The Dogs of War:
Strategic pre-commitment to Legal Services

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INTRODUCTION

The phrase "*Turning loose the Dogs of War*" is sometimes used when referring to the decision by individuals or organizations to use their lawyers in a strategic manner[1]. The objective is to force an adversary to incur higher legal costs in response to the initial action. Faced with increased legal costs, respondents may choose to either enter into a favourable settlement or otherwise alter their original strategy. A recent example of this type of behavior is the *Insurance Corporation of British Columbia*

[1]The title of this essay was inspired from events that arose between a property developer and a municipality in British Columbia, Canada. After a long negotiation between the two parties over perceived damages from actions of the municipality, the vice president of the development company had had enough and gave the order to turn loose the "Dogs of War".

When questioned on this about this statement, the vice president explained that he was referring to the team of lawyers his company kept on retainer. From his perspective these assets were already paid for, so he may as well use them as intended. A short time later the municipality returned with a "reasonable" settlement offer.

(*ICBC*), the provincial government's automobile insurance company. *ICBC* instituted a policy paying a set amount for all soft tissue injury cases and litigating any claims that differed from the set amount. This policy prohibited the organization's claim adjustors from negotiating settlements with claimants, thus dramatically increasing the cost of recovering damages from low-impact car accidents[2]. Further, since ICBC typically uses staff (in-house) lawyers, most of ICBC's legal costs are pre-committed−or sunk−thus creating a credible threat for potential claimants. If such strategic uses of legal services and the associated cost asymmetries lead to a downward bias in settlements for accident claims, it brings into question the effectiveness of torts in ensuring an economically efficient level of due care by potential injurers.

A great body of literature has been devoted to analyzing the tort system to promote economic efficiency in cases of liability[3]. The fundamental issue is whether the type of damage rules employed by the courts produce a socially efficient level of care by *injurers*[4]. When the type of accidents are *unilateral,* by which is meant that only the actions of the injurers, and not the victims are assumed to influence the probability or severity of the loss, the only relevant damage rules are *strict liability* or *negligence.* When the accidents are *bilateral* in nature, the types of damage rules become much more complex[5]. This paper confines itself to types of accidents which are unilateral in nature.

[2]ICBC sets a fixed amount for all soft tissue injuries ($6500 in 2005). Claimants who disputed this amount would required to seek a remedy in a court. (Source: ICBC's official website: www.icbc.com)

[3]See Posner, R. **Economic Analysis of Law** Wolters Kluwer Law & Business; 7th edition (February 7, 2007) chapter 4.

[4]Strictly speaking, we are discussing *potential injurers,* since the accident may not actually happen. However, we will refer to potential injurers and potential victims as *injurers* and *victims* respectively.

[5]In fact, there are 6 possible damage rules for bilateral accident cases. For a thorough discussion of each, see John Prather Brown, Toward an Economic Theory of Liability, 323 Journal of Legal Studies (1973).

A number of important articles analyze the economic effects and incentives of liability rules[6]. Shavell[7] presents one of the more noted formal treatments of negligence versus strict liability. In his model he demonstrates that, in the case of unilateral accidents, both strict liability and an appropriately set negligence rule will produce socially efficient levels of care by injurers. In Shavell's model all parties are assumed risk neutral and do not engage in strategic behavior with respect to either the level of care or frequency of the activity that causes the tort.

However, the efficiency results of Shavell and others ignore the costs of using the legal system. In an extension of his own work, Shavell[8] demonstrates that once legal and court costs are considered, social and private incentives diverge. In Shavell's model social and private incentives diverge for two reasons. First, because plaintiffs are not responsible for the defendant's legal fees, plaintiffs do not consider those costs in their decision. Second, plaintiffs do not take into account the safety incentives created by the possibility of lawsuits. Shavell shows that socially inefficient suits may be brought while socially beneficial suits will not be brought.

Menell[9] challenges the second of Shavell's results. Menell purports to show that

[6]See Guido Calabresi, The Costs of Accidents: A Legal and Economic Analysis (1970); Guido Calabresi, and Jon Hirschoff , Toward a Test for Strict Liability in Torts, 81 Yale Law Journal 1055 (1972); R. H. Coase The Problem of Social Cost, 3 Journal of Law and Economics 1 (1960); Harold Demsetz, When Does the Rule of Liability Matter?, 1 Journal of Legal Studies 13 (1972); Richard Posner, A Theory of Negligence, 1 Journal of Legal Studies 29 (1972); John Prather Brown, *Supra* note 5

[7]Steven Shavell, Strict Liability Versus Negligence 1 Journal of Legal Studies (1980).

[8]Shavell, Steven, "The Social versus Private Incentive to Bring Suit in a Costly Legal System", 11 *Journal of Legal Studies* 333 (1982)

[9]Menell, Peter S., "A Note on Private versus Social Incentives to Bring Suit ina Costly Legal System", *Journal of Legal Studies* vol 12, No. 1 (Jan 1983) 41-52

under strict liability the injurer's cost benefit equals societies cost benefit. Kaplow[10] demonstrates that Menell's result is correct, but that it fails to address the cost externality in the plaintiff's decision to bring suit. Using the Menell model, Kaplow demonstrates that under certain circumstances a prohibition on law suits may be socially desirable.

Rose-Ackerman and Geistfeld[11] demonstrates that both Menell and Kaplow fail to emphasize the essential difference between their models and Shavell. Menell believed that his result was driven by the ability of the injurer to choose any level of damages. Rose-Ackerman and Geistfeld show that this is incorrect. Instead, the distinctive feature of Menell's result is driven by the nature of the damage function. With Menell, damages are a function of the output level chosen by the injurer and occur with certainty. In Shavell's model damages are probabilistic accidents. When the problem is formulated with greater generality, Shavell and Menell become special cases. Further, with a switch to the British rule[12] , the Menell-Kaplow results hold in general.

