7 Topics in the Economics of Tort Liability

THE PRECEDING CHAPTER introduced the fundamental concepts of tort law and developed an economic analysis of tort liability. In this chapter we wish to advance the understanding of the economic analysis of the tort liability system in two ways. First, we relax some simplifying assumptions in order to bring the model closer to reality. Second, we shall examine some arguments that the tort liability system does not work well and needs thorough reform. In the course of this examination, we shall look at some recent evidence on how well the tort system minimizes the social costs of accidents.

I. Extending the Economic Model

The model that we introduced in the last chapter made some implicit simplifying assumptions. The grand tradition in economics would have us assert our intention to relax these simplifications but then forget to do so. But we aspire to do better. We turn immediately to the task of exploring the conclusions of our simple model when we relax our simplifying assumptions.

A. Relaxing the Core Assumptions

In the previous chapter we implicitly made five simplifying assumptions before we developed our economic analysis of tort law:

1. Decision makers are rationally self-interested.
2. There are no regulations designed to reduce external costs.
3. There is no insurance.
4. All injurers are solvent and pay damages in full.
5. Litigation costs are zero.

The purpose of this section is to relax these assumptions and to see the effect, if any, on the conclusions from the economic theory of tort liability.

1. Rationality One of the central assumptions in economic theory is that decision makers are rationally self-interested. As a technical matter, this means (as we saw in our review of microeconomics in Chapter 2) that decision makers have stable, well-ordered preferences,[1] which implies something about the decision maker's cognitive

[1] Recall that such preferences are stable in the sense that they do not change too rapidly or quixotically and that they are well ordered in the sense that they are transitive, which means that if *A* is preferred to *B* and *B* is preferred to *C*, then *A* must be preferred to *C*.

and reasoning abilities. Specifically, it suggests that decision makers can calculate the costs and benefits of the alternatives available to them and that they choose to follow the alternative that offers the greatest net benefit.

There is a vital connection between the assumption of rationality and the economic model of tort liability in Chapter 6. We saw that the rules for assigning tort liability are, economically speaking, designed to send signals to potential victims and potential injurers about how they ought to behave. For the tort liability system to have this effect, it must be the case that those whose behavior the law is seeking to affect are rational: If they do not behave in the manner predicted by the assumption of rational self-interest, then we may need to amend the tort liability system in light of how people actually behave.

But do people really make decisions about potential liability in this way? Some people do, and others do not. Recent academic literature suggests that many decision makers commit predictable errors in making calculations of the sort that tort liability encourages them to make. For instance, Kahneman and Tversky report two disturbing conclusions.[2] First, they find that *most* people simply cannot accurately estimate low-probability events; they seem to deal with them by assuming that "low probability" means that the event will never happen—that the probability of the event's happening is zero. Second, they find that, for some well-publicized, potentially catastrophic outcomes—such as accidents from nuclear power plants—*most* people systematically exaggerate the probability of an accident's occurring, regardless of objective information to the contrary.

These opposite errors—underestimating most low-probability events and overestimating some low-probability events—apparently have a common cause: the frequency and vividness with which people are reminded of these risks. Infrequent and dull reminders of risk cause people to underestimate them, whereas frequent and vivid reminders cause people to overestimate them. Most low-probability events are seldom discussed or portrayed in the media; so, people tend to act as if their probability is close to zero, whereas potentially catastrophic events such as nuclear risks are much discussed and portrayed in the media, so people tend to overestimate their probability.[3]

These findings have implications for the economic model of tort liability. If many people do not accurately estimate risks, then they cannot make the appropriate calculations of net benefits and costs that the economic theory assumes that they make. Using the symbols of the previous chapters, some people may inaccurately set $p(x)$ equal to 0 for low-probability events and, therefore, take no precaution, when, in fact,

---

[2] See generally DANIEL KAHNEMAN & AMOS TVERSKY, EDS., JUDGMENT UNDER UNCERTAINTY: BIASES AND HEURISTICS (1981). For behavioral insights applied to law, see Russell Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics,* 88 CAL. L. REV. 1051 (2000).

[3] A common example of this phenomenon arises from this question: "Which is more common—homicide or suicide?" Many people answer, "Homicide," largely because information about homicide is vivid and widely reported while that on suicide is typically not reported. In fact, suicide is approximately twice as common as homicide. The U.S. Centers for Disease Control and Prevention reports that in 2009 there were approximately 18,000 homicides in the United States and about 34,500 suicides.

that probability is positive, and they *should* take precaution. The inability of these decision makers to make accurate calculations may lead to too many or too severe accidents. In other cases, decision makers may *over*estimate $p(x)$—that is, they may think that an accident is far more likely than it, in fact, is—and may, therefore, take far too much precaution. As a result of these inabilities to calculate correctly, the tort liability system—to the extent that it presumes that people can and do calculate, may not induce people to take actions that minimize the social costs of accidents.

The economic theory of tort liability not only draws our attention to the importance of the rationality assumption in analyzing tort law, but it also suggests a corrective measure when that assumption is violated. Consider accidents involving power tools. One might suppose that precaution in such cases is bilateral: There is something that both the consumer and the producer can do to reduce the probability and severity of an accident. As a result, the economic theory would suggest that some form of the negligence rule should be used to induce efficient precaution by both consumers and producers. However, suppose that there is strong evidence that consumers do not accurately assess the risks associated with the use of power tools. They might presume that the tools are so safe that they need not take any particular care in how they are used. In short, consumers might mistakenly assume that the probability of an accident is zero and take very little precaution. That fact would make this a situation of *unilateral,* rather than *bilateral,* precaution: Only manufacturers could realistically be expected to take steps to reduce the probability and severity of an accident.[4] In these circumstances, manufacturers might be held liable for failing to design a product that would prevent foreseeable misuse by less than fully rational consumers.

Besides misperceived probabilities and other cognitive errors, many accidents result from tangled feet, quavering hands, distracted eyes, slips of the tongue, wandering minds, weak wills, emotional outbursts, misjudged distances, or miscalculated consequences. Described more abstractly, accidents result from clumsiness, inattention, misjudgment, misperception, or weakness of will. Occasional acts of this kind are called "lapses." Chapter 12 explains how lapses can cause crimes. Here we focus on lapses that cause unintended negligence, which in turn causes an accident. In these cases an actor aims for a given level of precaution and fails to achieve it. Negligence rules determine liability by comparing the legal standard to the injurer's actual level of care, not the injurer's intended level of care. So, actors are liable under a negligence rule for the harm caused by their lapses.

Here is an example.

> **Example 1:** *Unintended Negligence by a Motorist:* A motorist sets out on the long, straight drive from San Francisco to Los Angeles on Interstate 5. The road is uncongested, it is night, and the speed limit is 70 miles per hour. Under these conditions, a reasonable driver of a car with a mechanism to maintain constant speed ("cruise control") would set it at the speed limit of 70 miles per hour. The car, however, lacks such a mechanism. Not being a machine, the

[4] Note, further, that if the rationality assumption fails, then there is not a great deal to be said for a policy of better informing the parties about the objective values of the risks. They either discount or ignore that information.

driver cannot possibly go 70 all the time. The driver aims for 65. Occasional lapses in attention cause the driver to exceed or fall short of the intended speed of 65. Near the end of the trip, the driver has an accident while going 73 that he would have avoided if he had been going 70. Under a negligence rule, the motorist is liable for harm caused by the accident.

In this example, a safe driver is held liable for an accident that he caused by accidentally going too fast. Now consider the symmetrically opposite example.

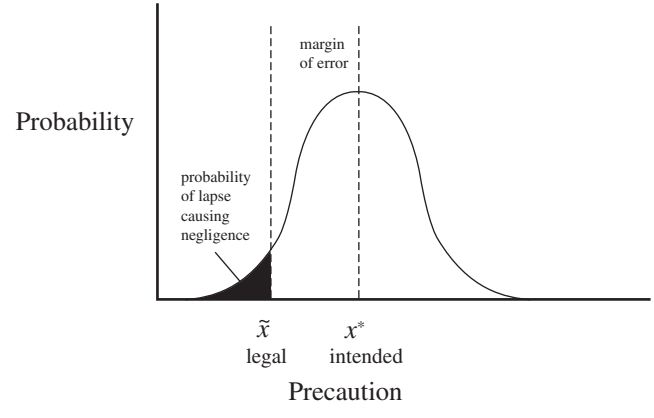
Example 2: *Intended Negligence by a Motorist:* The facts in the preceding example remain the same except that the driver aims for 75, so he intends to drive at an *un*reasonable speed. Occasional lapses in attention cause the driver to fall short of the intended speed of 75. Near the end of the trip, the driver has an accident while going 67. Under a negligence rule, the motorist is not liable for harm caused by the accident.

In this example, a dangerous driver is held *not* liable for an accident that occurred while he was accidentally going at a safe speed.

The first driver was intentionally nonnegligent most of the time and accidentally negligent part of the time. He had "bad moral luck": He accidentally went too fast at just the wrong time and caused an accident. The second driver, in contrast, was intentionally negligent most of the time and accidentally nonnegligent part of the time. He had "good moral luck" with respect to liability: He accidentally went too slow at just the right time and escaped liability.[5]

Allowing moral luck to determine liability may seem unfair to you. Fairness aside, reducing the role of moral luck in liability improves incentives and reduces inefficiencies. To see why, we construct a graph to represent the safe driver who had bad moral luck. The vertical axis in Figure 7.1 represents the probability of driving at a particular

FIGURE 7.1
Probability of a lapse causing negligent precaution.



[5] Because he could not have avoided this accident by driving 67, speeding was not the cause of this accident, so he should not be held liable even if he had been speeding. In practice, however, the court may be unsure of these facts, and it is likely to find him liable if he were going 75 when the accident occurred.

speed. The horizontal axis represents precaution, which corresponds to driving slowly in the preceding example. We model a lapse as a probabilistic connection between intended and actual precaution. The actor in Figure 7.1 intends to achieve precaution level x^*. The actual level of precaution x the actor achieves depends on his intention x^* plus a random variable ε, so $x = x^* + \varepsilon$. To provide for a margin of error, the actor intends to exceed the legal standard, so $x^* > \tilde{x}$. An actor lapses when actual precaution falls below intended precaution, or $x < x^*$. In Figure 7.1, the probability of a lapse resulting in negligence is the shaded area under the probability density function that lies below the legal standard.

In Figure 7.1, the actor gains a private advantage by exceeding the legal standard, but social efficiency requires the actor *not* to exceed the legal standard. We already explained this fact in the preceding chapter, which we restate briefly. Recall that precaution is socially optimal when the cost of taking a little more equals the social benefit of fewer accidents. If the legal standard is set at the social optimum, then exceeding the legal standard of precaution has more social costs than benefits. For the actor, however, private benefits increase significantly when his precaution reaches the legal standard because he escapes liability. So the actor takes excessive precaution. (Moral luck also has another bad incentive effect that we cannot discuss here.[6])

We have explained that allowing moral luck to affect liability seems unfair and distorts incentives for precaution. Replacing a rule of liability for accidents caused by negligence with a rule of liability for accidents caused by *intentional* negligence would reduce the role of moral luck in determining liability. Unfortunately, this remedy is usually worse than the problem. Compared to a rule of liability for objective negligence, a rule of liability for intentional negligence requires the plaintiff to prove much more before recovering damages. If the plaintiff had to prove intentional negligence in order to recover damages, the burden of proof would be crushing, and recoveries would seldom occur. Thus, the victims of automobile accidents could seldom recover if they had to prove that the speeding driver *intended* to speed. Practical problems of information cause courts to condition liability on objective negligence rather than intentional negligence. (Consider, however, that global positioning systems or some other technological advance may someday provide a complete record of a driver's speed on any journey, which would often allow a driver to prove that his speeding was merely an unintended lapse.)

These thoughts raise concerns about whether tort liability induces the appropriate precautionary action by potential injurers and victims. We shall tentatively maintain the rationality assumption but shall be ready to amend our conclusions about efficient tort rules when there is sound evidence that the appropriate decision makers are not behaving rationally.

QUESTION 7.1: Wearing seat belts and shoulder harnesses is an efficient means of minimizing the costs of automobile accidents. Assuming that the

---

[6] While people cannot choose whether to lapse, they can control the frequency and magnitude of lapses through concentration, preparation, conditioning, and training. Moral luck causes excessive investment in these activities by a rational actor. We relegate this fact to a footnote, however, because irrational people who invest too little in cultivating self-control pose a greater danger to society.

benefits of these passive restraints exceed their costs, but that not all drivers and passengers use seat belts, how might the rules of tort liability be changed so as to induce a greater number of people to wear seat belts and shoulder harnesses?

