In other words, it is the parties' strategic interaction in the presence of *ex-ante* costs that might lead to trial. We regard this rationale for fully rational agents to end up in Court as complementary to existing explanations, based on the parties' disagreement over the likelihood of prevailing at trial or the inefficiency associated with parties' private information.

The vast literature on litigation, pretrial negotiation and fee shifting began with the economic theory of litigation, developed by Landes (1971), Posner (1973) and Gould (1973). These authors concluded that risk perception is the main determinant of whether a case is settled outside of Court. Together with Shavell (1982) these papers explain costly litigation as the result of different views on the likelihood of prevailing at trial. In this setting fee-shifting amplifies the effect of optimism, making litigants less likely to settle. "Under the English rule, a litigant is forced to take into account the other side's litigation costs to the extent that she risks losing the case, making her more willing to settle. But conversely, she is freed of her own litigation cost to the extent that she hopes to win, making her less likely to settle. Since litigants are disproportionately drawn from the population of optimists, the latter effect tends to outweigh the former. Indeed, in the limiting case when both parties are fully confident of winning, neither expects to pay any costs at all and settlement is impossible" (Katz and Sanchirico, 2012, p. 14).[3] This literature has been criticized on the ground that it assumes that each party knows the other party's reservation value.

A second group of models has focussed on disagreements generated by the parties' private information, allowing for rational beliefs (Bebchuk, 1984, Dari-Mattiacci and Saraceno, 2015,

[3]More recently other papers have extended this setting by endogenizing the level of trial expenditures should a trial take place (see Braeutigam, Owen, and Panzar (1984), Plott (1987), Cooter and Rubinfeld (1989) and Froeb and Kobayashi (1996))

Nalebuff, 1987, P'ng, 1983, Schweizer, 1989, Spier, 1992, 1994b) and explored the effects of fee-shifting rules (Gong and McAfee, 2000, Reinganum and Wilde, 1986, Spier, 1994a). Asymmetric information models confirm the disagreements model's result that the British rule generally discourages settlement when the private information concerns the likelihood of the plaintiff's prevailing at trial (Bebchuk, 1984), but provide exactly the opposite prediction when the asymmetric information is on the opponent's litigation costs (Chopard, Cortade, and Langlais, 2010) or on the level of damages suffered by the plaintiff (Reinganum and Wilde, 1986).

We are not the first to conclude that the likelihood of a trial is independent of the fee-shifting rule. Reinganum and Wilde (1986), Donohue (1991a,b) and, more recently, Dari-Mattiacci and Saraceno (2015) reach the same conclusion. The probability of trial is only a function of the total litigation costs and different fee-shifting rules do not alter this probability. In particular, in Donohue (1991a,b) the irrelevance of fee-shifting rules is a direct consequence of the Coase theorem: rules are irrelevant as long as the involved parties are free to sign a private contract specifying the Pareto optimal rule applicable to the court.[4] What is surprising is that we find the same result in a setting where the Coase Theorem does not hold precisely because parties have to incur some *ex-ante* costs, before they reach the stage in which the actual negotiation occurs.

1.2. Outline

The rest of the paper is organized as follows. In Section 2 that follows we describe the model in full detail. In Section 3 we characterize the (generally unique) equilibrium of the model as a function of its parameters (the pretrial and trial costs among others). Section 4 is devoted to a discussion of fee-shifting rules, and includes full description of the four polar cases that we consider. In Section 5 we discuss the implications of our characterization of Section 3 in terms of the impact of changes in the parameters and fee-shifting rules on the equilibrium outcome of the model. Section 6 briefly concludes. Seeking a more streamlined exposition we have gathered some formal material in an Appendix. All items whose number begins with a prefix "A" are to be found in the Appendix.

[4] The fact that the parties have come to litigation in the first place, may cast doubts on the presumption that they are bargaining in a Coasian fashion though (Katz and Sanchirico, 2012, p. 5).

2. The Model

2.1. Court Costs and Pretrial Agreement Costs

We return to the timeline of decisions shortly. We begin here with the basic structure of payoffs given by the expected outcome of a Court trial, possible settlement out of Court, pretrial negotiation costs and Court costs. In the timeline below, whether to file suit or not will be an actual decision that $\mathcal{P}$ takes. We start by taking it as given that a suit has in fact been filed. We also abstract from the possibility that $\mathcal{P}$ could drop the suit after filing it, which instead will be considered at every stage of the timeline below.

If the suit ends up in Court, $\mathcal{P}$ wins with probability p, and, if he wins, $\mathcal{D}$ will pay damages in the amount I.[5] We denote

$$\mathcal{I} = p\, I \tag{1}$$

the expected indemnity that $\mathcal{P}$ wins from $\mathcal{D}$ if the suit is adjudicated in Court.

If instead the suit is settled out of Court, $\mathcal{D}$ will pay an amount $\mathcal{S}$ to $\mathcal{P}$.[6] The settlement $\mathcal{S}$ is determined via generalized Nash bargaining, the details of which will be clarified in Subsection 2.3 below.

A settlement out of Court is only feasible if both parties pay (sequentially as we will see below) their *ex-ante* pretrial agreement costs. These are denoted by $c_A^{\mathcal{P}}$ and $c_A^{\mathcal{D}}$ for $\mathcal{P}$ and $\mathcal{D}$ respectively, with the total denoted by $c_A = c_A^{\mathcal{P}} + c_A^{\mathcal{D}}$. As discussed below, these should be interpreted as time and expenses that need to be *sunk* by the parties preparing to bargain over a pretrial agreement. They are *sunk* by the time the bargaining takes place.

We assume that going to Court is expensive. If the case is adjudicated in Court $\mathcal{P}$ needs to pay a cost $c_T^{\mathcal{P}} > 0$ and $\mathcal{D}$ needs to pay a cost $c_T^{\mathcal{D}} > 0$, with $c_T = c_T^{\mathcal{P}} + c_T^{\mathcal{D}}$ total Court costs. The costs c_T^i should be interpreted as *expected Court costs*.

At this stage it is useful to summarize our notation and write down the payoffs to the players as a consequence of the pretrial costs being paid or not, and the suit being tried in

[5] We take I itself to be deterministic. This is inessential, and we proceed in this way purely for the sake of simplicity.

[6] Again, we take $\mathcal{S}$ to be deterministic, but this is inessential, and we proceed in this way purely for the sake of simplicity. The same comment applies to the pretrial and Court costs that we will introduce shortly.

Court or settled beforehand. [7]

	Pay $c_A^{\mathcal{D}}$	Not Pay $c_A^{\mathcal{D}}$
Pay $c_A^{\mathcal{P}}$	$\mathcal{S} - c_A^{\mathcal{P}},\ -\mathcal{S} - c_A^{\mathcal{D}}$	$\mathcal{I} - c_A^{\mathcal{P}} - c_T^{\mathcal{P}},\ -\mathcal{I} - c_T^{\mathcal{D}}$
Not Pay $c_A^{\mathcal{P}}$	$\mathcal{I} - c_T^{\mathcal{P}},\ -\mathcal{I} - c_A^{\mathcal{D}} - c_T^{\mathcal{P}}$	$\mathcal{I} - c_T^{\mathcal{P}},\ -\mathcal{I} - c_T^{\mathcal{D}}$

(2)

With obvious shorthand, in what follows we refer to the four choice combinations in (2) simply as PP (Pay $c_A^{\mathcal{P}}$, Pay $c_A^{\mathcal{D}}$), PN (Pay $c_A^{\mathcal{P}}$, Not Pay $c_A^{\mathcal{D}}$), NP (Not Pay $c_A^{\mathcal{P}}$, Pay $c_A^{\mathcal{D}}$, and NN (Not Pay $c_A^{\mathcal{P}}$, Not Pay $c_A^{\mathcal{D}}$).

The first assumption we make stipulates that a pretrial agreement is efficient. In particular, both parties are potentially better off by avoiding a costly trial.

Assumption 1. *Efficiency of Pre-Trial Agreements: The total cost of a pre-trial agreement is lower than the total cost of going to Court. In other words $c_T > c_A$.*

Assumption 1 implies that negotiating a settlement and not going to trial generates a positive surplus $c_T - c_A$. Notice however that *after* the costs c_A^i are *sunk*, c_T is the total amount the parties can save by not going to Court. The settlement negotiated in the pretrial agreement $\mathcal{S}$ is then the outcome of Generalized Nash bargaining between $\mathcal{P}$ and $\mathcal{D}$ over a surplus of size c_T. We return to the details of the bargaining in Subsection 2.3 below.

