THE GAME OF NUISANCE SUITS

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Yet another interesting application of Game Theory is used in this essay by Laura Farrell. Within this framework of analysis, she tries to explain the reasons behind the so-called nuisance suits. Although the scope of the paper does not allow for a full in-depth analysis of the phenomenon, it gives important insights into the nature of these suits and suggests ways of reducing their incidence.

Introduction

The economic analysis of law, relying on formal models, is a relatively new area in economics. From its modest beginnings in the 1960s, the economic analysis of law became an intellectual fad in the 1970s. However, the continuing progress of the subject remains impressive (Cooter and Rubinfeld, 1989). Law is particularly well suited for analysis by game theory, because the legal process is so concerned with conflict and the provision of definite rules to regulate that conflict. In law a major objective is to avoid inefficient outcomes by restructuring the rules and nuisance suits are one of the inefficiencies that a good policy maker hopes to eliminate (Rasmusen, 1994). One of the chief problems of court reform in recent years has been the nuisance suit or frivolous suit. This essay models the game of nuisance suits and attempts to explain why these are brought. Some solutions to the problem will be suggested, the goal being to reduce the number of nuisance suits.

In his article in *The New Palgrave Dictionary of Economics and the Law* Rasmusen (1998) defines a nuisance suit as a lawsuit with a low probability of success at trial, brought even though the plaintiff knows that his probability of prevailing would not justify his costs, if the judicial process were to be completed instantly. A negative expected value (NEV) suit might be classified as a nuisance suit in certain circumstances. A NEV suit is one in which the plaintiff would obtain a negative expected return from pursuing the suit all the way to judgment i.e. one in which the plaintiff's expected total litigation costs would exceed the expected

judgment (Bebchuk, 1998).[1] It is generally believed that cases with NEV suits are abundant. NEV suits constitute a large fraction, if not the overwhelming majority of small stakes cases (Bebchuk, 1996). The question we seek to answer is: "Why are these suits brought?"

The literature

The early economic literature on litigation, beginning in the early 1970s with papers by Landes (1971) and Gould (1973), has largely avoided the puzzle of NEV suits by focusing on settlement decisions in positive expected value (PEV) suits. In the 1980s, papers written to model pre-trial negotiation in the presence of asymmetric information, all assumed that the plaintiff's suit has a positive expected value.[2]

Only in the late 1980s, did research begin to focus on NEV suits. Rosenberg and Shavell (1985) in their paper *A Model in which Nuisance Suits are brought for their Nuisance Value* put forward an explanation that applies to some NEV suits. This model will be examined later.

Bebchuk (1987) seeks to answer the question; "Will a plaintiff that does not intend to go to trial succeed in extracting a settlement offer and if so, how much will he get?". His article written in 1984, was concerned with the factors that determine the likelihood of settlement in cases involving NEV suits. The explanation that he gives in these papers focuses on the effects of imperfect information. In 1996 Bebchuk wrote; "A New Theory Concerning The Credibility and Success of Threats to Sue" in which he addressed the question: "What can make NEV suits credible?" The defendant would not agree to any positive settlement amount unless he found the plaintiff's threat to litigate credible. In this article, he pursues the idea that divisibility of the litigation process can provide a plaintiff with a credible threat and enable him to extract a settlement, even if the plaintiff is known by the defendant to have a NEV suit.

The model

To answer our key question as to why nuisance suits are brought let us begin by describing the model of the nuisance suit game. The model is a dynamic game with symmetric information.

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[1] A meritorious suit - one in which the likelihood of a plaintiff victory is quite high – might be NEV, if the litigation costs involved are sufficiently large relative to the amount at stake (Bebchuk, 1998).

[2] For example, Ordover and Rubinstein (1983), P'ng (1983) and Salant and Rest (1982) offered bargaining models of settlement decisions in the presence of asymmetric information.