Finally, Rose-Ackerman and Geistfeld argue that a move from strict liability to negligence will generate the optimal outcome so long as the standard of care is the same as would be optimal in the absence of lawsuits, However this conclusion requires either the British system or a situation where the plaintiff's court costs are below damages at the optimal level of care.

In the above models of tort the courts are assumed to operate at zero cost with complete knowledge of all benefits and costs. Legal fees in these models are sunk costs

[10]Kaplow, Louis, "Private versus Social Costs in Bringing Suit", 15 *Journal of Legal Studies*, (1986)

[11]Rose-Ackerman, Susan, and Geistfeld, Mark, "The Divergence Between Social and Private Incentives to Sue: A Comment on Shavell, Menell, and Kaplow", 16 *Journal of Legal Studies* 483 (1987)

[12]In the British system the loser pays the winner's court costs.

incurred by the relevant parties to the tort. The only uncertainty in their models is the probability of an accident (or, in some models, the size of the damage), which is a function of the care taken by one or both of the parties involved.

After an accident has occurred it is assumed that the courts will assign damages with perfect certainty, as a function of the damage rule that applies. The role of the courts in these models is the enforcement of the appropriate rule.

In fact, outcomes of court cases are not known with certainty. Instead, court cases tend to be probabilistic in nature. The probability of winning or losing tends to be a function of: (a) the particular circumstance; (b) the court's interpretation of precedence; and, (c) the efforts of the (disputing parties) legal representatives. It is the third component mentioned that allows for strategic behavior involving the amount of resources devoted to litigation and the pre-trial bargaining process.

In almost all cases, the frame of reference used by a judge is the *Learned Hand Rule*[13]. To the economist, applying the Learned Hand rule simply means asking the following question: "Given the level of care currently taken by the injurer, would the marginal cost of an additional unit of care exceed the marginal benefit of that unit of care?". If the answer is no, then a tort has occurred. Therefore, the role of the lawyers is to convince the judge as to the location of the marginal cost and benefit curves that apply in their particular case. Beyond that, they try to negotiate the best deal for their client.

This paper presents a two stage model of negligence and legal action. In the first stage the defendant decides on the level of due care to take while carrying out an action or activity. In the second stage an accident has occurred and the plaintiff brings suit. Lawyers (agents) invest in actions that are designed to increase the probability of success on behalf of their respective clients[14]. First we present the symmetric case

[13]Posner, R. *Supra Note 3*

[14]The exact nature of the role of lawyers in economic models of the legal system tends to be

where all decisions on investment in legal services occur *ex-post* (after an accident has occured). We then look as the case where the potential injurer pre-commits to a level of legal services *ex-ante*. (prior to an accident) and analyze the effect that pre-commitment in legal services has on the stage one choice of care. We then present a case study from the field of labour relations where strategic pre-commitment is used to influence the settlement of grievances. The grievance process in labour relations parallel civil litigation and a grievance can be viewed as equivalent to either a tort or a breach of contract; depending on the type of grievance.

THE MODEL

This model is a two-stage game that involves an injurer and a victim. In the first stage the injurer decides on both the frequency and the level of care taken in an activity or production process. The level of care will be chosen to maximize the net private benefit of the injurer. The injurer will be referred to as the defendant and the victim will be referred to as the plaintiff. It is assumed that the victim does not influence the probability or magnitude of the loss.

In the second stage a suit is brought by the plaintiff against the defendant. Both parties invest in legal services which are assumed to increase each parties likelihood of success in court. Each party takes the level of legal services purchased by the other party as given, and chooses their level of legal service to maximize their expected utility. It is assumed that all parties are risk neutral. The stage two equilibrium is a *Nash Equilibrium.*

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diverse. Some view legal fees as simply an additional cost associated with using the legal system. Others view the lawyer as an agent for information on the true probability of conviction in the event of a court case. In both cases, a lawyer's services enter the model only as a cost. The Lawyer plays no role in determining the outcome once a suit reaches court. The model presented here treats lawyers as an input that does influence the outcome of a court case.

If we assume all players have foresight, the outcome of the second stage game will, in turn, determine the equilibrium level of care taken in stage one. Therefore, to solve the model, we start by finding the equilibrium in the second stage game. The solution to stage two is used in the solution to the first stage of the game.

Initial Conditions

The defendant engages in an activity, denoted by y. The gross benefit to the defendant of activity y is

$$B(y) \qquad where \qquad B'(y) > 0, B''(y) \leq 0 \quad and \quad B(0) = 0 \tag{1}$$

Let x denote the level of care taken by the defendant while engaging in activity y, and $c(x)$ be the cost to the defendant of taking care of level x. Assume that $c'(x) > 0$ and $c''(x) \geq 0$.

Now suppose that the probability of loss (accident) is a function of both the frequency of the activity and the level of care. Let the probability of loss be

$$\pi = \pi(x, y) \qquad where \quad \pi_x < 0 \quad and \quad \pi_y > 0 \tag{2}$$

π is assumed to be a separable and additive function of all its arguments.

Let the loss incurred by the plaintiff (victim) be denoted by L. The loss incurred by the plaintiff may, or may not, be a function of the level of care taken by the defendant, i.e.

$$either \quad L = \bar{L} \qquad or \qquad L = L(x) \quad where \quad L'(x) \leq 0 \tag{3}$$

The expected loss faced by the victim is given by πL. Given that the signs of both π_x and $L'(x)$ are negative and any change in x will change the expected loss in the same direction,then, with no loss in generality, we shall assume that L is exogenous.

