Chapter 9
The Economics of Legal Procedure

The Asymmetric Information Model of Trial and Settlement

Let

P = probability of plaintiff victory at trial;
J = judgment if plaintiff wins;
C_p, C_d = cost of trial for plaintiff and defendant;
S = settlement amount.

Suppose that plaintiffs have private information about their probability of victory at trial, P, but defendants know that P is distributed by $F(P)$ on [0,1], where $F' \equiv f(P)$ is the density function. The litigation process proceeds as follows. First, the plaintiff files a lawsuit (at no cost), and then the defendant makes a take-it-or-leave-it settlement offer S. (Since the defendant cannot observe the plaintiff's type, he makes a single offer.) If the plaintiff accepts, the process ends; if the plaintiff refuses, the parties go to trial, where the plaintiff's expected payoff is $PJ–C_p$, and the defendant's expected cost is $PJ+C_d$.

Proceeding in reverse sequence, we first consider the plaintiff's decision to settle or go to trial. If $S \geq PJ–C_p$ she settles, whereas if $S < PJ–C_p$ she goes to trial. Thus, in terms of the overall population of plaintiffs, those with $P \leq (S+C_p)/J$ settle while those with $P > (S+C_p)/J$ go to trial. This makes sense since we would expect plaintiffs with stronger cases (high P's) to be the ones that opt for trial.

Now consider the defendant's choice of a settlement offer S. Although he doesn't know the strategy that any individual plaintiff will adopt, he can calculate the probabilities that a plaintiff will settle or go to trial as a function of S. Specifically, the probability that a given plaintiff will settle is $F[(S+C_p)/J]$, whereas the probability that she will go to trial is $1–F[(S+C_p)/J]$. Note that the probability of settlement (trial) is increasing (decreasing) in S, as we would expect.

We can now write down the defendant's expected cost as

$$F[(S+C_p)/J]S + \{1–F[(S+C_p)/J]\}E[PJ+C_d \mid P>(S+C_p)/J]$$

$$= F[(S+C_p)/J]S + \int_{(S+C_p)/J}^{1}(PJ + C_d)dF(P) \qquad (9.1)$$

The first term is the defendant's cost if he settles, while the second term is his cost if he goes to trial. The defendant chooses S to minimize this expression. Taking the derivative with respect to S and canceling terms yields the first-order condition

$$F[(S+C_p)/J] – f[(S+C_p)/J][(C_p+C_d)/J] = 0. \qquad (9.2)$$

The second-order condition requires

$$f - f'(C_p+C_d)/J > 0. \tag{9.3}$$

As an example, consider the case where P is distributed uniformly on [0,1]. In this case, $F[(S+C_p)/J] = (S+C_p)/J$ and $f \equiv 1$. Substituting these values into (9.2) and solving yields

$$S^* = C_d. \tag{9.4}$$

It follows that the equilibrium probability of a trial is

$$1- F[(S^*+C_p)/J] = 1- (C_d+C_p)/J, \tag{8.5}$$

which implies that a trial is more likely as litigation costs decrease and as the stakes of the case increase. Thus, the predictions of the model are identical to those from the optimism model.

The Social versus Private Incentive to Sue

This section analyzes the social versus private value of lawsuits when injurers can make a continuous choice of injurer care and plaintiffs vary in their losses in the event of an accident. In particular, let

x = expenditure on care by the injurer (defendant);
$p(x)$ = probability of an accident $p'<0$, $p''>0$;
c_p = cost of a trial to the victim (plaintiff);
c_d = cost of a trial to the injurer.

Also suppose that if an accident occurs, the victim suffers a loss of L dollars that is observable to the victim at the time of the accident but not to the injurer. The injurer, however, knows the distribution function of L conditional on an accident, which is given by $F(L)$. If the victim sues, the injurer is assumed to be strictly liable for L, but both parties bear their own trial costs.

Once an accident occurs, the plaintiff files suit if her expected gain at trial, $L–c_p$, is positive. This represents the condition for a suit to be *privately valuable*. The resulting probability of a suit, conditional on an accident, is $1–F(c_p)$.

To examine the social value of suits, we need to examine the incentives they create for defendants to take care to avoid accidents. In the event of an accident, the defendant's expected costs, including liability and litigation costs, are given by

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

$$= \int_{c_p}^{\infty}(L + c_d)dF(L). \tag{9.6}$$

Given A, the defendant chooses care to minimize his expected accident plus litigation costs:

$$x + p(x)A. \tag{9.7}$$

The resulting first order condition

$$1 + p'(x)A = 0 \tag{9.8}$$

determines the injurer's optimal care, denoted $\hat{x}$. Note that $\hat{x}$ is decreasing in c_p (because higher trial costs for the plaintiff reduce the number of suits), but increasing in c_d (because higher trial costs for the defendant increase the overall cost of an accident).