Web Note 7.1

We have previously mentioned the burgeoning literature in behavioral law and economics. Much of that literature relates to the examination of the economics of tort liability. See our website for much more on the connections between behavioral law and economics and tort law.

---

2. Regulations Fire regulations usually require a store to have a fire extinguisher. Inspectors will check from time to time to confirm that the store complies with the regulation. If it fails to comply, the regulators may impose a fine. Even if the store complies and a fire injures a customer, the store may be liable to that customer in a private cause of action. In this example, the store is subject to safety regulations and liability. In Chapter 6, the basic model assumed that injurers face liability but not regulations. The fact that injurers often face both liability and regulations poses the question, "Why have both safety regulation and liability?" If, in our example, liability law is adequate at inducing safety precaution, the store will presumably keep a fire extinguisher even without the regulation. And if the store complies with the regulation, perhaps the injured customer should seek compensation from his insurance company, not the store.

Comparing liability and regulation, sometimes one is more efficient than the other, and sometimes the two together are more efficient than either one by itself. A general theory of safety regulation and tort liability must distinguish these alternatives. Instead of attempting a comprehensive theory, we will sketch some determinants.[7]

Administrators have the power to order potential injurers to correct a hazard before an accident occurs, whereas courts have the power to order injurers to compensate victims after an accident occurs. Regulation is *ex ante* enforcement by administrators, and liability is *ex post* enforcement by victims. This difference determines many of the advantages and disadvantages of each.

Administrators and courts differ with respect to information. Administrators can often acquire technical knowledge needed to evaluate the safety of specialized industries, whereas courts of general jurisdiction have difficulty accumulating technical knowledge about specialized industries. In these circumstances, administrators may set standards better than courts, so the court may use a safety regulation as the standard of care for determining liability. By accepting safety regulations as defining the legal standard of care for tort liability, courts defer to administrators. If safety regulation and liability law impose the same standard of care, then potential injurers will conform to that standard in order to avoid both *ex ante* fines and *ex post* liability.

---

[7] See Steven Shavell, *Liability for Harm versus Regulation of Safety,* 13 J. LEGAL STUD. 357–374 (1984), and Charles Kolstad, Thomas Ulen, & Gary Johnson, *Ex Post Liability for Harm vs. Ex Ante Safety Regulation: Substitutes or Complements?*, 80 AM. ECON. REV. 888 (1990).

Sometimes, however, courts have better safety information than administrators do. For example, a trial may provide judges and juries with better information about the harm caused by an accident than administrators can predict. In addition, courts often have fewer political motives than administrators. Problems of information or motivation can cause a court to distrust the legal standard imposed by a safety regulation.

Courts may feel that the regulators set the standard too low in order to avoid liability for politically powerful businesses. In these circumstances, the standard of care imposed by the court for liability may exceed the safety regulation. If liability law imposes a higher standard than safety regulations, then most potential injurers will conform to the higher standard in order to avoid liability.

Alternatively, courts may feel that the regulators set the standard too high in order to reduce competition. For example, U.S. automobile manufacturers may seek high safety standards to increase compliance costs for foreign competitors. If safety regulations impose a higher standard than liability law, then most potential injurers will conform to the regulation in order to avoid fines.

Safety regulations provide a rich source of bribes for corrupt officials in many countries. Sometimes officials want tough regulations to guarantee that bribing an official is cheaper than conforming to the regulations. In countries where the administrators are more political and corrupt than judges, liability has a distinct advantage over regulation.

When tort liability exceeds an injurer's wealth, the injurer is bankrupt. Some risky activities attract undercapitalized firms that can escape liability through bankruptcy. Highly capitalized firms may avoid these same activities to avoid the risk of liability. In those industries where undercapitalized firms risk bankruptcy, safety regulations have an advantage over liability. By collecting fines before an accident occurs, officials can force an undercapitalized firm to comply with safety standards that it would violate if the only sanction were liability.

Finally, consider the administrative costs of regulations and liability. Sometimes accidents impose small harm on a large group of people. When the cost of trial for each victim exceeds his damages, making liability law work requires aggregating claims, as in a class action suit. Sometimes claims are easier to aggregate in an administrative proceeding than in a court trial. In general, safety regulations dominate liability as a remedy for accidents that impose small harm on a large group of people.

Web Note 7.2

The remarkable story of the attempts to regulate the harms from tobacco use and to hold the tobacco companies liable for those harms constitutes an instructive case study of the relationships between liability and regulation. See our website for a discussion of the tobacco cases and the settlement reached in the U.S. litigation.

---

3. Insurance How does the availability of insurance affect our analysis of tort liability? So far, our analysis of alternative tort rules and institutions has proceeded as if no one were insured. In reality, insurance is pervasive for accidents and tort liability.

Now we need to discuss how insurance interacts with tort liability and consider whether insurance advances or retards the goals of tort law, which we formulated as minimizing the sum of the costs of precaution, accidental harm, and administrative costs.

A person who faces the risk of accidental harm may buy insurance. When an accident occurs, a victim with insurance files an insurance claim for compensation with his insurance company. In addition to recovering from his insurance company, the victim may have a right in tort law to recover from the injurer. In principle, the accident victim could recover twice—once from the insurance company and once from the injurer. The insurance contract, however, usually transfers the victim's recovery rights to the insurance company by means of what is called "subrogation": The insurance company stands in place of the insured in the tort suit for the harm covered in the insurance claim. To illustrate, the accident may cause the victim to lose $100 in medical costs and $200 in pain. The victim may have health insurance to cover the medical costs and no insurance to cover pain. So, the victim will recover $100 from the insurance company and $200 from the injurer, and the insurance company will recover $100 from the injurer.

Besides insurance against accidental harm, many people buy insurance against liability. In the preceding example, the injurer is liable for $300. If the injurer has full liability insurance, the injurer's insurance company will pay the injurer's liability of $300 ($200 to the victim and $100 to the victim's insurance company).

In the preceding example, the victim's insurance is *in*complete (it covers medical costs but not pain), and the injurer's insurance is complete (it covers medical costs and pain). As insurance becomes more complete, we approach a situation where victims recover all of their compensation from insurance companies, injurers recover all of their liability from insurance companies, and the insurance companies resolve disputes among themselves. In effect, insurance is a private system of liability law that reallocates the costs of accidents according to contracts between insurer and insured. As this private system becomes more complete, injurers and victims deal directly with their insurance companies, not with each other. In these circumstances, people care more about insurance rates and terms of coverage, and they care less about the underlying law of accidents (except insofar as the latter affects the former).

Insurance companies set premiums, which provide revenues. They also process claims and pay them, which are costs of doing business. In perfectly competitive markets, companies earn zero profits. Applied to insurance markets, this proposition implies that the premiums equal the claims plus administration costs. Earlier we formulated the goal of tort law as minimizing the sum of the cost of the harm from accidents, the costs of avoiding accidents, and the costs of administration. *In a system of universal insurance and competitive insurance markets, the goal of tort law can be described as minimizing the total cost of insurance to policyholders.*

To illustrate this proposition, we contrast no liability and the rule of strict liability. With a rule of no liability, potential victims buy accident insurance, and potential injurers have little need for liability insurance. In contrast, with a rule of strict liability potential injurers need liability insurance, and potential victims have little need for insurance against those accidents for which the injurers are liable. So, a rule of no liability causes victims to buy relatively more insurance, and a rule of strict liability causes injurers to buy relatively more insurance.

Which rule is more efficient? This policy debate is important historically. In the nineteenth century, consumers injured by defective products seldom recovered in court, so consumers who wanted insurance had to buy it themselves.[8] In the twentieth century, the emergence of strict products liability in tort law effectively caused manufacturers to insure consumers, and manufacturers often bought liability insurance for themselves. These facts provoked an argument about whether victims' insurance is more or less efficient than injurers' insurance. We cannot answer this question fully, but we can give the flavor of debate.

In general, insurance transfers risk from the insured party to the insurer. *Transfer* is another name for *externalize.* Externalizing risk gives the insured an incentive to reduce precaution. The insurance industry, which is old and has its own language, calls the reduction in precaution caused by insurance *moral hazard.* To illustrate moral hazard, a person who insures his car against theft may not be so careful about locking it.

Insurance companies employ various means to reduce moral hazard, notably coinsurance, deductibles, and experience rating. Under a deductible, the insured pays a fixed dollar amount of his accidental losses. Under coinsurance, the insured pays a fixed percentage of his accidental losses. Under experience rating, the insurance company sets the insured's rates according to the experience of the insured's claims. A claim in year two, for example, usually means a rate increase in year three. While these devices reduce moral hazard, they cannot eliminate it. Consequently, insurance inevitably undermines the insured's incentives for precaution.[9]

To combat this problem, liability insurers impose safety standards that policyholders must meet to remain covered by insurance. To illustrate, a fire insurance company may require a business to maintain fire extinguishers as a condition for writing an insurance policy. In the preceding section, we contrasted *ex ante* regulation and *ex post* liability. Insurance companies impose standards *ex ante.* Officials of the company may inspect for compliance. Insurance safety standards are private regulations imposed by contract and enforced by private parties, as opposed to public regulations imposed by law and enforced by state officials. On balance, legal scholars generally think that insurance promotes the goals of tort law and should be encouraged.[10]

Having discussed the incentive effects of insurance, we return to the question of whether no liability or strict liability is a better rule for consumer product injuries. The rule of strict liability has a distinct advantage over no liability in terms of the efficiency of insurance markets. As explained, insurance companies usually set rates according to the history of an individual's claims through the process of "experience rating." Many claims trigger a surcharge, and few claims trigger a discount. Under a rule of strict liability,

---

[8] Note, however, that many forms of insurance that we take for granted were unavailable in the nineteenth century. Insurance markets took time to develop.

[9] An additional problem for insurers is *adverse selection*, which we discuss in the section on insurance in Chapter 2 and also discuss below as a possible source of periodic insurance crises. Will adverse selection, if uncorrected, create efficiency issues in tort liability? Describe and contrast those problems in regimes of no liability and strict liability.

[10] Some states, however, prohibit liability insurance for punitive damages, presumably for the same reason that states prohibit insurance against criminal fines.

a company that produces many defective products makes many claims to its insurer and thus pays higher rates. This fact creates incentives for more precaution by the manufacturer to reduce its claims by reducing consumer accidents. However, these incentives for producers disappear under a rule of no liability, where consumers must buy their own insurance. One of the main arguments in favor of strict liability for consumer product injuries is that this rule causes liability insurers to monitor the safety of manufacturers.

Some scholars argue against the rule of strict liability on the ground that it provides consumers with unwanted insurance. By "unwanted" we mean that consumers would not voluntarily buy the insurance if they had to pay for it. To illustrate, a well-insured U.S. motorist who injures his knee when his car slips on ice and crashes will receive compensation from his insurance company for medical costs, lost wages, and damage to the car. If, however, the motorist suffers the identical injury due to the fault of another driver, the motorist will also receive additional compensation in tort for pain and suffering. In general, the tort liability system effectively provides consumers with insurance against pain and suffering that they would not buy for themselves. In personal injury cases, pain-and-suffering compensation can be relatively large, which implies that consumers have a lot of unwanted insurance. (Later we discuss how a market for tort claims can solve this problem by allowing potential accident victims to sell unwanted liability rights.)

We have introduced the complex interaction of tort liability rules and insurance markets. Before leaving the topic, we want to explain a problem with insurance markets. In 1985 and 1986 and again in the mid-1990s, a "crisis" over liability insurance—particularly with respect to medical malpractice insurance—occurred in the United States and elsewhere. During the crisis, insurance companies abandoned some lines of insurance, refused to renew policies for some persons and companies, lowered the limits on some insurance coverage, and sharply increased some premiums. The crisis poses the question, "Is the insurance industry inherently unstable?" Answering this question explains some fundamental characteristics of the insurance industry.

