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Abstract

This paper re-examines the social versus private value of lawsuits when both injurers and victims can take care. The basic conclusions of that literature remain valid in this context: the private and social values generally differ, and there is no necessary relationship between them, meaning that there may be either too many or too few suits. Introducing the possibility of victim care does, however, alter the calculation of the deterrent effect of lawsuits. In particular, because allowing suits tends to reduce the incentives for victims to invest in precaution, the social value of prohibiting suits increases in direct relation to the productivity of victim care in lowering accident risk.

Journal of Economic Literature Classification: K13, K40, K41

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1. Introduction

In the economic theory of tort law, the social value of lawsuits lies in their ability to give potential injurers an incentive to invest in cost-effective accident avoidance.[1] Unlike regulations, however, lawsuits can only perform this function if victims are willing to incur the cost of filing suit. In this respect, models in which litigation is assumed to be costless miss an important aspect of the legal process.

Shavell (1982) was the first to examine the relationship between the social and private values of lawsuits in a costly legal system. He concluded that there is no necessary connection between the two. That is, in some cases lawsuits will be privately valuable but not socially valuable, while in other cases the reverse will be true. As a result, there may be either too much or too little litigation from a social perspective. Subsequent literature has extended the analysis to consider different liability rules, the impact of settlement, and different remedies to correct the misalignment between the private and social value of suits.[2] All of these models, however, focus on accidents in which only the injurer can take care, thus ignoring the effect that suits might have on incentives for victim care. In particular, because victims will only file suit if they expect to receive compensation for their damages, the promise of compensation will dilute their incentives to undertake precaution based on the usual moral hazard problem.[3] The overall deterrent effect of suits is thereby reduced. The purpose of this note is to extend

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[1] See Brown (1973), Landes and Posner (1987), and Shavell (1987).

[2] See, for example, Menell (1983), Kaplow (1986), Rose-Ackerman and Geistfeld (1987), Polinsky and Che (1991), and Shavell (1997, 1999).

[3] It does not, however, entirely eliminate their incentive to take care to the extent that they have uncompensated losses.

the existing literature on the social versus private value of suits to examine this effect in detail.

The paper first develops the basic model assuming that liability is strict. It then extends the analysis to negligence, and concludes by considering the effect of a change to the British rule for allocating legal costs.

2. The Basic Model

Consider a bilateral care accident model in which an injurer (defendant) and victim (plaintiff) can both invest in care to reduce the probability of an accident. Specifically, let x be the defendant's expenditure on care, let y be the plaintiff's expenditure on care, and let $p(x,y)$ be the probability of an accident, where $p_x<0$, $p_y<0$, $p_{xx}>0$, $p_{yy}>0$. In the event of an accident, the plaintiff incurs a financial loss of L, which is a random variable drawn from the distribution function $F(L)$. At the time of the accident, the plaintiff observes her loss, but the injurer does not, though he knows the distribution. Finally, let the cost of trial be c_d for the defendant and c_p for the plaintiff.

We begin by defining two notions of efficiency in this context. First, when litigation costs are zero, the efficient levels of injurer and victim care are those that minimize expected accident costs:

$$x + y + p(x,y)E(L), \quad (1)$$

where $E(L)$ is the victim's expected loss. The relevant first order conditions are

$$1 + p_xE(L) = 0 \quad (2.1)$$

$$1 + p_yE(L) = 0. \quad (2.2)$$

Condition (2.1) defines the function $x^*(y)$ while condition (2.2) defines the function $y^*(x)$. These represent the efficient care levels for each party, given the care choice of the other. Jointly, they determine the zero-litigation-cost, or first-best, optimum (x^*,y^*).

The second notion of efficiency takes account of litigation costs. It therefore depends on the filing decision of victims. To this end, we need to examine the private value of lawsuits to plaintiffs, assuming for now that the liability rule is strict liability. The *private value* of lawsuits is based solely on the value of a suit to the plaintiff compared to the cost of a suit. Thus, once an accident occurs, plaintiffs with $L \geq c_p$ will file suit, while those with $L < c_p$ will not. The probability of a lawsuit, conditional on an accident having occurred, is therefore $1 - F(c_p)$.

Given the foregoing, overall social costs conditional on an accident are

$$S = E(L) + (1 - F(c_p))(c_p + c_d). \quad (2)$$

Efficient injurer and victim care in the presence of litigation costs therefore minimize

$$x + y + p(x,y)S. \quad (3)$$

The resulting first order conditions are

$$1 + p_x S = 0 \quad (4.1)$$

$$1 + p_y S = 0. \quad (4.2)$$

As above, these define the functions $\tilde{x}(y)$ and $\tilde{y}(x)$, respectively, and jointly, they determine the second-best optimal care levels $(\tilde{x}, \tilde{y})$. Note that because $S > E(L)$, $\tilde{x} > x^*$ and $\tilde{y} > y^*$. Thus, the efficient care levels are higher due to the cost of litigation.