In this model all benefits and costs are accrue only to the injurer or victim; therefore, since all parties are risk neutral, social welfare can be expressed as the benefit of

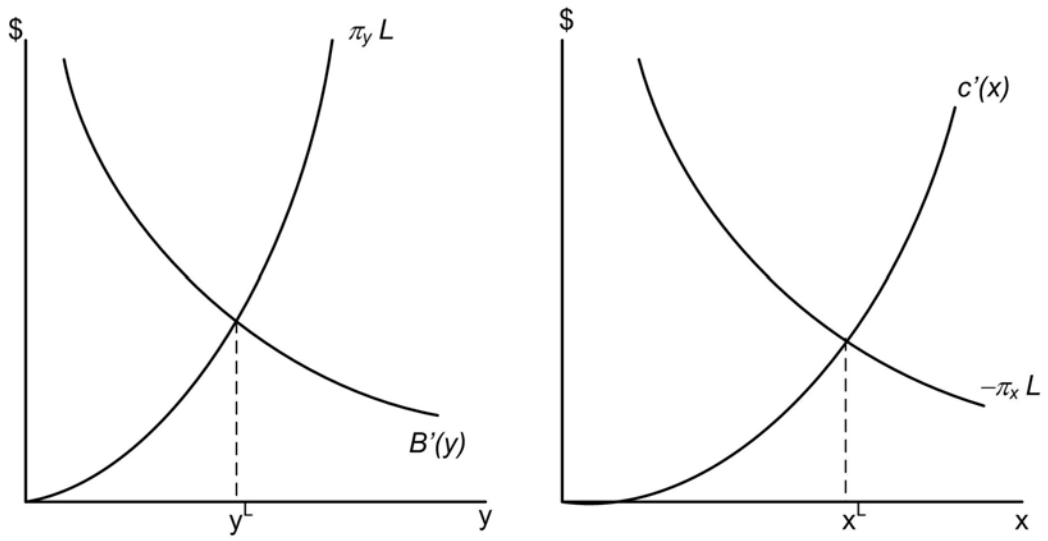

FIG. 1. Socially Optimal Frequency and Level of Care

the activity net of the cost of care and any losses that are incurred due to an accident. The social welfare function is given by

$$W(x, y) = B(y) - c(x) - \pi(x, y)\bar{L} \tag{4}$$

If the injurer took into account the full cost of his actions or, equivalently, a social planner determined the frequency and level of care of the activity, the levels of x and y would be chosen to maximize equation 4. The first order conditions for this problem are given by

$$\begin{aligned} B'(y) - \pi_y(x, y)\bar{L} &= 0 \\ c'(x) + \pi_x(x, y)\bar{L} &= 0 \end{aligned} \tag{5}$$

where equation system 5 implicitly defines the socially optimal level of care (x^L) and frequency (y^L) of the activity. Figure 1 illustrates graphically the solution to (5). The first graph shows the optimal frequency of the injurer's activity and the second graph shows the optimal level of care.

Stage Two Game

In stage two an accident has happened. Each party retains legal services and the process of litigation begins. Let lawyer one represent the defendant and let lawyer two represent the plaintiff. The activity of lawyer one is denoted a_1, and the activity of lawyer two is denoted a_2. The activities of the lawyers are assumed to influence the probability of conviction if the suit goes to court. Both lawyers know the nature of probability function and the level of activity by the other lawyer.

Let the probability of conviction be given by

$$P = P(a_1, a_2; x) \tag{6}$$

where P is a function both parties legal activities and the level of care taken by the defendant. Since x is determined by the defendant in stage one, it is treated as exogenous in stage two. P is assumed to be continuous and twice differentiable and has the following properties:

$$P_1 < 0, \quad P_2 > 0, \quad P_{11} > 0, \quad P_{22} < 0, \qquad P_x \leq 0$$

The restrictions on P imply that, for a given level of care taken prior to the court case, each lawyer can influence the outcome of the case through his own efforts; however, there are diminishing returns to either lawyer's efforts. An additional assumption that $P_{12} = P_{21} \leq 0$ simply implies that lawyers are strategic substitutes. The sign of P_x reflects the *Learned Hand* rule; that the greater the level of care taken, the more likely the courts would consider it reasonable.

As before, let L denote the loss incurred by the plaintiff and D denote the damages awarded by the courts. Note that L may, or may not, equal D. Since pre-trial bargaining is permitted in the stage two game, let S denote any out of court settlement.

Each party must make a compensation payment to their respective lawyers. The compensation functions for lawyers one and two respectively are $w_1(a_1)$ and $w_2(a_2)$.

Compensation can be a simple linear function ($w_i a_i$) such as an hourly rate, or it can be in the nonlinear, two-part pricing schedule of the form $w_i(a_i) = \alpha f + (1-\alpha)\, w_1 a_i$, where f represents pre-payment (or retainer) and α is the fraction of the lawyer's total compensation that is a sunk cost to the client. The compensation function may also be a share of the damages awarded or settlements negotiated. Such "contingency fees" tend to vary across jurisdictions and are often subject to state or provincial regulations. In this section we will assume that all compensation functions are linear.