Before we proceed further, it is important to emphasize again that the pretrial agreement costs in our set up are *ex-ante costs*, exactly as in Anderlini and Felli (2006). The key feature of these costs is that they are *sunk* by the time the settlement negotiation begins and as such they are not subject of negotiation. Notice however that these costs are critical in each party's decision whether to participate in the pretrial negotiation or to go to Court.

The prime example of these costs is associated with the fact that in order to reach the negotiation stage the parties have to invest cognitive and discovery effort and clear their schedules in order to meet, that clearly carries an opportunity cost given by the value of their alternative use of time.

An obvious question is then what happens to our set up if at least part of these *ex-ante* costs can be paid at a later stage, after the pretrial negotiation has taken place. The answer

[7] Notice that although (2) is reminiscent of a normal form game, it is not one since the choices are taken sequentially in a way to be specified below.

is that provided at least part of these costs cannot be postponed the qualitative nature of our results is unaffected. We return to this issue at the end of Subsection 5.3 below.

2.2. Timeline

Notice The timeline of decisions is represented schematically in Figure 1 below.[8] In addition to what we discussed in Subsection 2.1, here we see that the parties have the chance to pay the pretrial negotiating costs *sequentially* (with $\mathcal{D}$ choosing first) and that $\mathcal{P}$ has the opportunity to drop the suit at every stage.

More in detail, the sequence of moves is as follows. At time $t = 0$ $\mathcal{P}$ decides whether to sue the defendant $\mathcal{D}$. If $\mathcal{P}$ decides not to file suit the game ends andFootnote all parties get their outside option normalized to zero. If instead $\mathcal{P}$ decides to sue $\mathcal{D}$ the game moves to the following period $t = 1$.

At $t = 1$, $\mathcal{D}$ decides whether to pay the pretrial negotiating cost $c_A^{\mathcal{D}}$ discussed in Subsection 2.1 above. FootnoteThe choice of giving $\mathcal{D}$ (as opposed to $\mathcal{P}$) the choice to pay the pretrial negotiation cost first is inessential. The fact that the choices of whether to pay these costs are sequential (as opposed to simultaneous) is not. In particular it simplifies the analysis by avoiding the emergence of a possible coordination failure equilibrium in which neither party pays simply because it expects the other side not to pay (Anderlini and Felli, 2006). If $\mathcal{D}$ decides to pay, the game moves to time $t = 2$. If $\mathcal{D}$ decides instead not to pay, the move goes to $\mathcal{P}$ who decides whether to drop the suit or not. If $\mathcal{P}$ drops the suit he incurs a cost $c_D^{\mathcal{P}}$. This should be thought of as the actual legal cost of dropping the suit, and in some contexts it could be very small or even zero. If the suit is dropped $\mathcal{P}$ ends up with a payoff of $-c_D^{\mathcal{P}}$, while $\mathcal{D}$ earns a payoff of zero.

If $\mathcal{P}$ does not drop the suit, the dispute is tried in Court. In this case, as we discussed above the payoffs for $\mathcal{P}$ and $\mathcal{D}$ are $\mathcal{I} - c_T^{\mathcal{P}}$ and $-\mathcal{I} - c_T^{\mathcal{D}}$ respectively.

At $t = 2$, it is $\mathcal{P}$ who decides whether to pay his pretrial negotiating cost $c_A^{\mathcal{P}}$. If $\mathcal{P}$ decides to pay a pretrial bargaining negotiation become feasible, and the game moves to $t = 3$. Symmetrically to the previous node, if $\mathcal{P}$ decides not to pay, he than gets the chance to drop the suit or not. If the suit is dropped $\mathcal{P}$ ends up with a payoff of $-c_D^{\mathcal{P}}$, while $\mathcal{D}$ earns a payoff of $c_A^{\mathcal{D}}$.

[8]Notice that the tree in Figure 1 is not an extensive form game in the ordinary sense of the term. The reason is that at the top right node we have generalized Nash bargaining taking place. This is depicted as "both" players taking action at that point, and this is clearly not admissible in a standard extensive form game. For added emphasis, the lines following this node are dotted lines instead of solid ones.

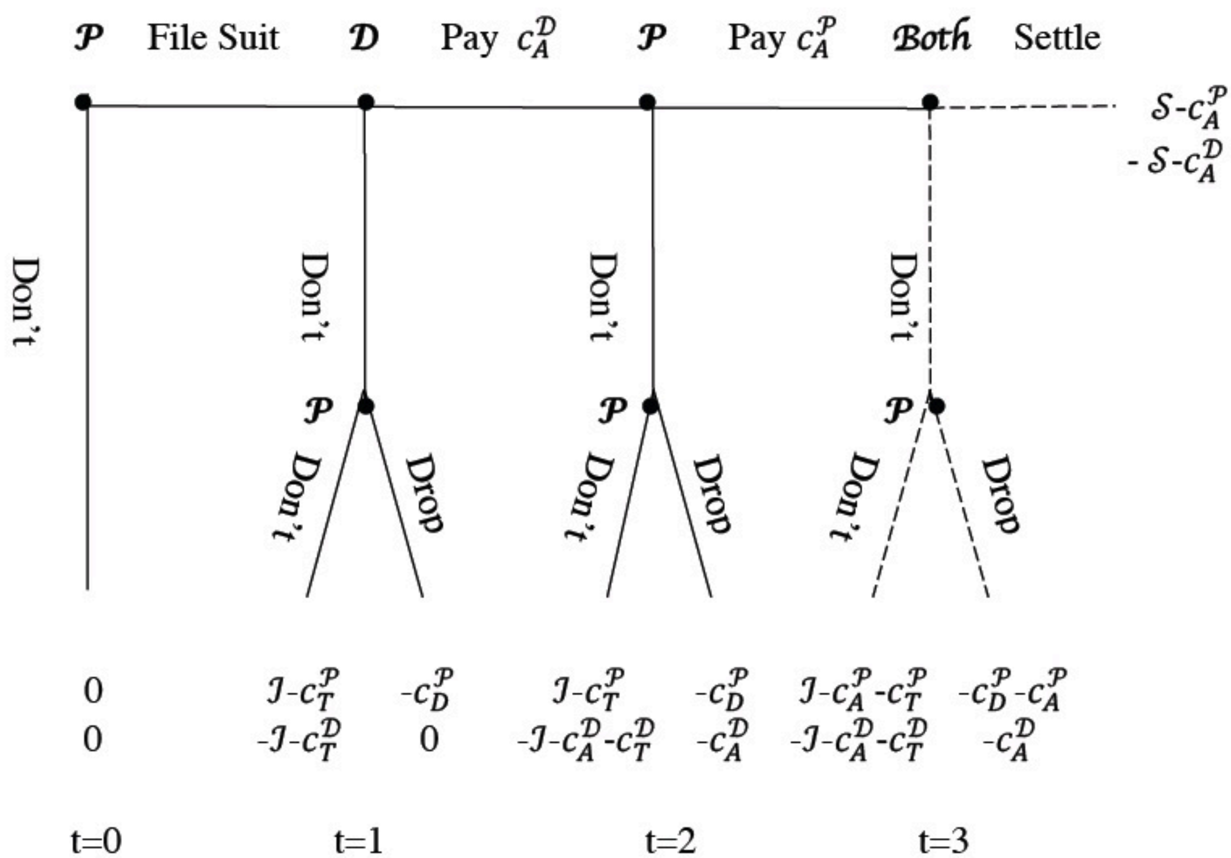

Figure 1

If $\mathcal{P}$ does not drop the suit, the dispute is tried in Court. In this case, the payoffs for $\mathcal{P}$ and $\mathcal{D}$ are $\mathcal{I} - c_T^{\mathcal{P}}$ and $-\mathcal{I} - c_A^{\mathcal{D}} - c_T^{\mathcal{D}}$ respectively.

2.3. Generalized Nash Bargaining and The Disagreement Payoffs

If $\mathcal{P}$ files a suit against $\mathcal{D}$ and both parties pay their pretrial negotiating costs, a pretrial bargaining negotiation becomes feasible. The game moves to $t = 3$, and we are at the top right-most node in Figure 1. To conclude the description of the model, we need to flesh out what happens following this node.