2.1. The Social Value of Lawsuits

The *social value* of lawsuits in the current model is based on their ability to induce injurers *and* victims to take care to avoid accidents. As noted, while lawsuits encourage injurers to take care, they may have the offsetting effect of discouraging victim care.

With this in mind, consider first the care choice of the injurer. Given the filing decision of plaintiffs as described above, the injurer computes his expected costs (liability plus trial costs) conditional on an accident to be

$$A = [1-F(c_p)]E[L+c_d \mid L \geq c_p]$$

$$= \int_{c_p}^{\infty} (L + c_d) dF(L) . \tag{5}$$

The injurer therefore chooses care to minimize

$$x + p(x,y)A, \tag{6}$$

taking the victim's care level as given. The resulting first order condition is

$$1 + p_x A = 0, \tag{7}$$

which defines the injurer's reaction function, $\hat{x}(y)$.

Now consider the victim's choice of care. In contrast to the bilateral care model without litigation costs, victims will invest in some care under strict liability because they have some uncompensated losses. In particular, victims who do not file will bear their full damages, while those who do file will bear their own trial costs. Thus, at the time a potential victim makes her care choice (i.e., before she knows her actual loss), her expected costs conditional on an accident are

$$B = [1-F(c_p)]c_p + F(c_p)E(L \mid L<c_p]$$

$$= [1-F(c_p)]c_p + \int_{0}^{c_p} L dF(L) . \tag{8}$$

The victim thus chooses care to minimize

$$y + p(x,y)B, \tag{9}$$

taking the injurer's care as given. The resulting first order condition is

$$1 + p_y B = 0, \tag{10}$$

which defines the victim's reaction function, $\hat{y}(x)$. The intersection of the reaction functions for the injurer and victim determines the Nash equilibrium, ($\hat{x}, \hat{y}$).

To evaluate this equilibrium, observe from (2), (5), and (8) that $S=A+B$. Thus, litigation costs result in a strict division of social costs between the injurer and victim under strict liability. It follows that $\hat{x} < \tilde{x}$ and $\hat{y} < \tilde{y}$; that is, both parties are underdeterred relative to the second-best optimum. Social costs in this case are given by

$$SC_S = \hat{x} + \hat{y} + p(\hat{x}, \hat{y})S\,. \tag{11}$$

Consider now the care choices of injurers and victims when lawsuits are prohibited (or, equivalently, when the rule is no liability). Note first that injurers will take no care because they face no threat of liability. Thus, as is the case in the unilateral care model, x=0. In contrast, victims will take care because their losses are uncompensated. Specifically, a potential victim will choose y to minimize

$$y + p(0,y)E(L). \tag{12}$$

Note that the solution to this problem, $y^*(0)$, is the victim's first-best care, given x=0. The resulting expression for social costs is

$$SC_N = y^*(0) + p(0, y^*(0))E(L)\,, \tag{13}$$

which is actually the minimized value of social costs, subject to x=0.

The social desirability of suits can now be determined by comparing (11) and (13). Suits are desirable if SC_S<SC_N, or, after rearranging, if

$$p(\hat{x}, \hat{y})\,[1-F(c_p)](c_p+c_d) < [y^*(0) + p(0, y^*(0))E(L)] - [\hat{x} + \hat{y} + p(\hat{x}, \hat{y})E(L)]\,. \tag{14}$$

The left-hand side of this condition represents the expected litigation costs of allowing lawsuits, while the right-hand side is the deterrence benefits of lawsuits. Note that while the left-hand side is clearly positive, the right-hand side may be positive or negative, depending on the relative productivity of care by injurers and victims. In other words, prohibiting suits may actually lower social costs because of the incentives this creates for victims to invest in care. This is the chief difference between the current model and the unilateral care case.

2.2. A Numerical Example

A numerical example illustrates the above analysis. Let the probability of an accident have the separable form

$$p(x,y) = \alpha e^{-x} + \beta e^{-y}, \tag{15}$$

where $\alpha+\beta=\bar{\gamma}$. This function has the property that injurer and victim care are independent, which greatly simplifies the calculations without sacrificing the basic elements of the model. Also let L be uniformly distributed on [0, \$1,000], implying that $E(L)$=\$500, let $c_p=c_d$=\$100, and let $\bar{\gamma}=.1$. For the first example, we take $\alpha=\beta=.05$. Then, from (5), A=\$585, and from (8), B=\$95. It follows that, under strict liability, $\hat{x}=3.376$ and $\hat{y}=1.558$, while under no liability, $x=0$ and $y^*=3.219$. Using these results, we find that the left-hand side of (14) is 2.196, while the right-hand side is 18.185. Thus, the deterrent benefits of lawsuits greatly outweigh the expected litigation costs, making suits socially valuable.