The answer may be "Yes" for two reasons. The first reason concerns the "reserves" held by an insurance company. Sound business policy and state regulations require insurance companies to hold a fraction of their revenue from premiums in reserve to cover future claims. For some risks, however, many claims can occur at once. To illustrate, earthquake insurance results in no claims in most years and vast claims when a large earthquake actually occurs. As a consequence, the insurance company must use the premiums in years with no claims to build up its reserves ("reserve funding"). Sometimes an insurance company has larger reserves than it needs to cover a risk. If an insurance company has excess reserves, it can expand the supply of insurance at little cost. At other times, insurance companies have no excess reserves, so they cannot write more insurance policies without increasing their reserves or liquidating the investments they have made with their other premium revenues. Changing the level of reserves can be very costly because of tax consequences.[11] One theory holds that insurance crises occur

[11] Capital removed from reserves becomes taxable as profit; so, insurance companies do not like to remove capital from reserves except in years when they have losses to offset their tax liability. Similarly, additions to reserves can reduce tax liabilities (especially under the U.S. tax law before the 1986 reforms), so insurance companies prefer to add to reserves in years when they have large profits from their other activities.

because insurance companies exhaust their reserves and must raise premiums relatively quickly to replace those reserves.

The second explanation is quite different in character. Suppose that insurance premiums rise, and some people stop purchasing insurance. The people who retain their insurance represent the worst risk, so the insurance company may have to increase its premiums again. To illustrate, suppose there is a 20 percent chance that I will suffer an accident costing $10,000 and only a 15 percent chance that you will suffer such an accident. If we are both insured, I expect to recover $2000 from the insurance company in claims, whereas you expect to recover $1500 in claims. Suppose the insurance company offers us the same insurance policy for the same premium, say $1500. It does not charge me more than you because it does not have enough information to tell us apart (or perhaps the regulators won't permit "price discrimination"). Both of us purchase the insurance because the premium is equal to or (in my case) less than the expected value of the claim, and we are both probably risk-averse. The insurance company collects $3000 in premiums from the two of us and expects to pay $3000 in claims, so it earns zero profits, as required in perfect competition.

Observe what would happen if the insurance company increased the rates to $1600. You are more likely than I am to decide to drop your policy. (Why?) But if you drop your policy, the insurance company loses a good risk (you) and retains a bad risk (me). Now the insurance company collects $1600 in premiums and it expects to pay out $2000 in claims, so it expects to lose $400. To overcome this loss, it must raise its rates again. (To what level does the company now need to raise its premium?) The rates have to be raised a second time because the first rate increase caused good risks to stop buying the policy while bad risks continued buying it.

This phenomenon, whereby an increase in insurance premiums drives out good risks while retaining bad risks, is called "adverse selection." The second explanation of the insurance crisis holds that increased claims set off a cascade of increased premiums due to adverse selection. Exhaustible reserves and adverse selection can create instability in the supply of insurance.[12]

> **QUESTION 7.2:** Are subrogation clauses efficient? Be sure to review your answer in light of the section below about litigation costs and their effect on the efficiency of the tort liability system.

4. Bankruptcy Under assumptions explained in Chapter 6, strict liability causes the firm to internalize the social costs of accidents, so it chooses the socially optimal activity and care levels. The possibility of escaping liability through bankruptcy changes this conclusion. When potential damages to tort victims exceed the firm's net worth, the firm externalizes part of the risk, thus eroding its incentives to take precaution and restrain its activity level. Limited liability can cause too little precaution and too much dangerous activity.

---

[12] See Ralph Winter, *The Liability Crisis and the Dynamics of Competitive Insurance Markets,* 45 YALE J. REG. 455 (1988); and Michael J. Trebilcock, *The Role of Insurance Considerations in the Choice of Efficient Civil Liability Rules,* 4 J. LAW, ECON. & ORG. 243 (1988).

Consider the example of a disposal company for hazardous waste. If such a company planned to remain in business indefinitely, it might use extreme care in dumping hazardous waste in order to avoid future liability. Alternatively, it might follow the strategy of dumping recklessly and accumulating potential tort liabilities that exceed its assets. Anticipating future liability and bankruptcy, the firm continually distributes profits and remains undercapitalized. When harm materializes and suits begin, the firm declares bankruptcy, and its tort victims take their place with other unsatisfied creditors.

This scenario suggests that firms in risky industries may have too many accidents and too little capital, thus lowering production and distorting the capital labor ratio. In addition, if tort liability causes bankruptcy and liquidation, the firm's nontransferable assets are destroyed, such as its reputation ("goodwill"), organization, and its employees' knowledge of how the company conducts business ("firm-specific human capital"). Thus, avoiding liability through insolvency causes significant inefficiencies.

A recent article, however, proposes that new judgment-proofing techniques enable corporations to avoid tort liability without being undercapitalized.[13] First, a corporation can place risky activities in a subsidiary, which is a separate company owned by the parent corporation. Courts seldom reach past a bankrupt subsidiary to the parent's assets. Some evidence exists that liability causes U.S. firms to divest and locate hazardous activities in smaller firms.[14] Some scholars urge U.S. courts to "pierce the corporate veil" and extend tort liability to the parent of a subsidiary, or even to people who own shares in bankrupt corporations. Research by Richard Brooks on the *Exxon Valdez*, which was an Exxon oil tanker whose wreck contaminated the Alaskan coast in spring 1989, demonstrates that the oil companies apparently believe that courts will pierce the corporate veil.[15] Specifically, large oil companies responded to massive liability by shipping more oil in their own tankers, which they control, rather than attempting to escape liability by contracting with tanker companies to ship their oil.

Second, in bankruptcy the secured creditors get priority over other, unsecured creditors, including tort victims. By lending a greater proportion of the corporation's debt to secure creditors, a firm can shield a larger portion of its assets from the claims of tort victims.

Third, firms often have expected income, such as future payments from buyers of the firm's products ("accounts receivable"). In a process called "securitization," firms convert expected income into securities and sell them to investors.[16] After securitizing, the future income belongs to the owners of the securities, so tort victims cannot tap this income as a source of compensation.

---

[13] Lynn M. LoPucki, *The Death of Liability,* 106 YALE L. J. 1 (1996).

[14] Al H. Ringleb & Steven N. Wiggins, *Liability and Large-Scale, Long-Term Hazards,* 98 J. POL. ECON. 574 (1990).

[15] Richard R. W. Brooks, *Liability and Organizational Choice,* 45 J. LAW & ECON. 91 (2002).

[16] The bonds allow the issuer to convert the stream of future income into a lump sum. One of the first to use the method of securitization was the rock singer David Bowie, who issued bonds that gave the bondholders a claim on Bowie's future income. In honor of this use, securitization bonds are sometimes called "David Bowie bonds."

The distortion of incentives for precaution caused by insolvency has no perfect solution. Imperfect solutions include compulsory insurance, posting bond, or replacing *ex post* liability with *ex ante* regulations. In addition, replacing rules of strict liability with negligence rules ameliorates the problem. A negligence rule allows a firm to escape liability by conforming to the legal standard of care. Having escaped liability, the firm has no need to shield assets from tort suits. In contrast, a rule of strict liability only allows a firm to escape liability by insolvency.[17]

5. Litigation Costs The final core assumption of the economic theory of tort liability was that litigation is costless. Of course, nothing could be further from the truth: Litigation is expensive and sometimes ruinously so. A more complete analysis of the efficiency of the various liability rules we have discussed should introduce these costs explicitly.[18]

Costly litigation will have different effects on potential victims and potential injurers. Moreover, these different effects will have very different implications for the efficiency analysis of Chapter 6.

Consider, first, the impact of costly litigation on potential victims. If victims must incur a cost to assert their claims for compensation, then they may assert fewer claims. Consider an extreme case in which litigation costs exceed the expected compensatory damages. Victims will not bring suit, and so the potential injurers will not receive the signal from the tort liability system that what they are doing is unacceptable. They may, as a result, take less precaution than they should, with the consequence that there may be more accidents (and more severe accidents) than there should be.

However, costly litigation may have a contrary effect on the decisions of potential injurers. If it is expensive for an injurer to litigate, then it may make sense to take more precaution than would be the case if litigation were costless. By taking more precaution, the potential injurer makes an accident less likely or less severe; if the cost of this additional precaution is less than the cost of litigation, then we should expect potential injurers to take *additional* precaution when litigation is costly. Similarly, high litigation costs may cause investors to withdraw funds and reduce activities that risk lawsuits. As a result, there should be fewer and less severe accidents.

Because the effects of costly litigation on potential victims and on potential injurers pull in different directions (one suggests less precaution; the other suggests more precaution), we cannot be sure of the net effect of relaxing the assumption of costless litigation.

High litigation costs have an unsettling, counterintuitive implication, which we illustrate by contrasting two possible rules of legal procedure. Under the first procedure, assume that when a plaintiff complains that a wrongdoer caused harm of $100, the judge hears the case and awards damages of $100 whenever the plaintiff proves the

---

[17] For a detailed analysis of how bankruptcy impacts alternative tort rules, see Alexander Stremnitzer & Avraham Tabbach, *Insolvency and Biased Standards—The Case for Proportional Liability*, Yale Law School Faculty Papers, No. 24 (2009).

[18] See Janusz Ordover, *Costly Litigation in the Model of Single Activity Accidents,* 7 J. LEGAL STUD. 243 (1978); and A. Mitchell Polinsky & Daniel Rubinfeld, *The Welfare Implications of Costly Litigation in the Theory of Liability,* 17 J. LEGAL STUD. 151 (1988).

necessary facts. Under the second procedure, assume that when a plaintiff complains that a wrongdoer caused harm of $100, the judge flips a coin and dismisses the complaint without a trial whenever the coin shows "heads." If the coin lands "tails," however, the court decides the case and awards damages equal to 200 percent of the actual harm. The injurer's *expected* liability is the same for both procedures—1.0 $\times$ 100 under the old procedure, and .5 $\times$ 200 under the new procedure. If potential injurers decide how much precaution to take based on expected liability, then the change in procedure will not affect their behavior, so the sum of the cost of harm from accidents and the cost of avoiding accidents apparently remains the same. However, the new procedure has reduced the number of trials by 50 percent, so administrative costs are much lower under the second procedure.[19]

Changing our legal system from the first to the second procedure would save costs, but this will not happen. A judge who actually decided a case by flipping a coin would provoke outrage and censure. Even so, our example makes this important point: A legal system can save administrative costs by reducing the probability of liability and offsetting this fall with an increase in damages. Chapter 13 returns to the equivalent point in criminal law when we discuss criminal fines rather than civil liability.

QUESTION 7.3: Use the economic theory of bargaining to characterize the torts in which the transaction costs of settling disputes are likely to be large. (*Hint*: Recall the distinction between public bads and private bads.)

QUESTION 7.4: For which liability standard would you expect the litigation costs to be greater—negligence or strict liability? Why? Is that an additional efficiency argument for preferring one standard to the other?

6. Conclusion Taken altogether, what is the ultimate result of relaxing the core assumptions for the conclusions of the previous chapter? Perhaps somewhat surprisingly, the conclusions of the economic model survive almost intact. We have seen that relaxing the rationality assumption may be warranted, and that where it is relaxed, the economic theory helps us to see how tort law ought to take into account the cognitive imperfections of those whose behavior it seeks to affect. We also saw that relaxing the assumption that there is no first- or third-party insurance does not change the results of the economic theory of tort liability. Coinsurance, deductibles, subrogation clauses, and the implied threat of higher premiums or of policy cancellations preserve the incentives of potential injurers to take optimal care and of potential victims (through their insurers) to bring actions in order to induce potential injurers to internalize the social costs of their carelessness. Nor does the presence of other social policies, such as safety regulation, necessitate our changing any of the economic conclusions. These alternative social policies require some account of how best to coordinate tort liability and safety regulation, and that coordination is likely to require an understanding of the economic tradeoffs involved. Finally, the fact that litigation is costly does not necessitate a change in our economic model. Rather, we have seen that costly litigation points in different

[19] See David Rosenberg & Steven Shavell, *A Simple Proposal to Halve Litigation Costs*, 61 VA. L. REV. 1721 (2005).

directions: On the one hand, it may induce potential victims not to file actions (thus allowing potential injurers not to bear the full costs of their carelessness and inviting them to take less care in the future), but, on the other hand, it may induce potential injurers to take more care (if taking additional care makes accidents less likely or less severe and is cheaper than the costs of litigating).

B. Extending the Basic Model

The economic model that we have been exploring in this and the previous chapter explains not just the broad questions of tort liability's purposes and the differences between negligence and strict liability, but it also helps us to understand some of the more special doctrines of tort liability. In this section we shall show how the economic theory applies to certain special cases—for example, the liability of employers for the torts of their employees—and to some issues at the frontiers of tort liability.