The parties will bargain over the surplus created by avoiding a costly trial, namely $c_T = c_T^{\mathcal{P}} + c_T^{\mathcal{D}}$. In the generalized Nash bargaining, the respective bargaining powers of $\mathcal{P}$ and $\mathcal{D}$ are denoted by β and $1 - \beta$.

The dotted lines branching out of the top right-most node in Figure 1 should be interpreted as follows. As the time to strike a bargain approaches the process can in principle break down, and the parties will obtain their disagreement payoffs.[9] However, should the Nash bargaining veer towards the disagreement, $\mathcal{P}$ always retains the option of dropping the suit. If $\mathcal{P}$ decides not to drop the suit, it will be litigated in Court, and the disagreement payoffs for $\mathcal{P}$ and $\mathcal{D}$ will therefore be $\mathcal{I} - c_A^{\mathcal{P}} - c_T^{\mathcal{P}}$ and $-\mathcal{I} - c_A^{\mathcal{D}} - c_T^{\mathcal{D}}$ respectively. If instead $\mathcal{P}$ drops the suit, he will incur an additional cost of $c_D^{\mathcal{P}}$, but there will be no transfer between the parties. Given the costs already incurred in this case the disagreement payoffs for $\mathcal{P}$ and $\mathcal{D}$ will therefore be $-c_A^{\mathcal{P}} - c_D^{\mathcal{P}}$ and $-c_A^{\mathcal{D}}$ respectively.

Given the payoffs we have just computed, it follows that, should the generalized Nash bargaining break down,[10] $\mathcal{P}$ will not drop the suit and actually go to Court if and only if[11]

$$\mathcal{I} - c_T^{\mathcal{P}} \; > \; -c_D^{\mathcal{P}} \tag{3}$$

Contingently on the game reaching the top rigth-most node, we can then conclude that $\mathcal{S}$ will be determined by generalized Nash bargaining with disagreement payoffs for $\mathcal{P}$ and $\mathcal{D}$ given respectively by

$$d^{\mathcal{P}} \; = \; \mathcal{I} - c_A^{\mathcal{P}} - c_T^{\mathcal{P}} \qquad \text{and} \qquad d^{\mathcal{D}} \; = \; -\mathcal{I} - c_A^{\mathcal{D}} - c_T^{\mathcal{D}} \tag{4}$$

if (3) is satisfied. If instead (3) is violated the disagreement payoffs are

$$d^{\mathcal{P}} \; = \; -c_A^{\mathcal{P}} - c_D^{\mathcal{P}} \qquad \text{and} \qquad d^{\mathcal{D}} \; = \; -c_A^{\mathcal{D}} \tag{5}$$

As we show in the Appendix (see Remark A.1), this means that, contingently on reaching the top right-most node in Figure 1, the parties' dispute will be settled out of Court with $\mathcal{S}$ determined as follows. If (3) is satisfied then

$$\mathcal{S} \; = \; \mathcal{I} \; + \; \beta \, c_T^{\mathcal{D}} \; - \; (1-\beta) \, c_T^{\mathcal{P}} \tag{6}$$

[9] It should be noted that in a generalized Nash bargaining situation the possibility of disagreement is purely counterfactual, provided that an agreement yields positive surplus relative to the disagreement point. In our case, the that fact that the surplus from an agreement is positive is guaranteed by Assumption 1.

[10] See Footnote 9 above.

[11] We assume that when $\mathcal{P}$ is indifferent, he chooses not to go to Court. This is completely inessential, but somehow it seems the natural route to follow.

If on the other hand (3) is violated

$$\mathcal{S} \;=\; -\,(1-\beta)\,c_D^{\mathcal{P}} \tag{7}$$

2.4. Equilibrium

From now on, we proceed to take the tree in Figure 1 as being substituted by one in which the top right-most node is replaced by payoffs for $\mathcal{P}$ and $\mathcal{D}$ being given by $\mathcal{S} - c_A^{\mathcal{P}}$ and $-\mathcal{S} - c_A^{\mathcal{D}}$ respectively, with $\mathcal{S}$ as in (6) if (3) is satisfied, and as in (7) if (3) is violated. This is an extensive form game in the standard sense of the word for any given set of parameters.

Definition 1. *Equilibrium: The tree in Figure 1 – with the substitution mentioned above – yields an extensive form game of complete and perfect information that, in general, for any given set of parameters, admits a unique backwards induction solution. This is what we will refer to as the (Subgame Perfect) equilibrium of our model (or "equilibria," as the parameters vary), and what we proceed to characterize and interpret throughout the rest of the paper.*

3. Characterization

3.1. A Preliminary Observation

The equilibria of our model will be characterized proceeding backwards from the end. Before doing so, we can simplify the rest of the analysis with a preliminary observation.

Suppose that (3) is violated. Then if we were ever at a node in which $\mathcal{P}$ can choose to drop the suit or not, he would choose to drop it.[12] Moreover, as we saw in Subsection 2.3, in this case the payoffs that replace the top right-most node in Figure 1 are the ones computed using $\mathcal{S}$ as given by (7).

At this point it is apparent that if (3) is violated, $\mathcal{P}$ will in fact choose not to file a suit against $\mathcal{D}$ and hence terminate the game immediately with a payoff of 0 for both parties.[13] The intuition behind this conclusion is simple to explain.[14] Given that there is a cost involved in dropping a law suit, $\mathcal{P}$ will not file a suit that he anticipates he will in fact drop. He will simply prefer not filing the suit and walk away with a payoff of 0. It is also clear that if (3)

[12] This is immediately verified using the payoffs in Figure 1. See also Footnote 11 above.

[13] In keeping with our assumption when going to Court (see Footnote 11 above) we assume that if $\mathcal{P}$ is indifferent between filing a suit against $\mathcal{D}$ and not filing it, he will choose not to file. This is completely inessential but again it seems the natural way to go.

[14] More details are given in the Appendix (see Remark A.2).

is violated then $\mathcal{P}$ will not file a suit anticipating that it will be settled out of Court. In fact, when (3) is violated, using (7), $\mathcal{S} - c_A^{\mathcal{P}}$ is negative.

Armed with this observation, we now turn to the rest of the equilibrium characterization.

3.2. The decision to Settle

Assume that (3) is in fact satisfied. This is a necessary condition for $\mathcal{P}$ to file a suit against $\mathcal{D}$. A settlement out of Court is feasible if and only if the parties reach the top right-most node in Figure 1, meaning that $\mathcal{P}$ did file a suit and that subsequently $\mathcal{D}$ and $\mathcal{P}$ paid their ex-ante pretrial negotiating costs.

Effectively, settlement out of Court means that the parties split the total surplus c_T generated by the fact that Court costs are not incurred according to their bargaining powers β and $1 - \beta$.[15] This will be convenient for *both* $\mathcal{P}$ and $\mathcal{D}$ if and only if

$$\beta\, c_T \;\geq\; c_A^{\mathcal{P}} \qquad \text{and} \qquad (1-\beta)\, c_T \;\geq\; c_A^{\mathcal{D}} \tag{8}$$

Notice that (8) says precisely that the gain from not going to Court should be no less than the ex-ante cost of a pretrial agreement for *both* $\mathcal{P}$ and $\mathcal{D}$.[16]

We conclude our characterization of the decision to settle out of Court by noticing that if either of the two inequalities in (8) is violated, then the suit will not be settled and will not be dropped. It will be adjudicated in Court because $\mathcal{P}$ will not drop it at any stage since (3) is satisfied.

3.3. The decision to File Suit

In Subsection 3.1 we saw that if (3) is violated then $\mathcal{P}$ will not file a law suit against $\mathcal{D}$.

Suppose next that (3) holds. Then it is necessary to consider two further possibilities. The first is that (8) is violated and hence if a suit is filed it will be tried in Court, while the second is that (8) holds and hence if a suit is filed it will be settled out of Court.

Overall we find that if (3) holds and (8) is violated then $\mathcal{P}$ will file suit if and only if

$$\mathcal{I} \;-\; c_T^{\mathcal{P}} \;>\; 0 \tag{9}$$

[15] More details are provided in the Appendix (see Remark A.3).

[16] In the same spirit of what we assumed about filing suit and going to Court (see Footnotes 11 and 13 above), we assume that when either party is indifferent between paying and not paying the pretrial negotiating cost, then he will choose to pay it. As before, this is completely inessential.

in which case the suit will be litigated in Court. Moreover, if (3) holds and (8) holds then $\mathcal{P}$ will file suit if and only if

$$\mathcal{I} - c_T^{\mathcal{P}} + \beta c_T - c_A^{\mathcal{P}} > 0 \tag{10}$$

in which case the suit will be settled out of Court.[17]

3.4. Main Characterization

Putting together our findings of Subsections 3.1, 3.2 and 3.3 above we have a full characterization of the equilibria of our model. We state the following result without any further proof since it is obtained simply collecting our findings so far.