Nuisance Suits I [3] models the essentials of the situation:

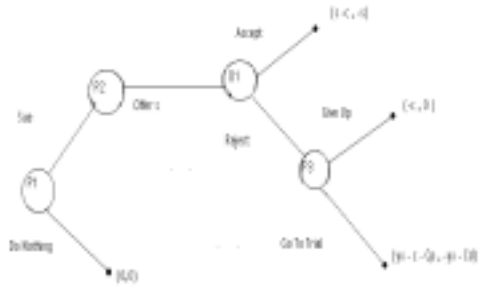
Nuisance Suits I: Simple Extortion

Players
A plaintiff and a defendant

The Order of Play

1. The plaintiff decides whether to bring suit against the defendant at cost *c* (an amount meant to include all initial expenses).
2. The plaintiff makes a take-it-or-leave-it settlement offer of $s > 0$.
3. The defendant accepts or rejects the settlement offer.
4. If the defendant rejects the offer, the plaintiff decides whether to give up or go to trial at a cost *Cp* to himself and *Cd* to the defendant.
5. If the case goes to trial, the plaintiff wins amount *x* with probability *y* and otherwise wins nothing (facts known to both sides and the court).

Payoffs
Figure 1 shows the payoffs. Let $yx < Cp$, so the plaintiff's expected winnings are less than his marginal cost of going to trial. This is what makes this a nuisance suit.



Payoffs: (Plaintiff, Defendant)

Figure 1: The extensive Form for Nuisance suits

[3] Box adapted from Rasmusen (1994).

To find a perfect equilibrium let us pursue the analysis by backward induction. The backward induction approach suggests that the analysis should start by examining what parties will decide in the final stage. We proceed backwards, identifying the decision that will be reached in each stage based on the understanding of the future consequence of each action. The analysis is complete once we reach the initial stage (Bebchuk, 1996).

At node P3, the plaintiff will choose 'Give Up', since by assumption:

$$yx - c - Cp < -c$$

This is because the suit is brought only in the hope of settlement, not in the hope of winning at trial. At node D1, the defendant, foreseeing that the plaintiff will give up, rejects any positive settlement offer. This makes the plaintiff's offer at P2 irrelevant, and, looking ahead to a payoff of $-c$ from choosing 'Sue' at P1, the plaintiff chooses 'Do Nothing' (Rasmusen, 1994).

The perfect equilibrium is:

- Plaintiff: 'Do Nothing', 'Offers', 'Give Up'
- Defendant: 'Reject'
- Outcome: The plaintiff does not bring a suit[4]

Thus, if nuisance suits are brought, it must be for some reason other than the obvious one, the plaintiff's hope of extracting a settlement offer from a defendant who wants to avoid trial costs. That hope is forlorn because the plaintiff himself bears trial costs and hence cannot credibly make the threat. It is forlorn even if the defendant's legal costs would be much higher than the plaintiff's ('Cd' much bigger than 'Cp'), because the relative size of the costs does not enter into the argument (Rasmusen, 1994). "The catch is that the plaintiff's threat to go to trial must be credible, but if his settlement offer is turned down, he will give up rather than pay 'Cp' for a probability 'y' of 'x'. Hence the size of 'Cd' is irrelevant" (Rasmusen, 1998).

Risk Aversion

How does risk aversion affect this conclusion? So far we have assumed both parties are risk neutral. Nuisance Suits I can be adapted to risk-averse players. Risk would enter at the trial stage, as a final move by Nature to decide who wins. In Nuisance Suits I, 'yx' represented the expected value of the award. If both the

[4] The equilibrium specifies actions at all four nodes of the game, even though only the first is reached in equilibrium.

defendant and the plaintiff are equally risk averse, 'yx' can still represent the expected payoff from the award – one simply interprets 'x' and '0' as the utility of the cash award and the utility of an award 0, rather than as the actual cash amounts (Rasmusen, 1994).

If the players have different degrees of risk aversion, the expected loss to the defendant is not the same as the expected gain to the plaintiff, and the payoffs must be adjusted. If the defendant is more risk averse, the payoffs from 'Go to Trial' would change to:

$$-c - Cp + yx, -yx - w - Cd$$

Where *w* represents the extra disutility of risk to the defendant. This, however, makes no difference to the equilibrium (Rasmusen, 1994). "The crux of the game is that the plaintiff is unwilling to go to trial because of the cost to himself, and the cost to the defendant, including the cost of bearing risk, is irrelevant" (Rasmusen, 1994). If nuisance suits are brought, it must therefore be for some more complicated reason.