1. Vicarious Liability There are circumstances in which one person may be held responsible for the torts committed by another. Where this happens, the third party is said to be *vicariously liable* for the tortfeasor's acts. Vicarious liability may extend from an agent to his or her principal or from a dependent child to a parent, but by far the most common instance of vicarious liability is that of employers' responsibility for the tortious wrongs of their employees under the doctrine of *respondeat superior* ("let the master answer"). The bare bones of this doctrine are that an employer will be held to answer for the unintentional torts of an employee if the employee was "acting within the scope of [his or her] employment." To illustrate, an employer tells an employee *never* to drive the company's truck faster than the speed limit. The employee speeds, and the truck has an accident. The employer is liable.

Does *respondeat superior* induce efficient behavior by employers and employees? The rule creates an incentive for the employer to take care in selecting employees, in assigning them various tasks, in deciding with which tools to equip them, in training them, in monitoring them, and more. This is efficient if it is the case—as it generally would seem to be—that employers are better placed than are employees to make precautionary decisions.[20]

In discussing tort liability, we often distinguish between two rules: strict liability and negligence. Our analysis of the difference applies to vicarious liability. Under a rule of strict vicarious liability, the employer is liable for harms *caused* by an employee. Under a rule of negligent vicarious liability, the employer is liable for harms caused by *negligent supervision* of an employee. A switch from negligence to strict liability lightens the plaintiff's burden of proof. To illustrate, a careless nurse employed by a hospital harms a patient. To recover damages from the hospital under a rule of strict vicarious liability, the patient must prove that someone in the hospital caused the harm, which is relatively easy. To recover damages from the hospital under a rule of negligent vicarious liability, the patient must prove that the hospital negligently supervised the nurse, which

[20] For a full discussion of the economics of this issue, see Alan Sykes, *The Economics of Vicarious Liability,* 93 YALE L. J. 1231 (1984).

is relatively hard. You already encountered this argument in favor of strict liability when we discussed consumer product injuries.

We have given an information-cost argument for favoring a rule of strict vicarious liability for employers rather than a rule of negligent vicarious liability. Another argument goes in the opposite direction. To illustrate, a sailor on a tanker might negligently discharge oil onto a public beach at night. Informing the authorities quickly about the accident will reduce the resulting harm and the cost of the cleanup. The captain of the ship might be the only person besides the sailor who knows that the harm occurred or who can prove that pollution came from its ship. Strict vicarious liability gives the captain an incentive to remain silent in the hope of escaping detection. In contrast, a rule of negligent vicarious liability gives the captain an incentive to reveal the harm to the authorities immediately. As long as the captain can prove that he carefully monitored the sailor, the rule of negligent vicarious liability allows the captain to escape liability. As compared to a rule of strict vicarious liability, a rule of negligent vicarious liability encourages employers to report more wrongdoing by employees.[21]

QUESTION 7.5: What if an accident has occurred because an employee was performing a job for which he was not qualified after the employee had falsely told the employer that he *was* qualified? Should the employer still be liable for the victim's losses under *respondeat superior*?

QUESTION 7.6: The common law did not hold parents liable for their children's unintentional torts unless the parents' negligent supervision led directly to the tort. But the common law did hold husbands vicariously liable for their wives' torts (a rule since abrogated by statute). Can you provide an efficiency explanation for these common law rules?

QUESTION 7.7: In many states, a bartender (under so-called "dram shop laws"), friend, party host, or other person who serves liquor to an already-intoxicated person may be held vicariously liable for any damages that person subsequently inflicts on other people or their property. Does this form of vicarious liability make economic sense?

2. Joint and Several Liability With and Without Contribution When several parties cause harm to someone, a question arises concerning whom the victim can sue and how damages should be allocated among them. To illustrate, suppose that you suffer a loss of $100 in an accident caused by two people called A and B. They are *jointly* liable if you can sue *both* of them at once, naming A and B as codefendants and receiving a judgment of $100 against them. They are *severally* liable if you can sue *either* A or B separately, naming each of them as a defendant in a distinct trial and recovering $100 from each.

---

[21] Jennifer Arlen & Reinier Kraakman, *Controlling Corporate Misconduct: An Analysis of Corporate Liability Regimes,* 72 NYU L. REV. 687 (1997).

Suppose that the plaintiff chooses to recover from only one of several injurers. May that defendant then force the other injurers to contribute to paying the damages? At common law for unintentional torts, the defendant did not generally have a right to *contribution,* as this is called, from other joint tortfeasors. This harsh rule against contribution has been abrogated, usually by statute but sometimes by judicial decision, in almost all the states.[22] The law usually subtracts the *contribution* of one party from the compensation owed by the other. For example, if A and B jointly cause you harm equal to $100 and you settle with A for $40, then the upper limit on a trial judgment against B is $60.

Defendants are said to be "jointly and severally liable" if each of them is liable for all the victim's full losses, not just a portion of them. The plaintiff may proceed jointly against all his injurers or may elect to recover all damages from only some of them or only one of them. (Typically, the plaintiff proceeds against the defendant or defendants who have "deep pockets," that is, the resources to compensate him.) In the United States, the actual law in most cases involving multiple injurers is "joint and several liability with contribution." Because liability is "joint and several," the plaintiff can sue the injurers jointly or separately, as he prefers. Because the law allows "contribution," the recovery is limited to 100 percent of the value of the harm. (The common law recognized two circumstances in which joint and several liability would hold.)[23]

There are several economic reasons for joint and several liability. One is that it relieves the victim of the potentially high costs of proving who caused her harm. The doctrine allows the victim to assert that one of these people, and perhaps many of them, caused her injuries without incurring the special costs of showing which one or more of them were responsible and in what proportion. In essence, the doctrine shifts the costs of establishing exactly what happened to the defendants. Imagine a situation in which a patient is anesthetized and taken into surgery. During the operation someone injures the patient. Later she sues all those who were in the operating room, but for obvious reasons she cannot tell who precisely caused her injury.

Another economic reason for joint and several liability is that it makes the victim's recovery more certain by allowing him to proceed against the defendant or defendants who have the most assets with which to pay damages. Suppose that an uninsured motorist is going at high speed, strikes a pothole in the road, loses control of his car, and hits another passenger car, seriously injuring its driver. Assume for the sake of argument that 90 percent of the fault is attributable to the speeding driver, and 10 percent of the fault is attributable to the city government for not filling the pothole. The victim will have difficulty recovering anything from the speeding driver because he lacks insurance and may have limited resources. However, if the law allows the victim to hold the

---

[22] This is true only for unintentional torts; for intentional torts, such as a violation of the antitrust statutes, there is still no right of contribution among joint tortfeasors.

[23] First, the defendants acted together to cause the victim's harm, as when two cars driven by A and B are racing down a street and one of them hits C, a pedestrian. The two drivers acted together by illegally racing each other. Second, the defendants acted separately, but victim's harm was indivisible between them. Thus, two hunters using identical ammunition fire at a pheasant and both of them accidentally hit a third person. They acted separately to cause the harm, but no one can disentangle the harm caused by one of them from the harm caused by the other.

motorist and the city jointly and severally liable, and if the victim can prove that the city was negligent in maintaining the road, then the victim can recover 100 percent of his losses from the city. The city then faces the hopeless task of trying to recover 90 percent of the damages it paid from the speeding driver who lacks insurance and resources.

Another economic issue concerns contribution and efficiency. Is a rule of contribution or no contribution more efficient? The no-contribution rule makes all defendants internalize the cost of accidents, thus creating incentives for optimal precaution by each of them. In contrast, the rule of contribution causes each defendant to internalize part of the cost of accidents and to externalize part of the cost. Because costs are partly externalized, the rule of contribution may not create incentives for optimal precaution by each defendant. To illustrate, in the example where A and B race their cars and strike C, optimal incentives require A to bear the full cost of the accident and B to bear the full cost of the accident.[24]

Although the rule of no-contribution creates efficient incentives for precaution by joint injurers, it can also, as we have noted, change reluctant victims into eager victims. For example, if C receives perfectly compensatory damages from A, then C is indifferent between no accident and an accident. If C receives perfectly compensatory damages from A and also from B, then C prefers an accident to no accident. Perhaps the phenomenon of eager victims explains why law favors contribution rather than no contribution.

Many states have reformed joint and several liability to reduce the ability of the victim to recover all the costs of the injurer from the injurer with the deep pockets. After these reforms, the victim must recover some damages from injurers with shallow pockets. A careful econometric study found that these reforms caused reductions in the accidental death rate in the United States. The authors' explanation is that reforms increase the incentives for precaution by injurers with shallow pockets, and their precaution reduces accidents the most.[25]

Web Note 7.3

When there are multiple defendants, it sometimes happens that one or more of the defendants make an agreement to settle their claims with the plaintiff and then keep the existence of that agreement secret from the other defendants. Such agreements are called "Mary Carter agreements" after the case in which they first arose. See our website for a history and economic analysis of Mary Carter agreements.

Web Note 7.4

We describe some recent empirical literature on "high-low agreements" between plaintiffs and defendants.

[24] See Landes & Posner, *Multiple Tortfeasors: An Economic Analysis,* 9 J. LEGAL STUD. 517 (1980); and Polinsky & Shavell, *Contribution and Claim Reduction Among Antitrust Defendants: An Economic Analysis,* 33 STAN. L. REV. 447 (1981).

[25] W. Bentley MacLeod, Janet Curry, & Daniel Carvell, *Accidental Death and the Rule of Joint and Several Liability*, BERKELEY LAW AND ECONOMICS WORKSHOP (October 29, 2009).

3. Evidentiary Uncertainty and Comparative Negligence[26] In the previous chapter we discussed the several forms of the negligence rule: simple negligence, negligence with contributory negligence, and comparative negligence. For most of the last 200 years, negligence with contributory negligence has been not only the dominant form of the negligence rule but the dominant tort liability rule in the common law countries. However, within the last 40 years all this has changed. Today, all but a handful of the states in the United States have altered their law of accidents so that the prevailing liability standard is one of comparative negligence for non-product-related torts. The change has been effected principally by statute, with a minority of states adopting the rule by judicial decision. In most civil law jurisdictions of Europe, the principle of comparative negligence was adopted long before the United States made this change. In this section we shall explain briefly how the comparative-negligence rule works and how it differs from the rule of negligence with contributory negligence. Then we shall show how something called "evidentiary uncertainty" can give rise to an efficiency argument for comparative negligence.

The simple reason for the rise of comparative negligence is an increasing dissatisfaction with the rule of contributory negligence. Recall that a contributorily negligent plaintiff could not recover anything from the defendant, even from a negligent defendant. This rule struck most people as exceedingly harsh. To see why, imagine that an automobile accident has occurred; both the plaintiff and the defendant were driving. Suppose that violation of the speed limit constitutes negligence and that the evidence shows that the plaintiff was going 35 miles per hour in the 30 mile-per-hour zone and that the defendant was going 65 miles per hour in that same zone. Under the rule that bars recovery for a contributorily negligent plaintiff, the plaintiff will not be able to recover. This seems harsh in that the plaintiff's negligence was trivial in comparison to the defendant's.

To avoid this sort of harsh result, most jurisdictions found a means of limiting the scope of the rule of contributory negligence—for example, by means of the last-clear-chance doctrine.[27] But eventually these limitations on the application of the rule of contributory negligence gave way to comparative negligence.

The principal difference between comparative negligence and the rule of negligence with contributory negligence is that under comparative negligence the plaintiff's contributory fault is a partial but not a complete bar to recovery from a negligent defendant. Thus, under comparative negligence the negligent injurer usually owes something, but not full compensation, to the negligent victim.[28]

The equitable argument is the principal justification for the switch to comparative negligence. However, there are economic efficiency arguments that can be made on behalf of comparative negligence. To make these arguments requires relaxing at

---

[26] The material in this section draws on Cooter & Ulen, *An Economic Case for Comparative Negligence,* 61 NYU L. REV. 1067 (1986).

[27] Each of these limitations allowed an otherwise contributorily negligent plaintiff to recover *all* losses. Note how this differs from the result under comparative negligence described below.