The defendant's expected payoff function is

$$v = -[P(a_1, a_2; x)D + w_1 a_1] \tag{7}$$

And the plaintiff's expected payoff function is

$$u = P(a_1, a_2; x)D - L - w_2 a_2 \tag{8}$$

Each party will make investments in legal services (a_i) that will maximize (minimize) his expected gain (loss)[15], taking the level of legal activity of his adversary as given. Therefore the equilibrium levels of legal activity will be a *Nash equilibrium.*

Differentiating the pay-off function of the defendant gives us

$$\frac{dv}{da_1} = -\frac{\partial P(a_1,a_2)}{\partial a_1} D - w_1 = 0 \tag{9}$$

or

$$-\frac{\partial P(a_1,a_2)}{\partial a_1} D = w_1 > 0$$

and differentiating the pay-off function of the plaintiff gives us

$$\frac{du}{da_2} = \frac{\partial P(a_1,a_2)}{\partial a_2} D - w_2 = 0 \tag{10}$$

or

$$\frac{\partial P(a_1,a_2)}{\partial a_2} D = w_2 > 0$$

[15]It is assumed that there exists no agency problem on the part of lawyers, such that lawyers will not in engage in excessive legal activities to maximize their own reward.

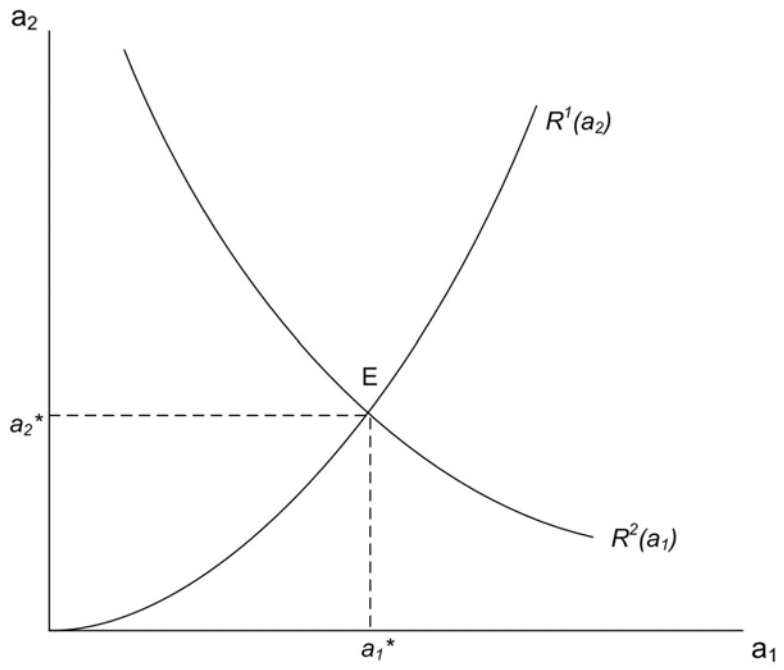

FIG. 2. Best response functions in legal services

Equations 9 and 10 implicitly define the defendant and plaintiffs' respective *best response functions*

$$a_1 = R^1(a_2) \qquad and \qquad a_2 = R^2(a_1) \tag{11}$$

where $a_i = R^i(a_j)$ describes the optimal amount of legal services for player i in response to a given level of legal services of player j. By taking the total differential of 9 and 10, the following can be shown to hold:

$$dR^1/da_2 > 0 \qquad and \qquad dR^2/da_1 < 0$$

The best response functions for the plaintiff and defendant are illustrated in Figure 2. It is of interest to note the asymmetry of the two response functions. The defendant's best response to an increase in a_2 is to increase a_1, whereas the plaintiff's best

response to an increase in a_1 is to reduce the level of a_2[16]. As shown in figure 2., the intersection of the best response functions determines the *Nash equilibrium* values, $a_1^*(x)$, $a_2^*(x)$.

Once $a_1^*$and a_2^* are determined, the probability of conviction is also known by both parties, given

$$P^* = P(a_1^*(x), a_2^*(x), x) = P^*(x) \tag{12}$$

In this framework it is assumed that both parties are risk neutral. Therefore the defendant would be willing to offer a settlement, S, such that

$$S \leq P^*(x) \times D + w_1 a_1 \tag{13}$$

and the plaintiff would accept any settlement of S that satisfied

$$S \geq P^*(x) \times D - w_2 a_2 \tag{14}$$

Assuming a *Nash* bargaining outcome, we get the value of S such that each side would be indifferent between going to trial or accepting an out of court settlement. In this case the equilibrium value of the settlement would be

$$S^*(x) = P^*(x)D + \frac{w_1 a_1 - w_2 a_2}{2} \tag{15}$$

In the case where the courts set $D = \bar{L}$, equation 15 can be re-written as

$$S^*(x) = P^*(x)\bar{L} + \frac{w_1 a_1 - w_2 a_2}{2} \tag{16}$$

[16]In other words, from the perspective of the defendant legal activity can be viewed as *strategic compliments*, whereas the plaintiff views legal activies as *strategic substitutes.*

The Stage One Game

Given S^* from above, the stage one objective function of the defendant can be written as

$$V(x,y) = B(y) - c(x) - \pi(x,y)S^*(x) \tag{17}$$

Differentiating 17 with respect to y and x gives us

$$\begin{aligned} B'(y) - \pi_y(x,y)S^* &= 0 \\ -\left[\pi_x(x,y)S^* + \pi\tfrac{dS^*}{dx}\right] &= c'(x) \end{aligned} \tag{18}$$

equation system 18 determines the injurer's privately optimal x and y, which are denoted x^s and y^s. Comparing the first equation in (18) to its counterpart in (5), we have the result that $y^S > y^L$ whenever $S^* < \bar{L}$. This implies that the frequency of the activity will be greater than is socially optimal. With respect to the level of care, x, the result is ambiguous. The usual assumption is that, since $S^* < \bar{L}$, the level of care would be less than the socially optimal level. However, from the second equation in (18) it is not to possible to determine the level of care relative to the social optimum (x^L) . Since $\frac{dS^*}{dx} \leq 0$ and $\frac{da_1}{dx} \leq 0$, then, depending on their magnitudes, the reduction in both the settlement and legal fees in the second stage due to greater care may be strong enough that x^S would exceed the socially optimal level of care. On the other hand, if ex-ante changes in x have little impact on the stage two equilibrium, then the impact of $\frac{dS^*}{dx}$ would be small relative to the difference between $S^*$and $\bar{L}$ and the level of care would be less than the social optimum.