Proposition 1. *Main Characterization: As the parameters vary, three equilibrium outcomes are possible in our model.*

N - *The Plaintiff $\mathcal{P}$ does not file a suit against $\mathcal{D}$ and the game terminates immediately.*

C - *The Plaintiff $\mathcal{P}$ files a suit against $\mathcal{D}$ and the case is litigated in Court.*

S - *The Plaintiff $\mathcal{P}$ files a suit against $\mathcal{D}$ and the case is settled out of Court.*

Case **N** *obtains if either* (i) *(3) does not hold, or* (ii) *(3) holds, (8) is violated and (9) is violated, or* (iii) *(3) holds, (8) holds and (10) is violated. Case* **C** *obtains if (3) holds, (8) is violated and (9) holds.*[18] *Case* **S** *obtains if (3) holds, (8) holds and (10) holds.*[19]

4. Trial Costs and Fee-Shifting Rules

The trial costs $c_T^{\mathcal{P}}$ and $c_T^{\mathcal{D}}$ play a critical role in our model. Together with the expected damages $\mathcal{I}$ they determine the disagreement point of the bargaining problem that identifies the settlement $\mathcal{S}$. As we saw above, they also motivate the parties to reach a pretrial agreement via Assumption 1.

Below we consider four main rules for allocating such trial costs. These are well known in the legal literature (Katz and Sanchirico, 2012) and of course many nuanced versions and hybrids of these four basic rules can be constructed and are in fact observed in different legal systems around the world.

[17] More details are provided in the Appendix (see Remark A.4).

[18] Since (9) implies (3) this is equivalent to saying that Case **C** obtains if (8) is violated and (9) holds.

[19] Notice that the conditions we have listed are exhaustive of all combinations of (3), (8), (9) and (10) holding or being violated. Hence the statement of Proposition 1 is exhaustive of all possibilities.

We introduce new notation to denote the "raw" trial costs (mainly attorney fees, but other Court costs too where appropriate) that "naturally burden" $\mathcal{P}$ and $\mathcal{D}$ — let these be $\hat{c}_T^{\mathcal{P}}$ and $\hat{c}_T^{\mathcal{D}}$ respectively, and note that necessarily $c_T = \hat{c}_T^{\mathcal{D}} + \hat{c}_T^{\mathcal{P}}$. Therefore under a rule (in fact one of the four we will explicitly consider below) that stipulates that "each party pays their own trial costs" the trial costs we have used so far would be $c_T^{\mathcal{P}} = \hat{c}_T^{\mathcal{P}}$ and $c_T^{\mathcal{D}} = \hat{c}_T^{\mathcal{D}}$. Under a putative rule that stipulates that "the plaintiff always pays all trial costs" then we would have $c_T^{\mathcal{P}} = \hat{c}_T^{\mathcal{P}} + \hat{c}_T^{\mathcal{D}}$ and $c_T^{\mathcal{D}} = 0$, and so on.

In general, a fee-shifting rule $\mathbf{\Phi}$ is a map that takes as inputs the raw costs $\hat{c}_T^{\mathcal{P}}$ and $\hat{c}_T^{\mathcal{D}}$ and returns a pair of actual trial costs to be paid by each side with the obvious restriction that all costs must be paid by one side or the other so that $\hat{c}_T^{\mathcal{P}} + \hat{c}_T^{\mathcal{D}} = c_T^{\mathcal{P}} + c_T^{\mathcal{D}} = c_T$.[20]

As mentioned above the four polar cases for $\mathbf{\Phi}$ that we will consider are the so called *English Rule*, the so called *American Rule*, and two further cases that we will refer to as the *Plaintiff Biased* and the *Defendant Biased* rules. As it will be clear in Section 5.4 below, our results on the irrelevance of "fee shifting" apply to all possible arrangements not just to these four canonical cases.

Under the *American Rule*, denoted $\mathbf{\Phi}^{US}$, each side pays their own costs regardless of the Court decision. In this case, we have $c_T^{\mathcal{P}} = \hat{c}_T^{\mathcal{P}}$ and $c_T^{\mathcal{D}} = \hat{c}_T^{\mathcal{D}}$ and, using (6), the settlement is[21]

$$\mathcal{S}(\mathbf{\Phi}^{US}) \;=\; \mathcal{I} \;+\; \beta\,\hat{c}_T^{\mathcal{D}} \;-\; (1-\beta)\,\hat{c}_T^{\mathcal{P}} \tag{11}$$

Under the *English Rule*, denoted $\mathbf{\Phi}^{UK}$, the loser pays the costs of both sides. In this case, we have that $c_T^{\mathcal{P}} = (1-p)(\hat{c}_T^{\mathcal{P}} + \hat{c}_T^{\mathcal{D}}) = (1-p)c_T$ and $c_T^{\mathcal{D}} = p(\hat{c}_T^{\mathcal{P}} + \hat{c}_T^{\mathcal{D}}) = pc_T$ and, using (6), the settlement is

$$\mathcal{S}(\mathbf{\Phi}^{UK}) \;=\; \mathcal{I} \;+\; \beta\,p\,c_T \;-\; (1-\beta)\,(1-p)\,c_T \tag{12}$$

Under the *Plaintiff Biased Rule*, denoted $\mathbf{\Phi}^{P}$, the Plaintiff pays $\hat{c}_T^{\mathcal{P}}$ if he loses, and pays nothing otherwise. In this case, we have $c_T^{\mathcal{P}} = (1-p)\hat{c}_T^{\mathcal{P}}$ and $c_T^{\mathcal{D}} = p\hat{c}_T^{\mathcal{P}} + \hat{c}_T^{\mathcal{D}}$ and, using (6),

[20] We also take all four costs $\hat{c}_T^{\mathcal{P}}$, $\hat{c}_T^{\mathcal{D}}$, $c_T^{\mathcal{P}}$ and $c_T^{\mathcal{D}}$ to be non-negative.

[21] In calculating the settlement $\mathcal{S}$ for any given rule we assume that (3) holds and hence that $\mathcal{S}$ is given by (6). This is because as we saw in Proposition 1 if (3) is violated then the game $\mathcal{P}$ does not file against $\mathcal{D}$ and the game terminates immediately.

the settlement is

$$\mathcal{S}(\mathbf{\Phi}^P) \;=\; \mathcal{I} \;+\; \beta\,(p\hat{c}_T^{\mathcal{P}} + \hat{c}_T^{\mathcal{D}}) \;-\; (1-\beta)(1-p)\,\hat{c}_T^{\mathcal{P}} \tag{13}$$

Under the *Defendant Biased Rule*, denoted $\mathbf{\Phi}^D$, the Defendant pays $\hat{c}_T^{\mathcal{D}}$ if he loses, and pays nothing otherwise. In this case, we have $c_T^{\mathcal{P}} = \hat{c}_T^{\mathcal{P}} + (1-p)\hat{c}_T^{\mathcal{D}}$ and $c_T^{\mathcal{D}} = p\hat{c}_T^{\mathcal{D}}$ and, using (6), the settlement is

$$\mathcal{S}(\mathbf{\Phi}^D) \;=\; \mathcal{I} \;+\; \beta\, p\hat{c}_T^{\mathcal{D}} \;-\; (1-\beta)\,[\hat{c}_T^{\mathcal{P}} + (1-p)\hat{c}_T^{\mathcal{D}}] \tag{14}$$

5. Implications

5.1. Preliminaries

We refer to an array of the type $\mathbf{\Omega} = (I, p, c_D^{\mathcal{P}}, c_A^{\mathcal{P}}, c_A^{\mathcal{D}}, c_T^{\mathcal{P}}, c_T^{\mathcal{D}}, \beta)$ as a set (or a configuration) of parameters of the model.[22] Clearly Proposition 1 fully characterizes under which configurations of parameters each of the **N**, **C** and **S** equilibrium outcomes will occur. When instead the "raw" trial costs $\hat{c}_T^{\mathcal{P}}$ and $\hat{c}_T^{\mathcal{D}}$ as in Section 4 are specified, we begin with a set of "raw parameters" $\hat{\mathbf{\Omega}} = (I, p, c_D^{\mathcal{P}}, c_A^{\mathcal{P}}, c_A^{\mathcal{D}}, \hat{c}_T^{\mathcal{P}}, \hat{c}_T^{\mathcal{D}}, \beta)$. As in Section 4, given a set of raw parameters and a fee-shifting rule $\mathbf{\Phi}$ we obtain a set of actual parameters $(\mathcal{I}, p, c_D^{\mathcal{P}}, c_A^{\mathcal{P}}, c_A^{\mathcal{D}}, c_T^{\mathcal{P}}, c_T^{\mathcal{D}}, \beta)$. The latter, via Proposition 1 determines the equilibrium outcome of the model.