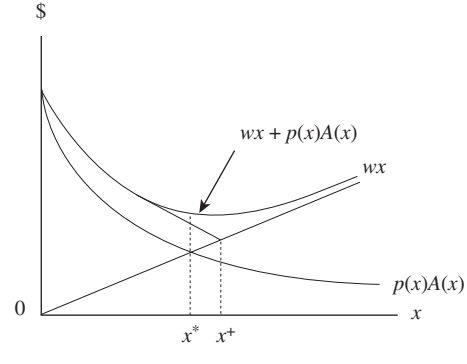
[28] There are three different forms of comparative negligence: pure, modified, and slight-gross. These are extremely interesting but are not central to our economic analysis.

least one of the core assumptions that we made in the previous chapter. Recall that the basic economic theory of tort liability of Chapter 6 showed that *all* forms of the negligence rule (simple, contributory, and comparative negligence) were equally efficient. The only way we can draw efficiency distinctions among them is to relax one of the core assumptions. Suppose that, in a negligence case, we assume that litigation is costly in the sense that it is not certain how the court will evaluate the evidence developed at trial. Thus, neither the plaintiff nor the defendant can be certain whether the court will determine that their precautionary behavior was sufficient to absolve one of them of fault. It is possible, for example, that the court will determine that the precaution of one of the parties was insufficient, even though that party thought that he or she had complied with the relevant duty to take due care. Or the court may find one of the parties nonnegligent when in fact the party was violating the legal standard of care. We may call this condition "evidentiary uncertainty."

These possibilities of error may influence the precautionary decisions of a potential injurer. We assume, as seems realistic, that the probability that potential injurers will be found not liable increases as their precaution increases. Figure 7.2 shows the impact of this fact on expected costs. The effect of evidentiary uncertainty is to smooth the discontinuity in expected liability at the (presumed) legal standard that we developed in Chapter 6. Smoothing occurs because injurers' expected costs are a weighted average of their costs when liable and their costs when not liable, with the weights given by the probability that they will be found liable. The effect is indicated in Figure 7.2 by the sloping curve that connects the expected-cost curve and precautionary-cost line. Uncertainty about the court's assessment of a party's precautionary level with regard to the legal standard of care induces most injurers to take more precaution than is prescribed by the legal standard of care. In effect, they give themselves a margin of error to be sure that they avoid liability. This behavior is represented in Figure 7.2, which illustrates the fact that an injurer's costs are minimized on the smoothed curve at x^+, which is a higher level of precaution than the legal standard x^*.

FIGURE 7.2

Evidentiary uncertainty smooths the discontinuity at the legal standard of care and induces extra precaution by the potential injurer.



Evidentiary uncertainty causes potential injurers to go beyond the level of precaution that might just barely exonerate them.[29] That is, evidentiary uncertainty will cause overprecaution relative to the efficient level of precaution.

This result is true under any form of the negligence rule. What efficiency advantage, if any, does comparative negligence provide when there is evidentiary uncertainty? The overprecaution caused by evidentiary uncertainty is less under comparative negligence than it is under any other form of the negligence rule. The simple reason is that under comparative negligence, if either party makes a mistake in choosing the level of precaution that is necessary to satisfy the legal standard of care, the consequence of that mistake is not visited entirely on the person who made it, as it would be under any other form of the negligence rule, because, under comparative negligence, the losses are shared between the two parties rather than being concentrated on one party.

One frequent criticism that is made of comparative negligence is that its administrative costs are high. The rules to be used in apportioning fault are vague, it is said, even when the parties are engaged in the same activity: No one is quite sure how to apportion fault when A was going 45 in a 30 mile-per-hour zone and B was going 60. But things are even worse when the parties are engaged in different activities. How, for instance, would you have apportioned fault in *Butterfield v. Forrester,* the case in Chapter 3 involving an obstruction in the road left by Forrester and a negligent horseman, Butterfield, who crashed into the obstruction? Given this difficulty, it is alleged that litigants and juries will spend inordinately large amounts of effort trying to establish exact percentages of fault when such exactitude is impossible to achieve.

There may be some truth in the contention that comparative negligence has high administrative costs. If so, there is a balance to be struck between the efficiency gains of comparative negligence and these administrative costs. Until we can examine careful empirical studies, we cannot say whether there is a net efficiency gain from moving to this new liability standard.

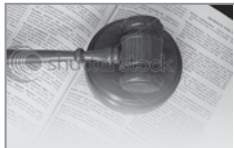
Web Note 7.5

There has been considerable writing about the economics of comparative negligence. We review that literature on our website.

QUESTION 7.8: Admiralty law—the law that deals with controversies arising on navigable waters—used a rough-and-ready method of dealing with the problem of the administrative costs of comparative negligence. Rather than try to fine-tune the degrees of culpability between the contending parties, admiralty law simply split the losses 50-50 whenever there was negligence on the part of both parties. Comment on the efficiency of this method of reducing the administrative costs of comparative fault. Would you recommend that the admiralty rule be adopted in apportioning losses in, say, automobile accidents where both parties are at fault? Why or why not?

---

[29] This is an instance of the point we made earlier in this chapter—namely, that the prospect of costly litigation will induce potential injurers to take more precaution than they would otherwise. A little extra precaution makes an accident (and thus, a lawsuit) less likely.



Incentives for Invisible Actors

How can authorities create incentives for someone who is invisible to them? The State of Florida has a clever solution. Florida farmers fertilize their fields with phosphorus, which rain carries into that massive, marvelous, fragile swamp called the Everglades. To control phosphorus, regulators have adopted a novel incentive system. Beginning in 1995–1996, phosphorus loadings are compared to a baseline derived from loadings recorded from 1979–1988. If basin-wide reductions in nutrient load into the Everglades do not meet statutory targets, all of the farmers in a designated area must pay the "Agricultural Privilege Tax." The farmers can escape the tax increase by exceeding an overall 25 percent basin-wide phosphorus reduction goal. Under this system, each farmer's abatement efforts reduce his own liability (and the liability of every other farmer) by the resulting reduction in pollution. Each farmer, consequently, internalizes the marginal benefits and costs of abatement, as required for efficiency.

This incentive system is remarkable in two ways. First, each farmer has incentives for efficient abatement *without the authorities knowing how much any one of them abates.* The authorities only need to know the total abatement by *all* farmers. Second, if the authorities have chosen the phosphorus reduction goal correctly, the farmers will continue abating until they reach it; so, *none of the farmers will actually pay the tax.* Theorists describe this approach as a rule of *total liability for excessive harm.* "Total liability" refers to the fact that each actor's liability depends on the harm that *all* actors cause. "Excessive harm" refers to the fact that liability applies to the amount by which the harm caused by all actors *exceeds* a baseline.[30]

4. Products Liability Fifty years ago products liability was a minor part of tort law, but recently it has become a large and important specialty and the focus of much of the public dissatisfaction with the entire tort liability system. The liability standard in product-related accidents is called "strict products liability."[31] For a defendant-manufacturer to be held liable under this standard, the product must be determined to be defective. A defect can take three forms:

1. **A defect in design,** as would be the case if the design of automobile gas tanks made them liable to rupture and explode (see our website for more information);
2. **A defect in manufacture,** as would be the case if a bolt were left out of a lawn mower during its assembly, causing a piece of the mower to fly off and injure a user; and
3. **A defect in warning,** as when the manufacturer fails to warn consumers of dangers in the use of the product.

What liability standard would economic theory recommend for product-related accidents? Recall that our discussion of negligence and strict liability focused on whether precaution for reducing the likelihood and severity of the accident is unilateral or

[30] Robert Cooter & Ariel Porat, *Total Liability for Excessive Harm,* 36 J. LEGAL STUD. 63 (2007).

[31] RESTATEMENT (SECOND) OF TORTS (1965), §402A, published by the American Law Institute, lays out this standard.

bilateral. If it is bilateral (that is, if both parties can take precautionary action to reduce the probability and severity of an accident), then a form of the negligence rule is the appropriate standard. If precaution is unilateral (that is, if only the injurer can be looked to for actions to reduce the probability and severity of an accident), then strict liability is the appropriate liability standard. Using this economic analysis, which standard would modern products-liability law apply?

The more efficient standard would seem to be strict liability because in most instances of product-related harms, for clarity precaution lies unilaterally with the manufacturers. It is they who are in control of the design of the products and of the manufacturing process and who are most likely to be aware of any special dangers that their products present and, therefore, can most efficiently convey information about those dangers through warnings.

However, on further reflection, one finds elements of *bilateral* precaution in the product-accident situation. *Users* can also take precautions to reduce the probability and severity of accidents. For example, they can pay heed to the warnings and use the products only for their intended uses. There are stories about some consumers picking up their gasoline- or electric-powered lawn mowers and turning them sideways in order to trim their hedges, and being injured as a result. No manufacturer intends a lawn mower to be used in that fashion.

Products-liability law can steer a middle course between the view that precaution is unilateral (and, therefore, that strict liability is the appropriate standard) and the view that precaution is bilateral (and, therefore, that negligence is the appropriate standard). It can do so by holding defendant-manufacturers strictly liable for defective design, manufacture, or warning but allowing them to escape liability if the victim voluntarily assumed the risk of injury or misused the product. These defenses encourage the efficient allocation of risk of loss from product-related injuries between the consumer and manufacturer.

If the lawn mower manufacturer could not exclude liability for consumer misuse or for voluntarily assumed risk, it would be forced to insure each of its consumers. To cover the cost of this insurance policy, the manufacturer would have to raise the product price. The difficulty with this result is that *all* consumers must pay the higher price, not just those who are careless. Consumers who are careful would prefer to pay a lower price for the product and to purchase insurance against loss elsewhere.

We have discussed allowing manufacturers the defense of consumer misuse of defective products. In practice, a more decisive consideration is often the information that the court uses to decide whether a product has one of these defects. The court can either use the information available when the product was manufactured or when the case was tried. In the mean time, scientific progress uncovers much about risk that was previously unknown. Asbestos was originally celebrated as a lifesaver that miraculously protects people from flames, and later it was vilified as a deadly cause of lung cancer. A company that manufactured asbestos insulation for ships in 1947 did not produce a product known to be defective at the time, but the product was shown to be defective by 1977 when a worker brought suit. In the United States, courts have found asbestos to be defective by using the scientific knowledge available at the time of trial, thus holding the manufacturer liable for harm that it could not have foreseen by using the scientific knowledge available at the time of manufacture. Products liability is most

"strict" when, besides disallowing manufacturers' defenses of reasonable care, the law also holds products to a standard of defect based on science available at trial and unavailable at manufacture.

QUESTION 7.10: Some scholars discern a trend in modern products-liability law toward absolute liability or what is sometimes called "enterprise liability." Under that theory, manufacturers would be held liable for almost every injury resulting from the use of their outputs. Give an economic analysis of that liability standard for product-related harms.

II. Computing Damages

In the previous chapter we noted that the ability of liability rules to induce efficient precaution depends in part on the ability of the court to award truly compensatory damages to the victims of a tort. These damages accomplish two things simultaneously: First, they put the victim back onto the utility level or indifference curve occupied before the tortious act, and second, they are the "price" that the injurer must pay for having harmed the victim. In this section we elaborate the ways in which microeconomics can help to determine the appropriate amount of damages. Additionally, we use microeconomics to discuss the efficiency aspects of punitive damages in tort awards.

A. Hand Rule Damages

Compensatory damages are intended to "make the victim whole." In some circumstances, this is impossible. For example, when a child is killed in a tortious accident, damages cannot be computed on the formula, "find a sum of money such that the parents are indifferent between having the money and a dead child, and not having the money and having their child alive." The same difficulty arises in a more attenuated form for irreparable physical injuries, such as those resulting from a crippling accident.

There are, in fact, two distinct concepts of compensatory damages in tort law. One concept is the standard economic concept of indifference: Compensation is perfect when the victim is indifferent between having the injury and the damages, and having neither. Compensatory damages are thus perfect when the potential victim is indifferent about whether there is no accident or an accident with compensation. This concept is relevant for injuries in which a substitute for the lost good is available in the market. When a substitute is available, the market price of the substitute measures the value of the good to the plaintiff. This concept is also relevant for goods that are bought and sold from time to time but for which there is no regular, organized market. For example, a handwritten letter by James Joyce and a 1957 Chevy convertible are sold from time to time, but these items are so rare that a regular market for them does not exist. The owners of these rare goods usually have prices at which they are prepared to sell them, and these prices measure perfectly compensatory damages.[32]

[32] Economists use the term "reservation price" to refer to the minimum price at which the owner of a good is willing to sell it. Determining the owner's reservation price for a unique good is a difficult practical problem, but it is not a problem conceptually.