The explanation

There are twists to the situation that can make the plaintiff's threat to go to trial credible, so suit-for-settlement becomes plausible. Two central explanations as to why nuisance suits are brought in practice are put forward namely sinking costs strategically and malicious emotions. Our earlier model is adapted to take account of each of these issues. Other explanations will also be briefly discussed.

Nuisance Suits II: Using Sunk Costs Strategically[5]

Suppose that the plaintiff can pay his lawyer the amount 'Cp' in advance, with no refund if the case settles. This inability to obtain a refund actually helps the plaintiff, by changing the payoffs from the game, so his payoff from 'Give Up' is:

$$-c - Cp$$

Compared to:

$$-c - Cp + yx$$

from 'Go to trial'.

Having sunk the legal costs, he will go to trial if:

$$yx > 0$$

[5] This model is based on Rosenberg and Shavell (1985).

i.e. if he has any chance of success at all (Rasmusen, 1994).

This, in turn, means the plaintiff would only prefer settlement to trial if:

$$s > yx$$

The defendant would prefer settlement to trial if:

$$s < yx + Cd$$

So there is a positive settlement range of:

$$(yx) \text{ to } (yx + Cd)$$

Within which both players are willing to settle. The exact amount of the settlement depends on the bargaining power of the parties. Here, allowing the plaintiff to make a take-it-or-leave-it offer means that:

$$s = yx + Cd$$

in equilibrium, and if:

$$yx + Cd > Cp + c$$

the nuisance suit will be brought even though:

$$yx < Cp + c.$$

Thus the plaintiff is bringing the suit only because he can extort 'Cd', the amount of the defendant's legal costs (Rasmusen, 1994).

Even though the plaintiff can now extort a settlement, he does it at some cost to himself, so equilibrium with nuisance suits will require that:

$$-c - Cp + yx + Cd \text{ > or = } 0 \text{ (equation 1)}$$

If equation 1 is false, then even if the plaintiff could extract the maximum possible settlement of:

$$s = yx + Cd$$

he would not do so, because he would then have to pay:

$$c + Cp$$

before reaching the settlement stage. This implies that a totally merit less suit (with $y = 0$) would not be brought unless the defendant had higher legal costs than the plaintiff ($Cd > Cp$). If equation 1 is satisfied, however, the following strategy combination is a perfect equilibrium:

Plaintiff: 'Sue', Offer: $s = yx + Cd$, Go to trial
Defendant: Accept $s <$ or $= yx + Cd$
Outcome: Plaintiff sues and offers to settle, to which the defendant agrees.

The Open Set Problem in Nuisance Suits II

Nuisance Suits II illustrates a technical point that arises in a great many games with continuous strategy spaces as Rasmusen (1994) points out to us. The equilibrium is only a weak Nash equilibrium. The plaintiff proposes,

$$s = yx + Cd$$

and the defendant has the same payoff from accepting or rejecting, but in equilibrium the defendant accepts the offer with probability one, despite his indifference. This seems arbitrary. Should not the plaintiff propose a slightly lower settlement to give the defendant a strong incentive to accept it and avoid the risk of going to trial? For example, if the parameters are such that,

$$s = yx + Cd = 60$$

why does the plaintiff risk holding out for 60 and possibly be rejected and receive 0 at trial, when he could offer 59 and give the defendant a strong incentive to accept? "One answer is that no other equilibrium exists besides $s = 60$. Offering 59 cannot be part of an equilibrium because it is dominated by offering 59.9; offering 59.9 is dominated by offering 59.99, and so forth" (Rasmusen, 1994). This is known as the open-set problem, because the set of offers that the defendant strongly wishes to accept is open and has no maximum. Therefore, a weak Nash equilibrium is still a Nash equilibrium (Rasmusen, 1994).

Rasmusen (1994) shows us that one can avoid the open set problem by specifying a more complicated bargaining game to avoid the issue of how exactly the settlement is determined. One could say that the settlement is not proposed by

the plaintiff, but simply emerges with a value halfway through the settlement range, so,

$$s = yx + Cd/2$$

This kind of modelling is called black boxing, because it is as of at some point in the game, variables with certain values go into a black box and come out the other side with values determined by an exogenous process (Rasmusen, 1994).