In this Section we examine more closely the implications of Proposition 1 as the raw parameters and the fee-shifting rule change. We seek a set of statements of the type "as this change occurs in the raw parameters or in the fee-shifting rule (or both) occurs, this outcome becomes more or less likely, or remains equally likely."

It should be noted that the word "likely" in these statements has a specific meaning that, while common, does not directly map into standard probabilities. If we say that a particular equilibrium outcome $\mathbf{X} \in \{\mathbf{N}, \mathbf{C}, \mathbf{S}\}$ becomes more (less) likely as a result of a certain parameter(s) (say) increasing we will mean that the set of (other) raw parameters under which the outcome **X** obtains before the change is a subset (superset) of the one that yields outcome **X** after the change. If the set is the same before and after the change we will say that the likelihood of **X** has not changed.[23]

[22] Notice that all the cost terms are assumed to be positive, and β to be a number in $(0, 1)$. The quadruple $(c_A^{\mathcal{P}}, c_A^{\mathcal{D}}, c_T^{\mathcal{P}}, c_T^{\mathcal{D}})$ is further restricted by Assumption 1.

[23] Notice that this way of proceeding is consistent with placing a prior distribution with full support on the

5.2. Filing Suit

What are the implications of Proposition 1 for the amount of legal disputes in society as measured by the frequency of law suits that are filed. How does the likelihood of outcomes **C** or **S** change as the raw parameters $\hat{\mathbf{\Omega}}$ and the fee-shifting rule $\mathbf{\Phi}$ vary?

For the sake of clarity we divide our claims into those that concern the effects of a change in the parameters $\mathbf{\Omega}$, and those that concern the effects of the fee-shifting rule $\mathbf{\Phi}$ for given raw parameters $\hat{\mathbf{\Omega}}$.

All our assertions in this Section are stated without proof since they are a direct consequence of Proposition 1 and of the relevant inequalities (3), (8), (9) and (10).[24]

Proposition 2. *Legal Disputes and Expected Damages: Legal disputes become more likely as the size of expected damages $\mathcal{I}$ increases. This is so both for law suits that are initiated with a view to end up in Court (outcome* **C***) and those which are initiated with a view to settle out of Court (outcome* **S***).*

While Proposition 2 is straightforward, it is worth noticing that the effect of an increase in $\mathcal{I}$ on the likelihood of law suits that are initiated with a view to settle out of Court is due to the effect of the increase in $\mathcal{I}$ on the settlement size $\mathcal{S}$ via (6).

Proposition 3. *Legal Disputes, Trial and Pretrial Costs and Bargaining Power: Legal disputes become less likely as the Plaintiff's trial costs $c_T^{\mathcal{P}}$ increase, and as the Plaintiff's pretrial costs $c_A^{\mathcal{P}}$ increase. Legal disputes become more likely as the Defendant's trial costs $c_T^{\mathcal{D}}$ increase. Finally, legal disputes become more likely as the Plaintiff's bargaining power β increases.*

Proposition 3 is again straightforward. It is worth noticing that the effect on the likelihood of outcome **S** travels via the size of $\mathcal{S}$ given by (6).

It should also be clarified that while in Proposition 2 we could be explicit about both types of law suits (both outcome **C** and outcome **S**) this is no longer possible for the parameter changes hypothesized in Proposition 3.[25] This is because the terms $c_T^{\mathcal{P}}$, $c_A^{\mathcal{P}}$, $c_T^{\mathcal{D}}$ and β also appear in (8) and the hypothesized changes could determine a switch from a case being settled out of Court to actually being litigated.[26]

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set of possible $\hat{\mathbf{\Omega}}$ and then drawing a configuration of parameters (a particular "case") at random, all while remaining agnostic about the precise distribution governing the draw.

[24] Notice that (10) can be re-written as $\mathcal{I} - (1-\beta)c_T^{\mathcal{P}} + \beta c_T^{\mathcal{D}} - c_A^{\mathcal{P}} - c_A^{\mathcal{P}} > 0$.

[25] The claims in Proposition 3 refer to the shrinkage or expansion of the *union* of the sets of parameters giving rise to outcomes **C** and **S**.

[26] Notice that (8) can be re-written as $\beta\ (c_T^{\mathcal{P}} + c_T^{D}) = \beta c_T \geq c_A^{\mathcal{P}}$ and $(1-\beta)\ (c_T^{\mathcal{P}} + c_T^{\mathcal{D}}) = (1-\beta)c_T \geq c_A^{\mathcal{D}}$.

A change in the fee-shifting rule leaves $c_T = c_T^{\mathcal{P}} + c_T^{\mathcal{D}}$ unchanged, and hence does not affect (8).[27] It follows that we can be specific, once again, about outcome $\mathbf{C}$ and outcome $\mathbf{S}$ in the case of a change in $\mathbf{\Phi}$.

Proposition 4. *Legal Disputes and Fee-Shifting Rules: Let a set of raw parameters $\hat{\mathbf{\Omega}}$ be given and consider a change in the fee-shifting rule from say $\mathbf{\Phi}'$ to $\mathbf{\Phi}''$. Suppose that under $\mathbf{\Phi}''$ we have that $c_T^{\mathcal{P}}$ is lower than under $\mathbf{\Phi}'$. Then the change from $\mathbf{\Phi}'$ to $\mathbf{\Phi}''$ increases the likelihood of legal disputes. This is so both for law suits that are initiated with a view to proceed to Court litigation (outcome $\mathbf{C}$) and those which are initiated with a view to settle out of Court (outcome $\mathbf{S}$).*

Going back to the four polar cases we introduced in Section 4, using (11), (12), (13) and (14), we easily see the following two corollaries of Proposition 4.

Corollary 1. *Legal Disputes, Plaintiff Biased, American and Defendant Biased Rules: The likelihood of legal disputes of both types (outcome $\mathbf{C}$ and outcome $\mathbf{S}$) increases as, for instance, we switch from a Plantiff Biased Rule $\mathbf{\Phi}^P$ to the American Rule $\mathbf{\Phi}^{US}$ or to the Defendant Biased Rule $\mathbf{\Phi}^D$.*

A direct comparison of the *English Rule* $\mathbf{\Phi}^{UK}$ and the *American Rule* $\mathbf{\Phi}^{US}$ is more nuanced.

Corollary 2. *Legal Disputes, American and English Rules: Recall that $c_T^{\mathcal{P}}$ is equal to $\hat{c}_T^{\mathcal{P}}$ under the American Rule and equal to $(1-p)(\hat{c}_T^{\mathcal{P}} + \hat{c}_T^{\mathcal{D}})$ under the English Rule. Legal disputes of both types (outcome $\mathbf{C}$ and outcome $\mathbf{S}$) are more likely under $\mathbf{\Phi}^{UK}$ than they are under $\mathbf{\Phi}^{US}$ if $\hat{c}_T^{\mathcal{P}} > (1-p)(\hat{c}_T^{\mathcal{P}} + \hat{c}_T^{\mathcal{D}}) = (1-p)c_T$.*

If we hypothesize (Shavell, 1982) that small trial costs c_T are typically a sign of small claims, we conclude that the *English Rule* works to encourage lawsuits by Plaintiffs with relatively small claims but relatively high probabilities of victory p. Conversely, the *American Rule*, since the litigation costs do not depend on p, encourages Plaintiffs with possibly lower p. This brings our comparison of $\mathbf{\Phi}^{UK}$ and $\mathbf{\Phi}^{US}$ in line with that of Shavell (1982).

We conclude noting that an ingredient that is potentially important but is absent from our set-up is that when law suits are discouraged by Plaintiffs' costs this may have an adverse effect on the potential Defendants' incentives to comply with the law in the first place (Shavell, 1982).

[27] This observation will be key to our analysis in Subsection 5.4 below.