This concept of perfect compensation, based on indifference, is fundamental to an economic account of incentives. If potential injurers are liable for perfectly compensatory damages, then they will internalize the external harm caused by accidents. And this creates incentives for the potential injurers to take efficient precaution. Compensation of this kind is most easily computed for those losses for which there is a ready market substitute.

But for some tortious injuries there is no ready market substitute. For example, there is no price at which a good parent would sell a child. The idea that a person could be "indifferent" between a sum of money and a child is repugnant. And, for some people, there may be no price at which they would sell an arm or a leg.[33] So, for injuries involving the loss of a child or a limb, compensation simply cannot be perfect. Courts must, nevertheless, award damages for the wrongful death of a child or for grievous personal injuries. Our task, then, is to provide a more satisfactory understanding of their computation.

When U.S. courts award damages for incompensable losses, such as the death of a child, juries usually set the amount. Unfortunately, judges provide juries with no coherent instructions for how to compute damages. To illustrate, the recommended jury instruction for Massachusetts reads:

> Recovery for wrongful death represents damages to the survivors for the loss of value of decedent's life. . . . There is no special formula under the law to assess the plaintiff's damages. . . . It is your obligation to assess what is fair, adequate, and just. You must use your wisdom and judgment and your sense of basic justice to translate into dollars and cents the amount which will fully, fairly, and reasonably compensate the next of kin for the death of the decedent. You must be guided by your common sense and your conscience on the evidence of the case. . . .

It is common sense that money cannot compensate for a loved one's death, so how is common sense supposed to lead the jury to a dollar value? Rather than common sense, the California jury instructions refer to "reasonableness":

> Also, you should award reasonable compensation for the loss of love, companionship, comfort, affection, society, solace or moral support.

If no amount of money can compensate for loss of a loved one, then adding "reasonable" to "compensation" deepens the puzzle rather than clearing it up.

Besides courts, regulators must assign value to loss of life for purposes of cost-benefit analysis. Unlike court practice, the regulators have some clear methods developed by economists. We will describe such a method and explain its modification for use by courts.

A necessary part of living is being exposed to the risk of death or serious injury. For example, flying on an airplane or driving down the expressway involves such a risk. These risks can often be reduced, but doing so is costly. To illustrate, we may note that airplanes must be inspected and repaired at regular intervals, which is costly, but the

[33] For some people, there may be an amount of money at which selling an arm is an attractive bargain, but their concept of morality would not permit them to do it.

shorter the intervals, the fewer the accidents. Similarly, heavy cars with special safety features provide extra safety to passengers. But these cars are more expensive to produce and, therefore, more costly to consumers. When a parent decides what features of a car to buy or a commercial air carrier decides how frequently to inspect planes for safety, a decision is being made that balances the cost of additional precaution against reductions in the probability of injury.

A rational decision about these risks involves balancing the costs and benefits of precaution. By reasoning in this way, it is possible to compute damages for the loss of life. To illustrate, we may suppose that the probability of a fatal automobile accident falls by 1/10,000 when an additional $100 is spent on automotive safety. If expenditures on automotive safety are rational, then the reduction in the probability of a fatal accident, multiplied by the value of fatal risk, equals the marginal cost of care:

$$(1/10{,}000)(\text{value of fatal risk}) = 100,$$

or

$$(\text{value of fatal risk}) = 100/(1/10{,}000),$$

which suggests that the value of fatal risk is $1,000,000.

This method of computing damages for wrongful death, which is called the "value of a statistical life," takes actual market purchases as a guide to how much the purchaser values safety and, by implication, the value of being alive. For example, suppose that a consumer may purchase a safety device, such as an air bag, by paying extra to the retailer. If we know how much the safety device costs the consumer and by how much that device reduces the likelihood of death, then we may infer the consumer's valuation of safety, which implies a value of fatal risk. Using the figures from the previous paragraph, we may assume that the device costs $100 and that it reduces the likelihood of death by 1/10,000. (Remember that this implies a $1,000,000 value on being alive.) If consumers purchase the device, then they must value safety at a level that implies that the value of fatal risk equals at least $1 million.

To apply this method in a legal dispute, the court should consider those situations in which risk is "reasonable" and well known. In those circumstances, there will be some value p for the probability of a fatal accident, and some value B for the burden of precaution. Efficiency requires taking additional precaution until the burden equals the change in probability p multiplied by the loss L, or $B = pL$. (Notice that this is the Hand rule.) Thus, the court would compute the value of fatal risk by solving the equation for L, yielding $L = B/p$.

Notice that his method uses the Hand rule in an unusual way. In the usual way, the court uses the Hand rule to determine whether the injurer's precaution satisfied the legal standard. In its unusual use, the decision maker uses the accepted legal standard of care that an individual violated to determine his liability.

We have described two distinct methods for computing compensatory damages: the indifference method and Hand rule damages. The first method is appropriate for market goods—that is, for losses for which there is a market substitute; the second method is appropriate when there are legal and moral barriers to such markets. Only when the indifference method is appropriate can damages be perfectly compensatory.

However, both methods, when applied without error, provide incentives for an efficient level of precaution by potential injurers.

Empirical evidence suggests that Hand rule damages are several times higher than the U.S. average for damages that courts award in automobile accident cases involving loss of life.[34] For example, the National Highway Traffic Safety Administration (NHTSA) often values a traffic fatality at $2.5 million. Implementing Hand rule damages would, consequently, cause a significant increase in damage awards and insurance costs for some important kinds of accidents. Hand rule damages would also tend to smooth large differences in damages in individualized cases.[35] Besides bringing coherence to legal doctrine, implementing Hand rule damages would provide incentives for more rational safety expenditures and create a safer world.

The same accident results in larger damages in the United States than in Germany, and larger damages in Germany than in Japan. Damages cannot be different in similar countries for identical accidents and also be optimal in each country. Substantial reform seems to be required somewhere. Our view is that substantial reform is required everywhere. Creating a safer society by improving incentives for precaution begins by using economics to think more clearly about the problem. Hand rule damages suggest that damages for personal injuries are mostly too low to deter injurers, even in the United States. This is especially true for automobile accidents and other harms caused by ordinary people, as opposed to harms caused by corporations or governments, where damages are higher. A substantial increase in damages for personal injuries involving automobiles would increase insurance rates, which would reduce the amount of driving and make drivers more cautious. The lack of systematic calculation for damages in personal injury cases in the United States also means that damages vary randomly, which causes liability disparity. Liability disparity is even greater when corporate defendants are held liable for punitive damages, which is our next subject.

QUESTION 7.9: Victim V works at a job where he might be exposed accidentally to a chemical that increases the probability from .01 to .02 of dying from lung cancer in 20 years. V would pay $15,000 to avoid exposure to this risk, or he would accept $15,000 to expose himself to this risk. No matter how hard he tries, V cannot imagine any sum of money that he would accept in exchange for certain death by lung cancer. V's employer accidentally exposes him to the chemical. The risk materializes after 20 years, and V dies abruptly from lung cancer. How much are Hand rule damages for V's heirs? After exposure and before dying, V spent $1000 to move to another neighborhood with better air quality. Should $1000 be added to Hand rule damages, or is it already implicitly included?

---

[34] See Robert Cooter, "Hand Rule Damages," conference entitled "Theories of Compensation," Institute for Law and Philosophy, University of San Diego Law School, February 28, 2003.

[35] It is interesting to note that one of the first recorded legal codes, the Code of Hammurabi, stipulates the same amount of damages for the wrongful death of a free man or woman, whereas the individualized system in the United States awards higher damages on average for the wrongful death of a man than a woman.

Web Note 7.6

There is extensive literature on how regulators and other legal decision makers should place a value on a lost life—referred to as the "value of a statistical life" or VSL. We review that literature, with examples, on our website.

Web Note 7.7

Another difficult category of damage to evaluate for the purposes of compensation is "pain and suffering." (We saw earlier in this chapter that there is a principled argument to be made for not awarding pain-and-suffering damages. But most jurisdictions do so.) On our website we report on some recent empirical evidence that seeks to understand how jurors make decisions about how much money to award for "pain and suffering."

B. Punitive Damages

In 1984 Getty Oil allegedly agreed to sell itself to Pennzoil, but the Texaco oil company encroached on the deal and bought Getty. In a lawsuit a Texas jury awarded $7.53 billion in compensatory damages to Pennzoil and $3 billion in punitive damages. (In the end, the plaintiff settled out of court because the full judgment would have bankrupted the defendant.) Commentators on the case do not agree as to whether the defendant actually committed the wrong, which is unusual and has the name "tortious inducement to breach a contract." In any case, the award of punitive damages of $3 billion, which broke previous records, was unforeseeable. Earlier we mentioned the problem of *liability disparity* that arises when like cases result in different judgments. Punitive damages are a

"Fortunately for My Client, the Victim Died."

Would you rather be dead or crippled? In most tortious accidents, victims and their families prefer the person alive and crippled rather than dead. It is, consequently, worse to cause someone's death in a tortious accident than to cause him or her to be crippled.

Yet, the death of the victim can be fortunate for the injurer, because the damages awarded by courts are often greater when the victim of a tortious accident is crippled than they are when he or she dies. Someone who is injured severely but has a relatively long life still ahead will require extraordinary compensation. The income that the victim can no longer enjoy must be replaced, and the fact that he or she may require constant, expensive medical attention every day must be taken into account in the assessment of damages.

By contrast, if the victim is killed, the family (or other dependents) will receive only what they would have received from the victim if he or she had been alive. Thus, if the decedent would have made $100,000 per year for the next 20 years and would have given his or her dependents two-thirds of that income each year, then the dependents are entitled to receive the two-thirds of $100,000 for 20 years, discounted to present value.

significant source of liability disparity. They cause much uncertainty and fear among corporate and government defendants. We will analyze punitive damages in the hope of understanding them better and seeing how to improve them.

Punitive damages are, by definition, damages given to the plaintiff as a way of punishing the defendant. We must begin our economic analysis of punitive damages by answering two questions:

1. Under what conditions might punitive damages be awarded?
2. How is the amount of punitive damages computed?

In most states there is a statute describing the conditions under which punitive damages may be awarded. These are usually attempts to state the common law practices actually followed by the courts. According to the usual formulation, punitive damages can be awarded when the defendant's behavior is malicious, oppressive, gross, willful and wanton, or fraudulent.[36] These statutes merely provide guidelines for awarding punitive damages. Because the guidelines have not been formulated into exact rules, there is much uncertainty about when punitive damages can be awarded. Studies in cognitive psychology demonstrate conclusively that people can order acts consistently according to how bad they are, but people cannot attach consistent numbers to the appropriate level of punishment.[37] Because moral orderings do not map consistently into dollar sanctions, the law must devise rules for computing dollar sanctions to avoid arbitrary disparity in the treatment of people.

There is much uncertainty concerning how to compute punitive damages under current laws. Statutes typically contain no specific instructions for computing punitive damages. Punitive damages are supposed to bear a reasonable relationship to compensatory damages and to the ability of the defendant to pay, but the courts have not specified what "reasonable" or "ability to pay" mean in this context. It is uncertain, for example, whether punitive damages may be only double the amount of compensatory damages or up to 1000 times compensatory damages. In several recent cases, described in Web Note 7.9, the United States Supreme Court held that punitive damages that are a double-digit multiple of compensatory damages will attract close scrutiny as possibly being unconstitutionally excessive. Judges apparently have an idea of how much is enough, and jury awards have often been reduced by judges, but there are no rules regarding the computation of punitive damages.[38] There is a compelling need in torts for a more coherent account of punitive damages, and economic analysis can provide guidelines for the development of this account.

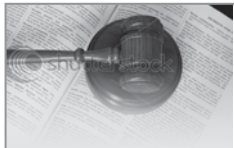
---

[36] The following is the section on "Exemplary Damages" (which is another name for punitive damages) from the CALIFORNIA CIVIL CODE, §3294:

> "For Oppression, Fraud or Malice.
>
> (a) In an action for the breach of an obligation not arising from contract, where the defendant has been guilty of oppression, fraud, or malice, the plaintiff, in addition to the actual damages, may recover damages for the sake of the example and by way of punishing the defendant."
>
> (b) That is not much detail to govern actions on which millions of dollars turn. Notice that nothing is said about how to compute punitive damages.

[37] Daniel Kahneman, Cass Sunstein, et al., *Assessing Punitive Damages,* 107 YALE L. J. 2071 (1998).