Figure 3 illustrates the results. The first graph shows the socially optimal and privately optimal frequency of the activity. When the true level of damages, or loss, are taken into account by the injurer, he will set the marginal benefit of the activity $(B'(y))$ equal to the true marginal expected damage function $(\pi_y L)$ and the

equilibrium will occur at point E. When the injurer equates the marginal benefit of the frequency of the activity to his personal marginal expected damages ($\pi_y S^*$) equilibrium will occur at point F. The second graph in figure 3 illustrates both the socially optimal and private choice of care. When the injurer equates the marginal reduction in expected damages ($\pi_x L$) to the marginal cost of care ($c'(x)$), the socially optimal level of care occurs at point K. However, when the injurer equates the marginal reduction in expected settlement costs $\left(-\pi_x S^* - \pi \frac{dS^*}{dx}\right)$ to the marginal cost of care, equilibrium occurs at point J (here we assume dS^*/dx to be small).

STRATEGIC INVESTMENT

It is often the case that large firms pre-invest in legal services. This usually involves an annual retainer which the firm views as a sunk cost and effectively gives the firm "free" legal services at the margin, up to the point that the retainer is exhausted. This creates a discontinuity in the firm's cost of legal services, whether it is the plaintiff or defendant.

Stage two equilibrium with sunk investment in legal services

Consider the case where the defendant (injurer) has made an ex-ante sunk investment in legal services. Let $\tilde{a}_1$ be the amount of legal services that the defendant has retained. therefore equation 9 becomes

$$\frac{dv}{da_1} = \begin{cases} -\frac{\partial P(a_1,a_2)}{\partial a_1} D = 0 & for \quad a_1 \leq \tilde{a}_1 \\ \\ -\frac{\partial P(a_1,a_2)}{\partial a_1} D - w_1 = 0 & for \quad a_1 > \tilde{a}_1 \end{cases} \tag{19}$$

This result is illustrated in figure 4.

In figure 4 the original equilibrium is point E. This represents the equilibrium illustrated in figure 2 above. When the defendant makes ex-ante investment in a

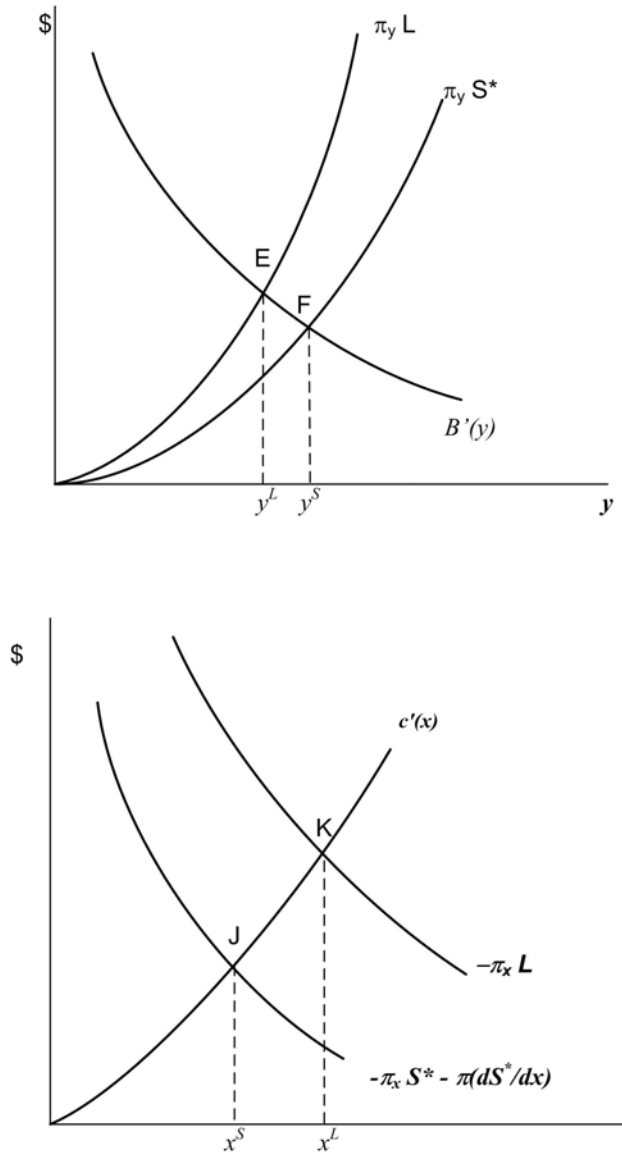

FIG. 3. Private and socially optimal levels of the injurers activity (y) and care (x)