5.3. *Going to Trial vs Settling and Mis-Matched Bargaining Power*

One of the main findings of this paper is that even in a world of complete and perfect information there are circumstances in which rational parties to a legal dispute will litigate in Court even though this is costly and hence wasteful. Going to Court (Assumption 1) is more expensive than settling out of Court.

As we pointed out above, going to Court is a failure of the Coase Theorem (Coase, 1960). There we also mentioned that this failure is generated by a mis-match between the distribution of the parties bargaining power and the distribution of the *ex-ante* costs that must be paid for the pretrial negotiation to become feasible. This mis-match creates a version of the hold-up problem. This prevents one of the parties from paying their ex-ante cost and hence leaves Court litigation as the only way to end the legal dispute.

In this Subsection, using Proposition 1, we substantiate in detail our claim that going to Court is generated by the mis-matched we have described.

From Proposition 1 we know that $\mathcal{P}$ will file against $\mathcal{D}$ and the dispute will be litigated in Court if and only if (8) is violated and (9) holds.[28] Purely for the sake of convenience we restate the former conditions here.[29]

$$\beta\,(c_T^{\mathcal{P}} + c_T^{\mathcal{D}}) = \beta\, c_T \geq c_A^{\mathcal{P}} \qquad \text{and} \qquad (1-\beta)\,(c_T^{\mathcal{P}} + c_T^{\mathcal{D}}) = (1-\beta)\, c_T \geq c_A^{\mathcal{D}} \tag{8}$$

If the first inequality in (8) is violated, then $\mathcal{P}$ will find it profitable to deviate unilaterally from paying the *ex-ante* cost $c_A^{\mathcal{P}}$ that makes the pretrial agreement negotiation possible. If the second inequality in (8) is violated, then $\mathcal{D}$ will find it profitable to deviate unilaterally from paying the *ex-ante* cost $c_A^{\mathcal{D}}$ that makes the pretrial agreement negotiation possible.

Notice that, because of Assumption 1, the two inequalities in (8) cannot be both violated. However, it is also clear that for any fixed quadruple of costs $(c_A^{\mathcal{P}}, c_A^{\mathcal{D}}, c_T^{\mathcal{P}}, c_T^{\mathcal{D}})$ satisfying Assumption 1 there exists values of $\beta \in (0,1)$ such that (8) is violated. Indeed, by simple inspection it is clear that, for any given $(c_A^{\mathcal{P}}, c_A^{\mathcal{D}}, c_T^{\mathcal{P}}, c_T^{\mathcal{D}})$ satisfying Assumption 1, we can find a (low) range of values of $\beta \in (0,1)$ such that the first inequality in (8) is violated. Alternatively we can find a (high) range of values of $\beta \in (0,1)$ such that the second inequality in (8) is violated. Similarly, if we fix a value of $\beta \in (0,1)$, it is always possible to find a quadruple

[28] See Footnote 18.
[29] See Footnote 26.

of costs $(c_A^{\mathcal{P}}, c_A^{\mathcal{D}}, c_T^{\mathcal{P}}, c_T^{\mathcal{D}})$ satisfying Assumption 1 such that (8) is violated.[30] Since (9) can be satisfied for any quadruple of costs $(c_A^{\mathcal{P}}, c_A^{\mathcal{D}}, c_T^{\mathcal{P}}, c_T^{\mathcal{D}})$ by taking $\mathcal{I}$ to be sufficiently large, we can state the following without further proof.

Proposition 5. *Court Trials and the Mis-Match of β and Ex-Ante Costs: Suppose that (3) is satisfied. The parties will not sign a pretrial agreement and hence go to trial whenever either one of the inequalities in (8) is violated.*

It follows that, for any fixed quadruple of costs $(c_A^{\mathcal{P}}, c_A^{\mathcal{D}}, c_T^{\mathcal{P}}, c_T^{\mathcal{D}})$ satisfying Assumption 1, there exists values of $\beta \in (0,1)$ such that a pretrial agreement will not be signed, and the parties will go to trial.

Finally, for any given value of $\beta \in (0,1)$, there exist a vector of costs $(c_A^{\mathcal{P}}, c_A^{\mathcal{D}}, c_T^{\mathcal{P}}, c_T^{\mathcal{D}})$ satisfying Assumption 1 such that a pretrial agreement will not be signed, and the parties will go to trial.

By the time plaintiff and defendant reach the negotiation table of the pretrial agreement they already have paid (sunk) the costs needed to prepare for such a negotiation. Therefore such costs are effectively off the table: neither party has any incentive to compensate the other party for paying these *ex-ante* costs since by that time the costs have already been paid. It is then possible to envisage a whole range of situations in which one of the two parties will be able to guarantee himself a share of the surplus that is on the pretrial negotiation table that does not cover the preliminary costs he needs to pay to participate in such negotiation. This may be due either to the fact that such party does not have enough bargaining power in the pretrial negotiation or to the fact that his *ex-ante* costs are two high. In both cases the result is that the parties will not settle out of Court and the trial will take place.

If the parties can shift some of the *ex-ante* costs to a later stage, after the pretrial negotiation, such a negotiation will take these *ex-post* costs into account when deciding the settlement and hence the likelihood of a settlement will increase. However, it seems uncontroversial that some of these costs cannot be reasonably shifted to a later stage. This is clearly true in the case of cognitive or opportunity costs associated with the time necessary to prepare for the settlement negotiation. Clearly some of these costs can be monetized by hiring an expert or a lawyer but, provided the costs need to be paid independently of the

[30] Again, by simple inspection, for any $\beta \in (0,1)$ we can find a quadruple of costs $(c_A^{\mathcal{P}}, c_A^{\mathcal{D}}, c_T^{P}, c_T^{\mathcal{D}})$ satisfying Assumption 1 such that the first inequality in (8) is violated, as well as one that ensures that the second inequality is violated.

outcome, the result is unchanged. If anything agency problems might lead to an increase of the *ex-ante* costs and hence in the likelihood of ending up in Court.

In our model, the parties can afford to pay their *ex-ante*, and later Court, costs if they choose to do so. They are not financially constrained in a way that does not permit them to afford the costs. The issue of "litigation finance," in our view, should not be confused with that of shifting costs from an *ex-ante* to an *ex-post stage* that we have just discussed. This is because borrowing to pay for costs (of either variety), where permitted, is done via *binding contracts* that are enforceable by law. A delayed payment that is stipulated *ex-ante* is effectively the same as an actual *ex-ante* payment since it is *strategically sunk* at the *ex-ante* stage. It is interesting to note that, at least in some of the extant literature (Rodak, 2006), litigation finance is viewed as facilitating settlements rather than increasing actual Court litigation. This is in line with the insights of our model in which skewed access to resources (*ex-ante*) brings about less rather than more Court litigation.

Our model predicts that in the case of bargaining power with an extreme distribution, the parties' dispute will end up in Court because one of the two sides will refrain from paying the pretrial negotiation *ex-ante* costs. It's as if Courts are used to redress cases in which one side is at risk of being overwhelmed by the other. Without excessively belaboring the point, since it also involves considerations well outside the scope of or model, we point out that this moderating role of Courts finds firm resonance in the extant jurisprudence.

Justice Frankfurter in his dissent a well know United States Supreme Court Decision[31] of 1942 writes

> [...] But is there any principle which is more familiar or more firmly embedded in the history of Anglo-American law than the basic doctrine that the courts will not permit themselves to be used as instruments of inequity and injustice? Does any principle in our law have more universal application than the doctrine that courts will not enforce transactions in which the relative positions of the parties are such that one has unconscionably taken advantage of the necessities of the other?
>
> [...] the courts generally refuse to lend themselves to the enforcement of a bargain in which one party has unjustly taken advantage of the economic necessities of the other [...]

[31] United States v. Bethlehem Steel Corporation, 315 U.S. 289 (1942).

5.4. Changes In Fee-Shifting Rules and Likelihood of Trial

As we have seen in Proposition 4, for given raw parameters $\hat{\mathbf{\Omega}}$, a change in the fee-shifting rule $\mathbf{\Phi}$ determines a change in the likelihood of legal disputes. Essentially any change in $\mathbf{\Phi}$ that decreases the plaintiff's Court costs increases the likelihood of legal disputes — both those that are settled before trial (outcome $\mathbf{S}$) and those that are tried in Court (outcome $\mathbf{C}$).