[38] See *State Farm Mutual Automobile Ins. Co. v. Campbell,* 123 S. Ct. 1513 (2003).



Organizations as Victims

Economists routinely impute utility functions to individual consumers and workers. But what if the victim seeking compensation is an organization, such as a partnership, a corporation, a government, or a club? Like individuals, organizations can be regarded as decision makers, and their choices can be regarded as revealing organizational preferences. Like those of an individual, the preferences of a rational organization can usually be represented by a well-ordered utility function. So the question arises, "Can the utility analysis of the idea of compensation be extended to organizations?"

In applied welfare economics, benefits or harms to institutions are traced to individuals, at least in principle. For example, the loss in profits suffered by a business is traced back to a loss in income to the business's owners. A common practice is to assume a one-to-one relationship between the loss in profits to the organization and the loss in income to individual owners, and to assume that the owners are interested in the business only for the sake of profits. Under these assumptions, the company's profits "stand in" for the utility of affected persons. Because the changes in profits to the business equal changes in income to its owners, compensating the organization is equivalent to compensating its owners.

In the case of business firms, the conventional assumption in economics is that they maximize profits. Thus, when a utility function is imputed to a business, it has a simple form: Profits are the only thing that the business cares about. For a business, the fall from a higher indifference curve to a lower indifference curve corresponds to a fall in profits that can be compensated for, when the fall results from another's wrongdoing, through an award of damages to the business equal to the lost profits.

In general, when there is a one-to-one relationship between the loss as measured by the institution's preferences and the losses to individuals, the institutional preferences can be used as a surrogate for the welfare of affected individuals. However, the extension of the utility analysis of compensation to organizations that are not profit-seeking, such as governments, clubs, and nonprofit corporations, is problematic because there is less agreement about the behavioral theories used in describing them. In the absence of an accepted behavioral theory, there cannot be agreement about how to trace the consequences of harm suffered by these organizations back to its effects on the welfare of individuals.

To begin the economic analysis of punitive damages, let us supply some numbers to the situation described in Example 3 of the preceding chapter.

> **FACTS:** A manufacturer of a fuel additive for automobile engines is keeping a careful eye on costs. He can set quality control at a high or a low level. High-level quality control costs $9000 per year and guarantees that the fuel additive is pure and never causes damage to automobile engines. Low-level quality control is costless (thus saving $9000) but results in some batches of the fuel additive's being flawed. A few of the cars using the flawed batch will be harmed; specifically, the expected damage to cars is $10,000 per year ($1000 in expected damages to each of 10 cars).

From an economic viewpoint, efficiency requires the manufacturer to make the quality-control expenditures because the company can expect to save consumers $10,000 per year by spending $9000 per year on quality control.

Will making the manufacturer strictly liable for compensatory damages produce this result? The answer is "yes" if the tort liability system is perfect, but "no" if it is imperfect. Suppose that the tort liability system is perfect in the sense that disputes between the manufacturer and consumers can be resolved without cost and error, and damages are perfectly compensatory. With a perfect tort liability system and a rule of strict liability, every car owner harmed by the product will recover from the manufacturer without having to spend anything to resolve the dispute. The manufacturer thus faces $10,000 in expected liability if he does not take precautions costing $9000. A rational manufacturer maximizes profits net of expected tort liability, so our manufacturer will set quality control at the high level.

But suppose we make the more realistic assumption that the tort liability system works imperfectly. Specifically, let us suppose that for every two consumers whose cars suffer damage, only one actually brings suit and recovers. The other consumer does not sue because she does not know that the fuel additive caused the harm, or she knows and cannot prove it. Call the ratio of compensated victims to total victims, which is 1/2 in this example, the "enforcement error." Given an enforcement error of 1/2 and assuming the successful plaintiff only receives compensatory damages, the manufacturer's expected liability will be $5000 if he adopts the low level of quality control. He can, however, save $9000 by reducing his quality control from high to low. So, enforcement error in this example creates a situation in which a profit-maximizing manufacturer, whose expected liability is limited to compensatory damages, will choose low-level quality control, which is inefficient.

The efficiency loss due to enforcement error can be offset by augmenting compensatory damages with punitive damages. Suppose, as above, that the actual damages are $1000 per car but that the court doubles this compensatory amount so that total damages are $2000 per car. If we call the amount in excess of compensation "punitive damages," then the punitive damages are $1000 per car. We might also refer to the multiplicative factor by which we adjusted the compensatory damages in order to offset the enforcement error as the "punitive multiple." In our example, a punitive multiple of two exactly offsets the enforcement error of 1/2 and restores the manufacturer's liability to the level that would have prevailed under perfect enforcement.[39]

---

[39] Implicit in this argument is the assumption that the rate at which consumers successfully bring suit against the manufacturer does not change when punitive damages are added to compensatory damages. This is a strong and unrealistic assumption. When damage awards are high, victims and their attorneys have stronger incentives to bring action against those who have injured them. This then causes a second-round effect, in that, as the number of actions increases, the enforcement error falls, and therefore the punitive multiple should fall. It is an open question whether the existence of a punitive multiple can increase the number of actions just enough to correct for the inefficiency caused by enforcement error or whether it leads to overenforcement.

We can state this method of computing punitive damages more abstractly by using some notation. Without punitive damages, decision maker's liability L is limited to compensatory damages, A, which are imposed with enforcement error e in the event of an accident. Thus,

$$L = Ae.$$

To offset the error, impose the punitive multiple m, so that liability is given by the equation

$$L = Aem.$$

By mathematical definition, the "reciprocal" of any value x equals $1/x$. Set the punitive multiple equal to the reciprocal of the enforcement error: $m = 1/e$. Thus, the punitive multiple exactly offsets the enforcement error, and the decision maker's liability reduces to $L = A$.

The law might adopt as a rule that, when punitive damages are awarded, the punitive multiple should equal the inverse of the enforcement error. If such a rule were written into the law, either by statute or by judges, juries would have some guidance in setting the punitive multiple. For example, if there were proof that an injurer had failed to take the appropriate amount of care, because she suspected that only a fraction of those injured would bring an action against her, the court could impose punitive damages in an amount determined by application of a punitive multiple equal to the inverse of the enforcement error.[40]

Web Note 7.8

In addition to the Kahneman, Sunstein, et al. piece cited in footnote 36 on page 258, there has been much additional interesting literature on the economics of punitive damages, including an important article by Polinsky and Shavell. We review that literature on our website.

Web Note 7.9

The United States Supreme Court has handed down several important recent decisions on the constitutionality of punitive damages. We describe these holdings and relate them to the material of this section on our website.

III. An Empirical Assessment of the U.S. Tort Liability System

How well does the tort liability system achieve its economic goal of minimizing the social costs of accidents? Many people—including some legislators and other leading decision makers—believe that the U.S. tort liability system is chaotic, unfair, and inefficient.

[40] A recent opinion by the United States Supreme Court—*Philip Morris v. Williams* (2007)—seems to suggest that the instrumental use of punitive damages that we suggest in this section may be unconstitutional. See Web Note 7.9.

Their evidence is largely anecdotal, not systematic, but those anecdotes are striking. For example, many people are aware that in the mid-1990s a woman who was scalded when she spilled coffee from a drive-through window at McDonald's recovered $640,000 in compensatory damages and $2.9 million in punitive damages for her injuries.[41] And many municipalities are said to have removed play structures and swing sets from their public parks and diving boards from the public swimming pools because of the fear of liability. Congress and many state legislatures consider numerous tort reform bills each year, all motivated by a desire to reduce high liability insurance costs (triggered, it is said, by adverse liability judgments).

Anecdotes should not be the basis for assessing something as complex as the U.S. tort liability system. Such an assessment requires quantitative empirical evidence, which is quickly improving but still remains at an early stage of development. We will review the evidence and show that the U.S. tort liability system performs better than its harshest critics claim. We begin with some descriptive number and then briefly consider the empirical literature on products liability, medical malpractice, and mass torts.[42]

A. Some General Facts About the U.S. Tort Liability System

Over the past 150 years the most numerous controversies in federal and state courts arose under contract law. However, some time in the mid-1990s tort cases became the most common form of adjudicated controversy.[43]

In the United States, tort law, like contract and property law, is largely state law. And as we have indicated at several points in the text, there are some significant differences among the states in these substantive areas of law. In one of the most recent assessments of the civil justice system, there were, in 1994, slightly more than 41,000 tort cases resolved in federal district courts (some of which were in federal court on the ground of diversity but were resolved by the federal court by the application of state law). During the same time period there were more than 378,000 tort cases resolved by state courts in the largest 75 counties in the United States.

Of these state and federal tort cases, 94 percent involve an individual plaintiff. This is in clear contrast to contract cases, where a significant fraction involve multiple plaintiffs.

Slightly more than 60 percent of the tort cases in the 75 largest counties in the United States deal with accidents involving automobiles. The next most common type of tort dispute (accounting in 1992 for just over 17 percent of all tort cases) is

---

[41] See *Libeck v. McDonald's Restaurants, P.T.S., Inc.,* No. D-202 CV-93-02419, 1995 WL 360309 (Bernalillo County, N.M. Dist. Ct. Aug. 18, 1994).

[42] We have relied on Daniel Kessler & Daniel Rubinfeld, *Empirical Study of the Civil Justice System*, in A. MITCHELL POLINSKY & STEVEN SHAVELL, EDS., HANDBOOK OF LAW AND ECONOMICS, V. 1 (2007). Also see our website for some additional material on the empirical assessment of the tort liability system.

[43] See our discussion of other trends in litigation in the last part of Chapter 11.

that arising from "premises liability" for, say, slips and falls or other injuries at residences, governmental offices, or commercial establishments. The third most common form of tort case is medical malpractice, accounting for just under 5 percent of all torts. And the fourth is products liability, accounting for 3.4 percent of the total.[44]

Critics of the tort liability system in the United States contend that juries award punitive damages too often and too liberally and that judges do little to restrain these punitive awards. However, punitive damages are extremely rare. In all product-liability cases between 1965 and 1990 there were only 353 punitive awards, and those averaged $625,000 (in 1990 dollars). Appellate panels reduced many of these punitive awards so that, after appeal, the average fell to $135,000. More than 25 percent of those 353 awards involved asbestos. Over the entire period there was an average of 11 punitive-damages awards per year in product-liability cases in all state and federal courts. A careful study of punitive damages in product-liability cases found that at the trial level the ratio of punitive to compensatory damages was 1.2 to 1; in more than one-third of the cases in which punitives were awarded, compensatory damages were larger than the punitives.[45] More than half the states prohibit or cap punitive damages or raise the evidence standard that must be met before they can be awarded.[46] Recall that the usual standard in civil actions is "preponderance of the evidence," which is generally taken to mean 51 percent believability. The "clear and convincing" evidence standard is more demanding, but not as demanding as the criminal law's standard of "beyond a reasonable doubt."

The theme of much of the empirical literature is that the tort liability system (perhaps in conjunction with the administrative agency regulatory system) works reasonably well at deterring accidents. In most situations in which accidents might happen, the recent trend in the United States has been toward fewer and less severe accidents. For instance, the number of motor vehicle deaths and injuries peaked around 1970 and has declined ever since. The death and injury *rate* per capita has shown a dramatic drop.

Web Note 7.10

A central issue for the economic analysis of tort law is the extent to which exposure to tort liability induces parties to behave in an efficient manner. In the last few years there has been an outpouring of scholarship designed to explore this matter with careful empirical studies. We review this literature on our website.

---

[44] We will see in Chapter 11 that there is evidence to suggest that the total number of trials of all kinds has been declining in the United States. We will also consider some additional facts about litigation, such as the success rate of plaintiffs in different kinds of actions. To the extent that there is specific information about success in torts cases, we will describe it in the next two sections of this chapter.

[45] Michael Rustad, *Demystifying Punitive Damages in Products Liability Cases: A Survey of a Quarter Century of Verdicts,* The Roscoe Pound Foundation (1991).

[46] Twelve states require a "clear and convincing" evidence standard for punitive damages but do not limit the amount. Another twelve states cap the amount of damages and require the "clear and convincing evidence" standard. Seven states require a portion of the punitive award to be paid to the state. Four states prohibit punitive-damages awards.