The social desirability of lawsuits depends on how they affect social costs, including the plaintiff's damages plus joint litigation costs. Expected social costs conditional on an accident are given by

$$H = E(L) + (1–F(k+c_p))(k+c_p+c_d), \tag{9.9}$$

where $E(L)$ is the plaintiff's expected loss in the event of an accident. Comparing (9.9) and (9.6) shows that $A<H$; that is, defendants do not face the full social costs of an accident. This is true for two reasons: first, defendants ignore the damages suffered by victims who do not file suit, and second, they ignore the filing and trial costs of victims who do file. As a result, the threat of lawsuits *underdeters* injurers.

Given this underdeterrence, we now ask whether lawsuits are socially desirable. First, we compute expected social costs, evaluated at the defendant's privately optimal care choice. The resulting cost expression is

$$\hat{x} + p(\hat{x})H . \tag{9.10}$$

In contrast, if lawsuits are prohibited (or, equivalently, if the liability rule is switched to no liability), then injurers will take no care and no victims will file suit. Expected social costs in that case are

$$p(0)E(L). \tag{9.11}$$

Lawsuits are *socially valuable* if (9.10) is less than (9.11), or, using the definition of H, if

$$p(\hat{x})\left[1 - F\left(k + c_p\right)\right](k + c_p + c_d) < p(0)E(L) - [\hat{x} + p(\hat{x})E(L)] \tag{9.12}$$

The left-hand side of this condition represents the expected litigation costs of allowing lawsuits, while the right-hand side represents the deterrence benefits of lawsuits. Generally, this condition may or may not hold, implying that lawsuits may or may not be socially desirable. The trade-off is as follows: while the threat of suits is necessary to induce injurers to take care under a strict liability rule, the cost of using the legal system may outweigh the resulting deterrence benefits.

Further, there is no necessary relationship between the private and social value of lawsuits. As noted, the private value of a suit is solely determined by comparing an individual plaintiff's loss to her cost of bringing suit. Thus, when plaintiffs vary in their individual losses, some will find a suit privately valuable and others will not, regardless of the social value of suits. In contrast, the social value of lawsuits is based on aggregate costs across all plaintiffs since that is what determines the expected costs faced by injurers at the time they make their care choices.

A Simple Model of the Evolution of the Law

Suppose that initially there exist two legal rules: A and B. Let θ_0 be the proportion of *A* and $1–\theta_0$ of B. (These could reflect the proportions of jurisdictions governed by A and B.) Now suppose that over some fixed time period litigation occurs. Let

p_A = probability that rule A is litigated
p_B = probability that rule B is litigated

In the event of litigation, a judge can either *uphold* the prevailing rule, or *overturn* it. Assume that in the event that he or she overturns it, it is replaced by the other rule (i.e., no new rules are created). The judge's decision will depend on two factors: his or her *bias* (if any), and the *strength of precedent.* To capture these factors, let

δ = fraction of pro-A judges
$1–\delta$ = fraction of pro-B judges

And let

β = probability that a judge who is biased against a rule upholds it anyway (i.e., follows a precedent that he or she disagrees with)
$1–\beta$ = probability that a judge who is biased against a rule overturns it (i.e., is "activist")

Putting all of this together, we can compute the proportions of the two rules after the fixed period of litigation. Letting θ_1 be the new proportion of rule A, we have

$$\theta_1 = \theta_0[(1–p_A)+p_A(1–\delta)\beta+p_A\delta] + (1–\theta_0)p_B\delta(1–\beta) \quad (9.13)$$

The terms in this expression reflect, respectively, situations where rule A is not litigated, where rule A is litigated and upheld by a pro-B judge who follows precedent, where rule A is litigated and upheld by a pro-A judge, and where rule B is litigated and overturned by an activist pro-A judge.

In a steady-state equilibrium, $\theta_1=\theta_0=\theta$. It follows from (9.13) that

$$\theta = \frac{p_B\delta}{p_B\delta + p_A(1-\delta)} \tag{9.14}$$

Implications:

(i) θ is independent of β. Thus, the strength of precedent only affects the *rate* of legal change, not its *direction*. (This assumes that $\beta<1$; if $\beta=1$, the law never changes.)

(ii) If $\delta=1$, $\theta=1$, and if $\delta=0$, $\theta=0$. Thus, if all judges have a bias toward a particular rule, the law will eventually converge to that rule.

(iii) If $\delta=½$,

$$\theta = \frac{p_B}{p_B + p_A} \tag{9.15}$$

Thus, if judges are unbiased, the distribution of rules will reflect the relative probabilities of litigation. (9.15) is referred to as the "selection ratio."

(iv) The question about the efficiency of the law depends on which of the rules, A or B, is efficient. The "Priest-Klein" hypothesis is that the more efficient rule is litigated *less* often. Thus, let us say that A is the efficient rule and hence that $p_A<p_B$. This implies that $\theta>½$. In other words, the efficient rule will eventually come to dominate the population of legal rules (absent strong judicial bias against it, or unbreakable decision by precedent), but it will never *completely* prevail as long as $p_A>0$.