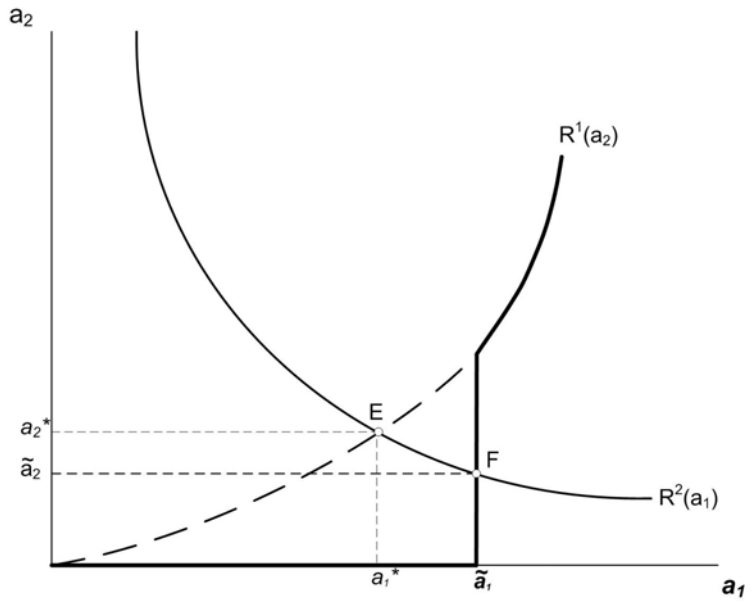

FIG. 4. Best response with pre-commitment to legal services

sunk level of legal services, his response function becomes vertical at $\tilde{a}_1$ up to the point it crosses the original best response function of the defendant. At that point the response function returns to the original response function as the defendant must now incur additional legal services at the rate of w_1. Assuming the investment is large enough, the plaintiff's response function will intersect the defendant's at point such as F and the values a_1 and a_2 are denoted $\tilde{a}_1$ and $\tilde{a}_2$ respectively. In this case, the defendant has effectively changed the equilibrium point in his favour. An equilibrium at point F corresponds to a lower probability of success for the plaintiff than an equilibrium such as point E.

The probability of conviction becomes $\tilde{P} = P(\tilde{a}_1(x), \tilde{a}_2(x))$ where

$$P(\tilde{a}_1(x), \tilde{a}_2(x)) < P(a_1^*(x), a_2^*(x))$$

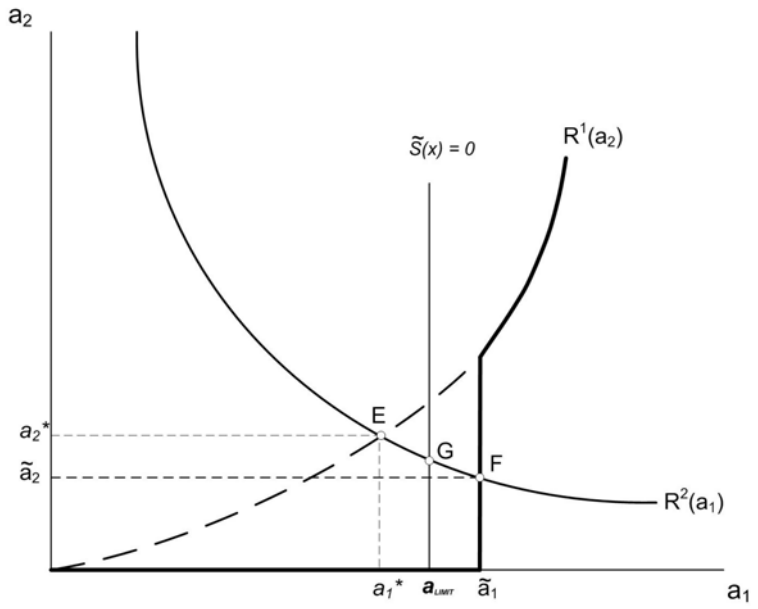

FIG. 5. Pre-commitment to legal services and suit deterring investment

and the Nash equilibrium settlement offer now becomes

$$\tilde{S}(x) = \tilde{P}(x)D - \frac{w_2}{2} \tag{20}$$

where $\tilde{S}(x) < S^*(x)$. This occurs for two reasons: First, since $w_1\tilde{a}_1$ is sunk in the first stage, the pre-trial settlement offer by the defendant is less than equation 15 by the amount $w_1/2$. Second, as shown in figure 4, $\tilde{a}_1 > a_1^*$ and $\tilde{a}_2 < a_2^*$, thus the equilibrium probability of conviction is now lower than in the case where both parties invest in legal services ex-post ($\tilde{P}(x) < P^*(x)$)

Stage one decision on pre-commitment to legal services

There are two possible outcomes in the stage one game depending on the size of the plaintiff's legal costs relative to damages. The first being that the defendant will choose a level of legal services to pre-commit up to the point that the marginal

reduction in expected settlement just equal to the marginal cost of legal services ($w_1'(a_1)$). However, it may also be the case that there is a level of pre-commitment what will effectively deter lawsuits. This would be, in essence, a *Limit Output* or *Limit Pricing* strategy.