On the other hand, as we have noted before, a change in the fee-shifting rule leaves $c_T = c_T^{\mathcal{P}} + c_T^{\mathcal{D}} = \hat{c}_T^{\mathcal{P}} + \hat{c}_T^{\mathcal{D}}$ unchanged, and hence does not affect (8).

The latter observation suggests that there should be a sense in which fee-shifting is irrelevant in determining whether a given law suit will be settled out of Court or in fact litigated in Court. This is in fact true in our set up, provided we are careful enough in making the claim precise and taking into account that we are making it for a *given law suit*. In other words, we need to filter out of the irrelevance claim the effect that a change in fee-shifting rule may have in the Plaintiff's decision to file a suit or not.

Fist we will make the claim precise, and then we will discuss the intuition behind it.

Suppose we have a given "case" $\hat{\mathbf{\Omega}}$ and consider a change in the fee-shifting rule from, say, $\mathbf{\Phi}'$ to $\mathbf{\Phi}''$. Let's call the resulting parameters after fee-shifting is taken into account $\mathbf{\Omega}' = \mathbf{\Phi}'(\hat{\mathbf{\Omega}})$ and $\mathbf{\Omega}'' = \mathbf{\Phi}''(\hat{\mathbf{\Omega}})$. Suppose also that we know that the change from $\mathbf{\Phi}'$ to $\mathbf{\Phi}''$ has no effect on whether $\mathcal{P}$ decides to file a suit against $\mathcal{D}$. In particular suppose that we know that $\mathcal{P}$ will file a law suit against $\mathcal{P}$ *both* under parameters $\mathbf{\Omega}'$ and $\mathbf{\Omega}''$.[32] Then, since the switch from $\mathbf{\Omega}'$ to $\mathbf{\Omega}''$ leaves (8) unaffected, it must be that either the suit is settled out of Court or it is tried in Court with *both* parameters $\mathbf{\Omega}'$ and $\mathbf{\Omega}''$.

Collecting our analysis so far, we state the following without further proof.

Proposition 6. *Irrelevance of Fee-Shifting for Pretrial Settlement or Trial: A change in the fee-shifting rule cannot possibly determine a switch of any given "case" from being settled out of Court to being tried in Court, or vice-versa. In other words, let a set of raw parameters (a "case")* $\hat{\mathbf{\Omega}}$ *be given, and consider two possible fee-shifting rules* $\mathbf{\Phi}'$ *to* $\mathbf{\Phi}''$ *with corresponding parameters* $\mathbf{\Omega}' = \mathbf{\Phi}'(\hat{\mathbf{\Omega}})$ *and* $\mathbf{\Omega}'' = \mathbf{\Phi}''(\hat{\mathbf{\Omega}})$.

Assume that the equilibrium outcome associated with $\mathbf{\Omega}'$ *is either* $\mathbf{C}$ *or* $\mathbf{S}$. *Assume that the equilibrium outcome associated with* $\mathbf{\Omega}''$ *is also either* $\mathbf{C}$ *or* $\mathbf{S}$. *Then the equilibrium outcome associated with* $\mathbf{\Omega}'$ *and with* $\mathbf{\Omega}''$ *is the* same.

[32]The case in which $\mathcal{P}$ does not file against $\mathcal{D}$ is obviously not interesting here.

In our complete information set up, conditionally on $\mathcal{P}$ filing against $\mathcal{D}$, fee-shifting is irrelevant. Conditionally on the Plaintiff filing a suit, the likelihood of going to trial is the same however the trial costs are apportioned between $\mathcal{P}$ and $\mathcal{D}$.

As we noted above Proposition 6 is driven by (8) that identifies under which condition either party will pay the *ex ante* costs and a settlement will be reached out of Court. Indeed, condition (8) implies that while the likelihood of ending up in Court does depend on the distribution of the parties bargaining power in the settlement negotiation, β, as well as on the distribution of their *ex-ante* costs $c_A^{\mathcal{P}}$ and $c_A^{\mathcal{D}}$, this likelihood only depends on the total amount of trial costs c_T and hence is independent of the distribution of such costs.

By the time a pretrial negotiation is reached the *ex-ante* costs $c_A^{\mathcal{P}}, c_A^{\mathcal{D}}$ are *sunk*. Therefore the outcome of the negotiation does not depend on these costs. The negotiation of a pretrial agreement simply divides the surplus generated by avoiding a costly trial[33] — namely c_T — between $\mathcal{P}$ and $\mathcal{D}$ according to their respective bargaining powers β and $1-\beta$. The two conditions in (8) require that, out of the bargaining, both $\mathcal{P}$ and $\mathcal{D}$ receive a share of the surplus that covers their *ex-ante* costs $c_A^{\mathcal{P}}$ and $c_A^{\mathcal{D}}$.

Going back to the four polar cases laid out in Section 4, Proposition 6 obviously implies the following.

Corollary 3. *Equivalence of US, UK, P and D: Any switch between the US, UK, P and D fee-shifting rules defined in Section 4 above is irrelevant in the sense of Proposition 6 above.*

Conditionally on the the Plaintiff filing a suit regardless of the switch, the likelihood of going to trial or settling out of Court is unaffected by the change in fee-shifting rule.

Notice that while in the pretrial negotiation literature the irrelevance of fee-shifting rules is associated with some version of the Coase Theorem (Donohue, 1991b), in our setting the irrelevance of fee-shifting holds exactly when the Coase Theorem fails — in our set up the parties go to Court when the Coase theorem fails because of the presence of *ex-ante* costs. As we mentioned above, one could of course ask the question whether an advanced agreement between the parties on how to distribute their *ex-ante* costs may prevent them from ending up in Court. The answer is that if this preliminary negotiation is itself associated with some *ex-ante* costs there will still exist circumstances in which the parties will end up in Court.[34]

[33] See Assumption 1.
[34] See Anderlini and Felli (2006).

We conclude this section by returning to the fact that our fee-shifting irelevance result is conditional on suits being filed. In reality we only observe suits which have been filed and conditional on those suits being filed we can distinguish if those suits end up in trial or in settlement. Therefore, in principle our result on the irrelevance of fee-shifting could and has been tested. However, the evidence is sparse and our reading of the literature is that the extant empirical studies do not reach consesus on the effects of fee-shifting on the probability of settlement out of Court. We refer the reader to Katz and Sanchirico (2012) for a survey.

5.5. Relevance of Fee Shifting for Settlement Size

Modulo its possible effect on $\mathcal{P}$ filing against $\mathcal{D}$ the fee-shifting rule is irrelevant in determining whether the equilibrium outcome is $\mathbf{C}$ or $\mathbf{S}$. It follows that it *must* be relevant for settlement size.

To see this, consider for instance a "case" $\hat{\mathbf{\Omega}}$ and fee-shifting rule that induce an outcome of $\mathbf{S}$. Suppose for concreteness that the fee-shifting rule is $\mathbf{\Phi}^{\mathcal{D}}$, the Defendant biased rule. Proposition 6 tells us that the outcome will still be $\mathbf{S}$ if we change the fee-shifting rule to be $\mathbf{\Phi}^{\mathcal{P}}$, the Plaintiff biased rule.

Under $\mathbf{\Phi}^{\mathcal{D}}$ the defendant's Court costs $c_T^{\mathcal{D}}$ are considerably lower than under $\mathbf{\Phi}^{\mathcal{P}}$.[35] However, since the equilibrium outcome is $\mathbf{S}$ under both fee-shifting rules, it must be that $\mathcal{D}$ prefers to pay the *ex-ante* cost and settle to actually going to Court before and after the increase in $c_T^{\mathcal{D}}$. It therefore *must* be the case that the change in fee-shifting rule implies a compensating change in settlement size.

The logic of the above example generalizes. The following is a direct consequence of (11), (12), (13) and (14) and hence it is stated without proof.

Proposition 7. *<u>Settlement Size</u>: The settlement size is always greater under the Plaintiff Biased Rule than under the Defendant Biased Rule, for any set of raw parameters of the model. In other words,*

$$\mathcal{S}(\mathbf{\Phi}^{P}) > \mathcal{S}(\mathbf{\Phi}^{D})$$

for any given $\hat{\mathbf{\Omega}}$.