Nuisance Suits III: Malicious Emotions

Emotions are often important to lawsuits, and law professors tell their students that when the cases they study seem to involve disputes too trivial to be worth taking to court, they can guess that the real motivations are emotional. "Emotions could enter in a variety of distinct ways" (Rasmusen, 1994). The plaintiff might simply like going to trial, which can be expressed as a value of:

$$Cp < 0.$$

This would be true of many criminal cases, because prosecutors like news coverage and want credit with the public for prosecuting certain kinds of crime (Rasmusen, 1994).

Another emotional motivation for going to trial is the desire to inflict losses on the defendant, a motivation called malice. In this case, 'Cd' enters as a positive argument in the plaintiff's utility function. Rasmusen (1994) constructs a numerical example of Nuisance Suits III in which he assumes:

$y = 0.1$ $\qquad$ $Cd = 50$
$c = 3$ $\qquad$ $x = 100$
$Cp = 14$

and that the plaintiff receives additional utility of 0.1 times the defendant's disutility. He adopts the black boxing technique here and assumes that the settlement *s* is in the middle of the settlement range. The payoffs conditional on suit being brought are:

Plaintiff (Defendant accepts):

$$s - c + 0.1s = 1.1s - 3 \qquad \text{(Equation 2)}$$

Plaintiff (Go to trial):

$$yx - c - Cp + 0.1(Cd + yx) = 10 - 3 - 14 + 6 = -1 \qquad \text{(Equation 3)}$$

The plaintiff's payoff from 'Give up' is –3 therefore, he will go to trial if the defendant rejects the settlement offer. The overall payoff from bringing a suit that eventually goes to trial is still –1, which is worse than the payoff of 0 from not bringing suit in the first place. If s is high enough, the payoff from bringing suit and settling is higher still. If s is greater than 1.82, the plaintiff prefers settlement to trial and if s is greater than 2.73, he prefers settlement to not bringing the suit at all.[1] The plaintiff will settle for any:

$$s > \text{or} = 1.82$$

and the defendant will settle for any:

$$s < \text{or} = yx + Cd = 60$$

The settlement range is [1.82, 60], and s = 30.91. The equilibrium is as below:

- Plaintiff: Sue, Go to trial
- Defendant: Accept any s < or = 60
- Outcome: The plaintiff sues and offers s = 30.91, and the defendant accepts the settlement.

Incomplete Information

Bebchuk (1987) extended to NEV suits the model put forward by Bebchuk (1984) to analyse litigation decisions under asymmetric information, and it demonstrated that the presence of an informational asymmetry could explain the success of some NEV suits.

To see the role played by asymmetric information consider the situation where the defendant may not know whether the plaintiff's expected value of litigation is positive or negative. This uncertainty might result from private information that the plaintiff has about 'Cp', for example (Bebchuk, 1998). Consequently, the defendant cannot be certain that, in the absence of a settlement, the plaintiff would drop his suit. To avoid the risk of incurring litigation costs, the defendant therefore may elect to offer a positive settlement amount. This uncertainty model cannot explain, however, the success of suits that defendants know to be NEV suits (Bebchuk, 1996).

[1] The figure 1.82 = -1 + 3/ 1.1, rounded.
The figure 2.73 = 0 + 3/ 1.1, rounded.

Divisibility of Litigation Costs

As we have seen in the literature review, Bebchuk (1996) has shown that the divisibility of the litigation process can provide a plaintiff with a credible threat, and enable it to extract a settlement, even if the plaintiff is known by the defendant to have a NEV suit. What underlies the considered explanation is the recognition that litigation costs are generally not incurred all at once in a lump sum fashion but rather are spread over a period of time, with bargaining possibly taking place on numerous occasions throughout this period (Bebchuk, 1998). Suppose that the plaintiff cannot pay his legal expenses first, but both sides incur costs in 'T' stages, and at 'T–1', once most costs are sunk, the plaintiff finds it worthwhile to incur the costs of the last stage so as to have a chance at the trial judgment. He can then extract a settlement. Going back to 'T–2' the plaintiff would be willing to pay expenses of that stage, as the price of admission to the profitable settlement of 'T–1'. The reasoning continues back to stage one. The result is that the settlement is an agreement by both players to exit a costly rivalry that is profitable at each stage but ruinous overall (Rasmusen, 1998). Bebchuk (1997) proves that a finer division of the litigation process might sometimes improve, and can never worsen, the strategic position of the plaintiff and its ability to extract a settlement. However, as Bebchuk (1996) warns divisibility cannot always guarantee a NEV plaintiff with a credible threat. [2]