As a counterexample, let $\alpha=.01$ and $\beta=.09$. Thus, the importance of injurer care is substantially reduced relative to victim care. All other variables remain the same. In this example, $\hat{x}=1.766$, $\hat{y}=2.146$, and $y^*=3.807$. While the left-hand side of (14) remains about the same, at 2.196, the right-hand side is now $-.205$, implying that switching to a rule of no liability actually *increases* deterrence. Obviously, therefore, suits are not socially valuable in this case. Finally, note that the private value of a suit is the same in both examples. Specifically, victims with L>\$100 (or 90% of victims) file suit in the event of an accident.

3. Negligence

Under a negligence rule, a victim will file suit if his or her accident loss exceeds the filing cost, *and* if the injurer failed to meet the due standard of care, denoted z. Injurers therefore avoid liability and litigation costs by meeting the due standard, but if they fail to meet the standard, they are strictly liable. Thus, the injurer's problem is to choose x to minimize

$$\begin{array}{ll} x, & x \geq z \\ x+p(x,y)A, & x<z, \end{array} \qquad (16)$$

where A is defined by (5). The injurer therefore either meets the due care standard (i.e., sets x=z), or chooses $\hat{x}(y)$, the level of care that minimizes the second line of (16), depending on which yields lower costs. Obviously, the due standard, z, is crucial for this choice.

Note first that in the model without litigation costs, if the due standard is set at x^*, the injurer's first-best level of care, then the efficient outcome is the unique Nash equilibrium (Shavell, 1987, p. 40). That is, the injurer chooses x^* to avoid liability, and the victim chooses y^* to minimize her expected costs. We now show that this outcome may also be an equilibrium when litigation is costly, but it is not necessarily a unique equilibrium.

To begin, let $z=x^*$, and suppose that $y=y^*(x^*)=y^*$. The injurer's best-response is to choose x^* if

$$x^* \leq \hat{x}(y^*) + p(\hat{x}(y^*), y^*)A. \tag{15}$$

In this case, the injurer avoids liability, leaving the victim to bear her own costs. She will therefore choose $y^*(x^*)=y^*$ and will not file suit. This establishes that (x^*,y^*) is a Nash equilibrium when (15) holds.

To see that this equilibrium need not be unique, suppose $y=\hat{y}(\hat{x})$ and that

$$x^* > \hat{x} + p(\hat{x}, \hat{y}(\hat{x}))A. \tag{16}$$

When this condition holds, the injurer's optimal strategy is to violate the due standard and choose care of $\hat{x} = \hat{x}(\hat{y})$, as he would under strict liability, while the victim's best response is to choose $\hat{y} = \hat{y}(\hat{x})$ and file suit if and only if $L \geq c_p$. In this case, $(\hat{x}, \hat{y})$ is also a Nash equilibrium. The reason such an equilibrium may exist here is that A does not generally equal $E(L)$; A may be smaller than $E(L)$ because A does not include the losses of those victims who do not file suit, and A may be larger than $E(L)$ because it includes the injurer's litigation costs. Thus, if $E(L)$ if is larger than A, in which case x^* is larger than $\hat{x}$, it is possible that (16) will hold. When it does, the outcome is identical to that under strict liability.

4. The British Rule for Allocating Legal Costs

When the British rule for allocating legal costs is relevant, the injurer will bear the victim's trial costs under strict liability because the victim will win with certainty, provided that she sustained damages. Thus, all victims with $L>0$ will file suit. The injurer therefore chooses x to minimize

$$x + p(x,y)[E(L) + c_p + c_d]. \tag{17}$$

Note that the resulting level of injurer care, denoted $x^B(y)$, coincides with socially optimal care in this case, given y and the fact that all victims file suit. (Thus, $x^B(y)$ is larger than $\tilde{x}(y)$ for any y because of the greater number of suits here.) Victims, in contrast, bear no residual costs so they choose zero care. The resulting equilibrium is $(x^B(0), 0)$. Note that this outcome differs from that under the American rule above, where the losses were divided between the injurer and victim, thus inducing both parties to take some care (though each took less than the efficient level).

When suits are prohibited, the equilibrium is the same as under the American rule; that is, injurers choose no care and victims choose first-best care, $y^*(0)$, given $x=0$. Suits are valuable in this case if

$$p(x^B(0),0)(c_p+c_d) < [y^*(0) + p(0, y^*(0))E(L)] - [x^B(0) + p(x^B(0),0)E(L)], \tag{18}$$

which has the same interpretation as (14). The difference here is that only one party takes care under the different regimes, and that level is efficient, given the behavior of the other party. In this sense, the right-hand side of (18) is a least-cost-avoider comparison.

5. Conclusion

This paper has re-examined the social versus private value of lawsuits when both injurers and victims can take care. The basic conclusions of that literature remain valid in this context—namely, that the private and social values will generally differ, and that there is no necessary relationship between them, meaning that there may be either too many or too few suits. Introducing the possibility of victim care does, however, alter the calculation of the deterrent effect of lawsuits. In particular, because allowing suits tends to reduce the incentives for victims to invest in precaution due to the usual moral hazard problem, the social value of prohibiting suits increases in direct relation to the productivity of victim care in lowering accident risk.

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