The comparison between the size of the settlement under the English and American Rules

[35]As we noted in Section 4 they are $c_T^{\mathcal{D}} = p\,\hat{c}_T^{\mathcal{D}}$ under $\mathbf{\Phi}^{\mathcal{D}}$ and $c_T^{\mathcal{D}} = p\,\hat{c}_T^{\mathcal{P}} + \hat{c}_T^{\mathcal{D}}$ under $\mathbf{\Phi}^{\mathcal{P}}$.

instead depends on (some of) the elements of $\hat{\mathbf{\Omega}}$. In particular

$$\mathcal{S}(\mathbf{\Phi}^{UK}) - \mathcal{S}(\mathbf{\Phi}^{US}) = p\,\hat{c}_T^{\mathcal{P}} - (1-p)\hat{c}_T^{\mathcal{D}}$$

Hence if either p is sufficiently large, or $\hat{c}_T^{\mathcal{D}}$ is sufficiently small (or both) then the settlement size under the English Rule is larger than the settlement size under the American Rule.

The empirical effects of moving from the American rule to the English rule have been analyzed by the existing literature on fee-shifting (Katz and Sanchirico, 2012). In particular, the evidence presented in Hughes and Snyder (1995) suggests that the size of the settlement is significantly higher under the English rule than under the American rule. The key issue is that there exist very few natural experiments in which the legal system moved from one fee-shifting rule to another. An exception is represented by Florida's experiment with the English rule in medical malpractice cases in the 1980s.[36] Consistently with the predictions of our analysis above Hughes and Snyder (1995) find, using data on this experiment, that the difference in settlement size is positively correlated with the probability of the plaintiff winning in Court and negatively correlated with the defendant's "raw" trial costs.

6. Conclusions

This paper identifies a reason why rational parties to a legal dispute may end up in Court in spite of full information and the opportunity to reach an efficient pretrial settlement. This reason is the existence of *ex-ante* costs associated with the pretrial negotiation, and in particular the mismatch between the distribution of these *ex-ante* costs and the parties' bargaining power in the pretrial negotiation.

The model yields two further insights. In a model with rational fully informed actors, some law suits will be filed even though it is fully anticipated that they will be settled out of Court. These are "in addition" to those law suits that is fully anticipated will be litigated in Court.

Lastly, a change in fee-shifting rule may have an effect on whether a law suit is in fact filed or not. However, such change in fee-shifting rule has no effect on the Plaintiff's decision to file, then cannot have an effect on whether the suit is litigated in Court or settled beforehand.

[36]See Snyder and Hughes (1990) for a description of the Florida experiment and the associated data set.

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Appendix

A.1. The Determination of $\mathcal{S}$

According to the generalized Nash bargaining solution, for given values of $d^{\mathcal{P}}$ and $d^{\mathcal{D}}$, the settlement amount will be chosen so as to solve

$$\mathcal{S} \;=\; \arg\max_{\mathcal{S}} \;\; \left[\mathcal{S} - c_A^{\mathcal{P}} - d^{\mathcal{P}}\right]^{\beta} \;\; \left[-\mathcal{S} - c_A^{\mathcal{D}} - d^{\mathcal{D}}\right]^{1-\beta} \tag{A.1}$$

Problem (A.1) is completely standard. Taking logs and differentiating, it is immediate to see that the first order condition implies that first order conditions imply that

$$\mathcal{S} \;=\; (1-\beta)\left[c_A^{\mathcal{P}} + d^{\mathcal{P}}\right] - \beta\left[c_A^{\mathcal{D}} + d^{\mathcal{D}}\right] \tag{A.2}$$

Remark A.1: *Suppose that (3) is satisfied. We can then substitute (4) into (A.2) to obtain (6). If instead (3) is not satisfied, we can substitute (5) into (A.2) to obtain (7), as required.*

A.2. Preliminary Remark

Remark A.2: *Suppose that (3) is violated. Then all payoffs to $\mathcal{P}$ aside from the one he obtains by terminating the game immediately are non-positive. Since we assume that in case of indifference $\mathcal{P}$ chooses not to sue $\mathcal{D}$, this confirms that if (3) is violated $\mathcal{P}$ will choose not to file against $\mathcal{D}$ and hence the game will terminate immediately.*

Notice that the claim in Remark A.2 is immediate by inspection of the payoffs in Figure 1, and by noticing that if (3) is violated then, using (7), $\mathcal{S} \leq 0$.

A.3. The decision to Settle

Remark A.3: *If (3) is satisfied then provided $\mathcal{P}$ files the suit at $t = 0$ the parties pay their respective pre-trial costs and the suit is settled out of Court if and only if* [37]

$$\beta\, c_T \geq c_A^{\mathcal{P}} \qquad \text{and} \qquad (1-\beta)\, c_T \geq c_A^{\mathcal{D}} \tag{A.3}$$

[37] Recall that we assume that paying the pretrial negotiating cost is the choice when indifferent. See Footnote 16.

Recall that since (3) is satisfied, $\mathcal{S}$ is as in (6). To see why the claim in Remark A.3 holds, we can then reason backwards as follows.

At $t = 2$, after $\mathcal{D}$ has paid $c_A^{\mathcal{D}}$, if $\mathcal{P}$ pays $c_A^{\mathcal{P}}$ and proceeds to the settlement bargaining stage he gets a payoff of $\mathcal{S} - c_A^{\mathcal{P}}$. If he does not pay $c_A^{\mathcal{P}}$ and choses not to drop the suit (which is clearly what he would do because (3) is satisfied), the suit will be adjudicated in Court and he will get a payoff of $\mathcal{I} - c_T^{\mathcal{P}}$.

Hence, he will pay $c_A^{\mathcal{P}}$ and the suit will be settled out of Court if and only if

$$\mathcal{S} - c_A^{\mathcal{P}} \geq \mathcal{I} - c_T^{\mathcal{P}} \qquad \Longleftrightarrow \qquad \beta\, c_T \geq c_A^{\mathcal{P}} \tag{A.4}$$

Now proceeding backward to $t = 1$, again since (3) is satisfied, if $\mathcal{D}$ does not pay $c_A^{\mathcal{D}}$, subsequently $\mathcal{P}$ does not drop the suit, and hence the case proceeds to trial in Court and $\mathcal{D}$ receives a payoff of $-\mathcal{I} - c_T^{\mathcal{D}}$.

If instead $\mathcal{D}$ pays $c_A^{\mathcal{D}}$ then the game proceeds to $t = 2$ and as we have seen the suit is settled out of Court. Hence in this case $\mathcal{D}$ receives a payoff of $-\mathcal{S} - c_A^{\mathcal{D}}$. Hence, he will pay $c_A^{\mathcal{D}}$ and the play proceeds with the suit settled out of Court if and only if

$$-\mathcal{S} - c_A^{\mathcal{D}} \geq -\mathcal{I} - c_T^{\mathcal{D}} \qquad \Longleftrightarrow \qquad (1-\beta)\, c_T \geq c_A^{\mathcal{D}} \tag{A.5}$$

Putting together the right-hand sides of (A.4) and (A.5) yields the claim in Remark A.3.

A.4. The Decision to Sue

Remark A.4: *Suppose that (3) holds and that (8) is violated. Then $\mathcal{P}$ will file suit if and only if*

$$\mathcal{I} - c_T^{\mathcal{P}} > 0 \tag{A.6}$$

Suppose that (3) holds and that (8) holds. Then $\mathcal{P}$ will file suit if and only if

$$\mathcal{I} + \beta c_T^{\mathcal{D}} - (1-\beta) c_T^{\mathcal{P}} - c_A^{\mathcal{P}} = \mathcal{I} - c_T^{\mathcal{P}} + \beta c_T - c_A^{\mathcal{P}} > 0 \tag{A.7}$$

To see why the claim in Remark A.4 holds we can reason as follows.

Suppose that (3) holds and (8) is violated. Then the if the suit if filed it will not be settled out of Court, and hence the, using the payoffs in Figure 1, the payoff to $\mathcal{P}$ will be $\mathcal{I} - c_T^{\mathcal{P}}$. Hence $\mathcal{P}$ will file suit if and only if (A.6) holds.[38]

Suppose that 3) holds and (8) holds. Then if a suit is filed it will be settled out of Court. It follows that $\mathcal{P}$'s payoff if he files is $\mathcal{S} - c_A^{\mathcal{P}}$, which, using (6), is equal to $\mathcal{I} + \beta c_T^{\mathcal{D}} - (1-\beta) c_T^{\mathcal{P}} - c_A^{\mathcal{P}}$. Hence if (3) and (8) hold, then $\mathcal{P}$ will file suit if and only if (A.7) holds.[39]

[38] See Footnote 13 above.
[39] See again Footnote 13 above.