In stage one, the defendant's first-order conditions become

$$\begin{aligned} B'(y) - \pi_y \tilde{S} &= 0 \\ -\pi_x \tilde{S} - \pi \frac{d\tilde{S}}{dx} - c'(x) &= 0 \\ -\pi \left[\underset{(-)}{\frac{\partial S}{\partial a_1}} + \underset{(+)}{\frac{\partial S}{\partial a_2}} \underset{(-)}{\frac{da_2}{da_1}} \right] - w_1 &= 0 \end{aligned} \tag{21}$$

Let $\tilde{x}$ and $\tilde{y}$ denote the level of care and frequency of the activity, respectively, that satisfies (21). Because there is a pre-commitment to legal services, a_1 becomes a choice variable in the stage one game. Let the amount of legal services that satisfies (21) be denoted as $\tilde{a}_1$. Since the solution to (21) in stage one will determine the optimal settlement in stage two, there are two possible outcomes. First, if, at $a_1 = \tilde{a}_1$, $\tilde{S}(x) > 0$ then $\tilde{S}(x)$ will be the Nash equilibrium settlement in the stage two game. Otherwise, if $\tilde{S}(x) \leq 0$, then a_1 will be chosen such that $\tilde{S}(x) = 0$. Let a_{Limit} denote the level of legal services drives (20) to zero. In this case, the pre-commitment to legal services will effectively deter lawsuits. This result is illustrated in figure 5.

Consider the case when $\tilde{S}(x) > 0$. When $\tilde{S}(x) < S^*(x) < L$, this implies that $\tilde{y} > y^S > y^L$ and that $\tilde{x} < x^S$. Further, like the results in (18), it is ambiguous as to whether $\tilde{x}$ is less than x^L. Figure 6 illustrates the stage one equilibrium frequency and care associated with the activity when there is a pre-commitment to legal services. The bottom graph illustrates the case where the level of care under settlement is less than the social optimum (x^L).

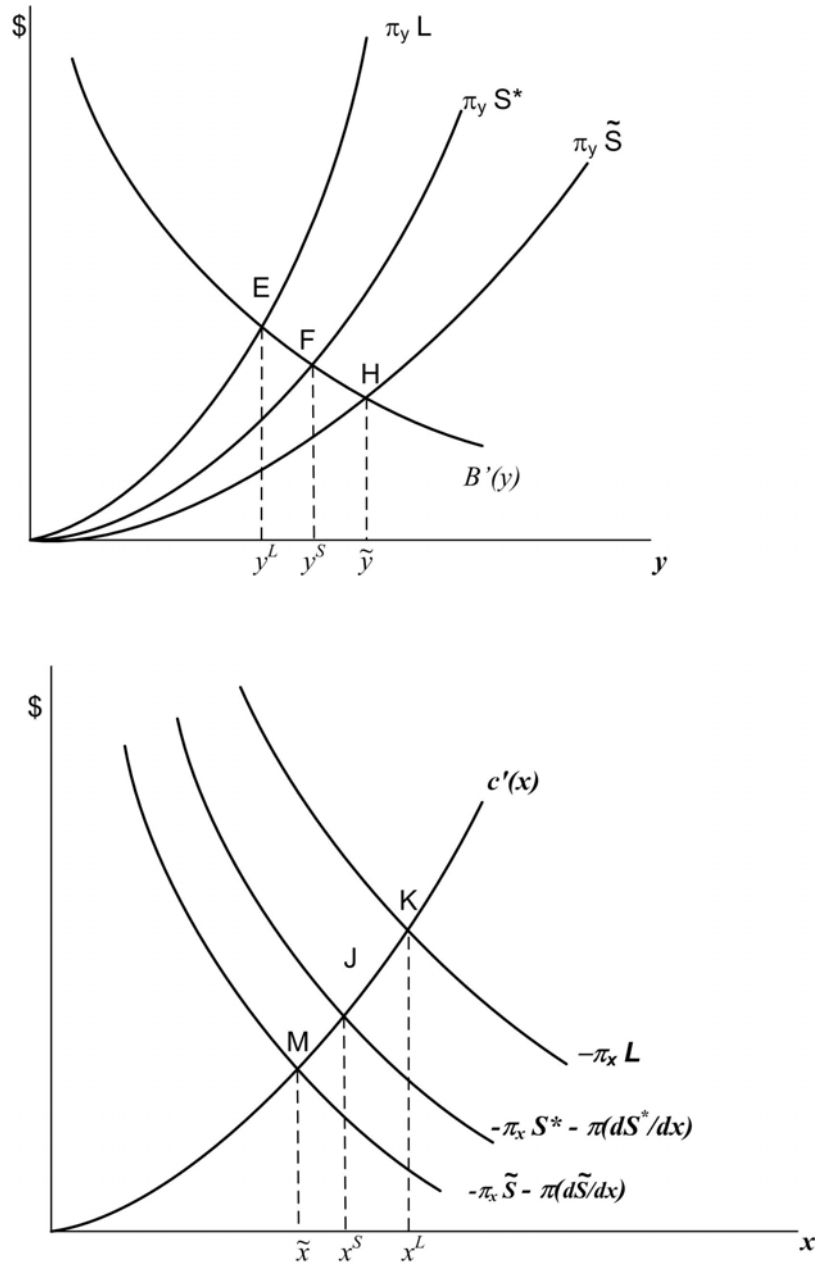

FIG. 6. Privately optimal care and frequency when injurer pre-commits to legal services.

CONCLUSION

In the economic analysis of the legal system, the role of lawyers has tended to fall into two categories. The first is that of information broker. In models of asymmetric information, the lawyer supplies information to the client about the probability of a particular outcome in the event of a trial. The additional information is then incorporated into decisions regarding the size of the settlement or to proceed to trial.

In the second, the lawyer is simply part of the overall cost of using the court system. In either case, the probability of success at trial is usually exogenous. Further, the cost of using the legal system is treated as an exogenous variable that determines a boundary condition within a benefit-cost analysis governing the decision to proceed with a suit.

The main premise of this paper is that the actions of lawyers do influence the outcome of a trial; that a greater investment in legal services will increase the probability of a favourable outcome to the party making the investment. Under this assumption expenditures on legal services becomes a strategic choice variable; both with respect to the amount and to whether it is an ex-ante or ex-post expenditure.