Solutions

Society seeks to induce plaintiffs to sue, if and only if, they believe they are entitled to prevail at trial. One needs to design rules that will ensure that optimal decisions to bring suit are made. This objective implies two goals: that a plaintiff bring a meritorious suit (which we define as a suit that deserves to win on the merits, as the plaintiff views the case) and that a plaintiff not bring a nuisance suit.

Fee-shifting rules

Bebchuk and Chang (1996) analyse how fee-shifting rules best serve the goals outlined above. They show that when plaintiffs cannot predict the outcome of litigation with certainty, neither the American rule (each litigant bears its own litigation expenses) nor the British rule (the losing litigant pays the attorney's fees of the winning litigant) would induce optimal decisions to bring suit.

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[2] For an analysis of the factors that determine when divisibility can and cannot provide a credible threat see Bebchuk (1996) and Bebchuk (1997).

For example, under the American rule, plaintiffs will not bring all meritorious suits; the plaintiff will not sue if its litigation costs exceed the value of the relief that it expects the court to award. Also, the plaintiff will bring some frivolous suits; if the litigation costs are small enough, the plaintiff will find it worthwhile to gamble, either because the court might rule in the plaintiff's favour or because the case might prove to be better than it first appears.

Rasmusen (1998) notes that by shifting from the American rule to the British rule one can reduce the payoff at trial and so the British rule reduces the credibility of threats to go to trial with meritless suits.

Bebchuk and Chang (1996) also analyse the effects of more general fee-shifting rules that are based not only on the identity of the winning party, but also on how strong the court perceives the case to be at the end of the trial – that is, the 'margin of victory'. They explore how and when one can design such a rule to induce plaintiffs to sue, if and only if, they believe their cases are sufficiently strong. This analysis of fee-shifting rules based on the margin of victory is not only of theoretical interest but also of practical significance. Courts have interpreted Federal Rule of Civil Procedure 11 as an example of such a rule. In order to deter parties from filing frivolous papers in court, Rule 11 authorises courts to impose sanctions on those who file such papers.

Procedural Rules

These rules delegate the deterrence of nuisance suits to the judge in the original proceedings. First, the rules on how suit is brought can make nuisance suits difficult. These include rules on standing, limiting who can bring suit; on forum shopping, preventing plaintiffs from going to sympathetic or corrupt judges; on pleadings, requiring a specific-enough filing that its lack of merit is apparent; on evidence, barring hearsay and limiting expert testimony. Given these rules the judge has the ability to dismiss suits by summary judgment. Second, the judge can punish as well as dismiss, the purpose being deterrence (Rasmusen, 1998).

Conclusion

From our model of the game of Nuisance Suits I, we have seen that if nuisance suits are brought, it must be for some reason other than the obvious one, the plaintiff's hope of extracting a settlement offer from a defendant who wants to avoid trial costs. Our analysis has illustrated some of these reasons including sinking costs strategically and malicious emotions. Some rules, that one might have designed in order to induce optimal decisions to bring suit, have been examined. However this analysis is only the tip of the iceberg, many more explanations exist

for nuisance suits. These include defendant's ignorance, plaintiff reputation, plaintiff mistake, court error and unjust law. Also, other rules and policy instruments exist that aim to reduce the number of nuisance suits, for example, tort rules.

As we have seen law (and) economics research in the area of nuisance suits has been active since the late 1980s, but though it has illuminated extortionary settlements and the effects of fee-shifting, it has neglected many other aspects of the problem. Perhaps the biggest blanks, as Rasmusen (1998) tells us, are in the areas of public choice theory and theory-driven empirical study.

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