This produces some interesting results. First, with respect to the frequency of the activity that could cause harm, the model's finding match those of Shavell and others. The presence of a costly legal system causes the private and social optimum to diverge, with the amount of the activity being too high relative to the social optimum. This result holds both in the case where legal fees are paid ex-post or there is a pre-commitment in legal services.

When analyzing the level of care, however, the results do differ from that of Shavell and others. In both cases, where legal fees are incurred expost or pre-committed, it is ambiguous as to whether the level of care will be less than the social optimum, If damages (D) in the suit are equal to the true loss (L), the expected settlement

cost used by the injurer in determining the level of care will be less than the actual loss incurred by the victim. Intuitively, this would suggest that care would be set lower than the optimal. However, if the choice of care leads to a reduction in both the size of the settlement and the injurer's legal costs, there would be an additional incentive for the injurer to take additional care. Therefore it is possible that the level of care may not be less than that which would be socially optimal. Depending on the productivity and cost structure of legal services, it is possible for the level of care in this case to be greater than the social optimum.

This result would be sensitive to how the courts apply the *Learned Hand* rule or to type of liability rule adopted by the courts. If, in the case of multiple defendants, the courts favoured a *relative liablity* approach, then we would expect the dS/dx term in equations 18 and 21 to be larger. Additionally, if the defendant viewed the courts as having a propensity to favour the plaintiffs, one would also expect additional care to be taken. More would need to be said about the properties of the $P(x)$ function than has been developed in this paper.

Finally, it is unambiguous that strategic pre-commitment will lead to lower settlements and, in some cases, effectively deter lawsuits in the event of accidents. One testable implication of this strategy is the ever rising allocation of resources to legal services on the part of firms and organizations. This also implies a possible welfare gain to the use of punitive damages. There is also the possibility that the adoption of the *British system* of assigning court costs, or some other restriction on the manner by which lawyers are compensated, could lead to a welfare gain. Recent experiments in alternative dispute resolution by certain jurisdictions may imply that this is the case.

REFERENCES

- Bebchuk, L. "Litigation and Settlement under Imperfect Information", RAND Journal of Economics, Vol. 15, No.2 (1984), pp. 404-415.
- Calabresi, G. "The Costs of Accidents: A Legal and Economic Analysis" (1970)
- Calabresi, G., and Hirschoff, J., "Toward a Test for Strict Liability in Torts", 81 Yale Law Journal 1055 (1972);
- Coase, R. H. "The Problem of Social Cost", 3 Journal of Law and Economics 1 (1960)
- Demsetz, H., "When Does the Rule of Liability Matter?", 1 Journal of Legal Studies 13 (1972)
- Gould, J. "The Economics of Legal Conflicts" Journal of Legal Studies, Vol. 2, (1973), pp.279-300
- Kaplow, Louis, "Private versus Social Costs in Bringing Suit", 15 *Journal of Legal Studies* Vol. 15, No. 2 (Jun., 1986), pp. 371-385
- Landes, W. "An Economic Analysis of the Courts" Journal of Law and Economics, Vol. 14 (1971), pp. 61-107.
- Menell, Peter S., Menell, Peter S., "A Note on Private versus Social Incentives to Bring Suit ina Costly Legal System", *Journal of Legal Studies* vol 12, No. 1 (Jan 1983) 41-52
- Nalebuff, B. "Credible Pretrial Negotiation", RAND Journal of Economics, Vol. 18, No.2 (1987), pp. 198-210.

- Osbonne, E. "Who Should Be Worried About Asymmetric Information in Litigation", International Review of Law and Economics, Vol. 19 iss.3 (1999), pp. 399-409.

- P'ng, I. "Strategic Behavior in Suit, Settlement, and Trial" Bell Journal of Economics, Vol. 14, No.2 (1983), pp. 539-550.

- Posner, R. **Economic Analysis of Law** Wolters Kluwer Law & Business; 7th edition (February 7, 2007)

- Posner, R., "A Theory of Negligence", 1 Journal of Legal Studies 29 (1972)

- Posner, R. "An Economic Approach to Legal Procedure and Judicial Administration" Journal of Legal Studies, Vol. 2, (1973), pp.399-458.

- Prather Brown, J. Toward an Economic Theory of Liability, 323 Journal of Legal Studies (1973).

- Priest, G. and Klein, B. "The Selection of Disputes for Litigation" Journal of Legal Studies, Vol. 13, (1984), pp.1-55.

- Reingannum, J. and Wilde, L. "Settlement, Litigation, and the allocation of Litigation Costs' RAND Journal of Economics, Vol. 17, No.4 (1986), pp. 557-566.

- Rose-Ackerman, Susan, and Geistfeld, Mark, "The Divergence Between Social and Private Incentives to Sue: A Comment on Shavell, Menell, and Kaplow", 16 *Journal of Legal Studies* 483 (1987)

- Shavell, S., "Strict Liability Versus Negligence" 1 Journal of Legal Studies (1980)

- Shavell, S. "Suit, Settlement and Trial: A theoretical Analysis under Alternative Methods for the Allocation of Legal Costs" Journal of Legal Studies, Vol. 11, (1982), pp.55-81

- Shavell, S. "The Social Versus the Private Incentive to Bring Suit in a Costly Legal System" Journal of Legal Studies, Vol. 9, (1982), pp.333-339

- Shavell, S. "Any Frequency of Plaintiff Victory is Possible", Journal of Legal Studies, Vol. 25, (1996), pp. 493-501.