B. Medical Malpractice

Even though disputes about iatrogenic injuries (those arising in the course of health care delivery) are a relatively minor portion of all tort cases (accounting for about 5 percent of the total), there has been a great deal of concern about medical malpractice litigation. And with some justification. The Institute of Medicine reported in 2000 that medical errors are the "leading cause of accidental death in the United States."[47] Exact figures are hard to pin down, but estimates made in 1997 range from 44,000 to almost 100,000 deaths per year. "Medication errors alone account for approximately 7000 deaths per year, exceeding the number of deaths due to workplace injuries."[48] A comprehensive study of hospital admissions in New York State during 1 year in the 1980s found that 1 percent of admissions involved serious injury due to negligent care.[49]

The most careful studies of medical malpractice litigation indicate that the "number of malpractice claims per physician and the award paid per claim increased rapidly in the United States from the 1960s to the 1980s. Claim frequency increased at more than 10 percent per year, reaching a peak of 17 claims per 100 physicians in 1980s. Awards paid per claim increased at roughly twice the rate of inflation."[50] There is some evidence to suggest that in at least some jurisdictions the rate of increase of both claims against physicians and award levels ceased or slowed significantly in the 1990s and remained at those lower levels through the early 2000s, perhaps as a result of statutory reform, which we will discuss at the end of this section.

The tort liability system should provide an incentive for physicians and other health care professionals to take precautions against injuries. Are the incentives currently provided by the system deficient, efficient, or excessive? With current evidence, we can only speculate. Physicians have monetary incentives to be careful when they bear the cost of the accidents that they cause. Liability insurance transfers the cost of accidents caused by physicians to the insurer. The insurance rates paid by individual physicians respond only weakly to the history of tort claims against them, so physicians may bear only a fraction of the costs of patient injury.[51] Furthermore, a study of New York State hospital patients by Weiler found that only about 10 percent of those who were injured—even seriously—filed a complaint against their health care provider. These facts suggest that monetary incentives for care by physicians are deficient.

Evidence about "defensive medicine" can be interpreted as implying the opposite conclusion. This phrase refers to procedures and treatments motivated by reducing liability

---

[47] JANET CORRIGAN, LINDA T. KOHN, & MOLLA S. DAVIDSON, TO ERR IS HUMAN: BUILDING A SAFER HEALTH SYSTEM (2000).

[48] See Daniel Kessler in the Winter 2000 edition of the *NBER Reporter*, available at http://www.nber.org/reporter/winter00/kessler.html.

[49] See PAUL C. WEILER, HOWARD HIATT, JOSEPH P. NEWHOUSE, WILLIAM G. JOHNSON, TROYEN A. BRENNAN, & LUCIAN L. LEAPE, A MEASURE OF MALPRACTICE: MEDICAL INJURY, MALPRACTICE LITIGATION, AND PATIENT COMPENSATION (1993).

[50] Patricia Danzon, *Liability for Medical Malpractice*, in A. J. CULYER & JOSEPH P. NEWHOUSE, EDS., HANDBOOK OF HEALTH ECONOMICS, v. 1B (2000).

[51] See Frank Sloan, *Experience Rating: Does It Make Sense for Medical Malpractice Insurance?,* 80 AM. ECON. REV. 128 (1990).

more than by medical needs. Thus, doctors and hospitals take too much care in the hope of forestalling injury or demonstrating in later litigation that they did "everything possible" to prevent harm. Patients have little reason to resist unnecessary procedures that do no harm so long as insurance companies pay the bill. In 2005, U.S. health care spending was 16 percent of gross domestic product, or $6697 per person.[52] Plausible estimates suggest that defensive medicine accounts for, at most, 5 percent of total health care costs. If these figures are right order of magnitude, then defensive medicine costs each American around $300 per year.

Societal concerns about the cost and availability of health care and the possible link between medical malpractice and those concerns have motivated many states to reform their medical malpractice systems.[53] Those reforms have taken two particular forms—limitations on the total amount and kind of damages available in medical malpractice actions and abrogation of the collateral source rule in medical malpractice.

These reforms may sometimes have perverse results. In the mid-1980s, Indiana capped medical-malpractice awards at a maximum of $500,000 for all damages and instituted a professionally administered patient-compensation fund to decide all losses above $100,000. The unexpected result was that malpractice awards in Indiana became one-third higher than those in Michigan and Ohio, which had kept the traditional method of compensation. Perhaps the reason for the Indiana result was that the professional administrators were better able than lay jurors to calculate damages and, therefore, came closer to the "true," higher losses of the victims.

The intended effect of the limitation on damages for medical malpractice is, we hope, obvious. Some states limited the total amount that could be recovered in any tort action, while others capped noneconomic damages, such as those on pain and suffering. Some state supreme courts, such as that in Illinois, have struck down those limitations. But most caps have survived litigation and attempts at legislative reform.[54]

---

[52] Aaron Catlin, Cathy Cowan, Stephen Heffler, & Benjamin Washington (the National Health Expenditure Accounts Team), *National Health Spending in 2005: The Slowdown Continues*, 26 HEALTH AFFAIRS, 142 (2007).

[53] Health care costs in the United States in 2009 account for almost 18 percent of the $13 trillion Gross Domestic Product, and in late 2009 there were approximately 47 million uninsured people (of a total population slightly greater than 310 million), two-thirds of whom are low income.

[54] At least one state, Florida, sought to reduce malpractice litigation by abrogating the American rule in favor of the English rule for attorney's fees in some malpractice actions. (The American rule, which we will discuss in Chapter 11, calls for each party to pay its own attorney's fees. The English rule calls for the losing party to pay not only for its attorney but also for the winning party's attorney.) The thought was that there would be less incentive to bring a speculative cause of action under the English rule. Florida abandoned the experiment after only five years, 1980–1985. See James W. Hughes & Edward A. Snyder, *Litigation and Settlement under the English and American Rules: Theory and Evidence,* 38 J. LAW & ECON. 225 (1995) (which found that plaintiff success rates, average jury awards, and the size of out-of-court settlements all increased under the English rule, perhaps because the average quality of those claims brought forward increased under the English rule), and A. Mitchell Polinsky & Daniel Rubinfeld, *Does the English Rule Discourage Low-Probability-of-Prevailing Plaintiffs?*, 32 J. LEGAL STUD. 517 (1998) (which argues that, taking the settlement process into account, the English rule encourages *more* litigation by low-probability-of-prevailing plaintiffs).

In an earlier discussion of insurance, we explained that an accident victim's compensation from an insurance company does not reduce the tort damages owed by the injurer. Suppose that the plaintiff seeks $100,000 in damages from the defendant-injurer and has already been paid $80,000 from her insurer for her injuries. According to the legal principle called the "collateral source rule," the plaintiff does not have to reduce the amount she seeks from the defendant—to, say, $20,000—by deducting the collateral benefits. Some states changed this rule, mandating deduction of collateral benefits for injuries received in the course of health care delivery. The thought was that the collateral source rule created an incentive for plaintiffs to litigate on the theory that they could recover more than their actual losses. So, removing the rule would, all other things equal, reduce the incentive to bring medical malpractice complaints.

Both types of reform seek to reduce health care costs by reducing medical malpractice awards. Were the reforms responsible for the slowdown in the number of malpractice actions in the 1990s and early 2000s and the cessation in the rate of increase of the average malpractice award? Or were there other factors—such as an increase in the technology of treatment and levels of precaution—that explain these effects? The evidence is still not clear. There is some evidence to suggest that reforms in the 1980s reduced defensive medicine expenditures by 5 to 9 percent and that the supply of physicians was about 12 percent greater in those states with caps on noneconomic damages, by comparison to the supply in states without those caps.[55] But other evidence suggests that the medical malpractice problems observable in the United States are not specific to the structure of the U.S. civil justice system but are happening worldwide, perhaps because the great advances in medical technology have made a much wider range—a perhaps a *riskier* range—of medical interventions possible.

Web Note 7.11

Some prominent legal scholars have been using a remarkable data set from the State of Texas to explore many issues in medical malpractice. We summarize their work on our website.

Web Note 7.12

Product liability might be triggered by a design defect, a manufacturing defect, or a failure to warn consumers (and intermediaries) of risk of harm. On our website we discuss some economics of the duty to warn and some recent empirical evidence on the effectiveness of that duty.

---

[55] See Kessler & Rubinfeld, supra n. 42, for citations.

C. Reforming Products Liability

Products liability law is the focus of much of the public dissatisfaction with the entire tort liability system. A survey of chief executive officers by the Conference Board (a business interest group) found that liability concerns caused 47 percent of those surveyed to drop one or more product lines, 25 percent to stop some research and development, and 39 percent to cancel plans for a new product. In some instances, insurers have decided that the products liability area is so uncertain that they have withdrawn from the market entirely. Some of the manufacturers and others who have been left without insurance coverage have decided to stop making their products, or they have raised prices to cover the cost of additional risks of liability. Since the early 1980s in the United States there has been a powerful political interest in reforming products-liability law both at the federal and state level. But until very recently no reform occurred.

Manufacturers have long argued for reform at the federal level for two reasons. First, they contend that a uniform federal products-liability law would save costs, with consequent savings to consumers. Second, many manufacturers believe that the products-liability law that has become the norm in the states is seriously flawed. Specifically, they believe that plaintiffs win too easily, and that juries are overly generous to successful plaintiffs (as evidenced, they believe, by the example of the award against McDonald's for a hot coffee spill). The argument that the manufacturers make is that these inefficiencies could be corrected by Congress enacting a sensible uniform federal products-liability law. Although reform measures have been introduced in Congress for many years, they have never been passed by both houses.

At the state level, there was a spate of reforms in the mid-1980s and a second round in the mid-1990s. The reform movement has not revived in the early 2000s. State reform has typically been limited to putting a cap or upper limit on the amount and kind of damages that victims can recover. Sometimes the states place this cap only on what is perceived to be the offending element in damage awards, such as pain-and-suffering or punitive damages. For example, Illinois' 1995 Civil Justice Reform Act put a cap on noneconomic damages of $500,000 and limited punitive damages to three times compensatory damages.[56]

We should note, in light of the material at the beginning of this chapter, that federal regulatory agencies do a significant job of promoting product safety. For example, the Consumer Product Safety Commission, the National Highway Transportation Safety Administration, the Occupational Health and Safety Administration, the Federal Aviation Administration, the Food and Drug Administration, and the Environmental Protection Agency issue and enforce product safety regulations for a wide variety of products.[57] An important issue is whether this joint system of *ex ante* safety regulation and *ex post* liability exposure achieves the socially optimal amount of care. Or does it do too little or too much?

As was the case with medical malpractice, the effects are unclear. The empirical literature on the effects of products liability, regulations, and the reforms instituted in

---

[56] The Illinois Supreme Court found this act to be unconstitutional in 1997.

[57] See CONGRESSIONAL BUDGET OFFICE, THE ECONOMICS OF U.S. TORT LIABILITY: A PRIMER (2003), available at http://www.cbo.gov/showdoc.cfm?index=4641&sequence=0. Recall, too, that in Web Note 7.2 we described the story of liability for harms arising from cigarette use.

the 1980s and 1990s is still young and has not yet reached a consensus. There is some evidence to suggest that the reforms eased the liability pressure on manufacturers, and thereby caused liability insurance premiums to stop their long pattern of increase. And there is some evidence that accidental injuries and deaths have declined in the early 2000s, although how much of that decline is due to law is not clear.

QUESTION 7.11: Analyze caps and limitations on litigation awards using the analysis of rent control in Chapter 2.

QUESTION 7.12: Use the graphical analysis of liability of the previous chapter to show the effect on the precautionary decisions of a potential injurer when the amount of compensatory damages that a victim may receive is capped.

QUESTION 7.13: Suppose that any punitive damages awarded to the plaintiff were to be paid, not to the plaintiff, but rather to, say, a charity designated by the plaintiff. How might plaintiffs' incentives to seek punitive damages be affected by such a scheme? How might the jury's disposition to award punitive damages be affected?

Notwithstanding specific problems, there are other indications that the system is working reasonably well. Products-liability actions in the United States increased in the mid and late 1980s, but the vast majority of those cases involved asbestos. If we exclude asbestos claims, the number of products-liability cases in the federal courts between 1985 and 1991 *decreased* by 40 percent and has remained at that low level through the early 2000s. Another interesting recent change regards plaintiff success rates. Between 1981 and 1987 the defendant won 51 percent of the verdicts in products-liability cases. Between 1988 and 1994 defendants won 64 percent of the cases. The best recent figures for the early 2000s suggest a retreat to a roughly 50 percent success rate for defendants. Finally, products-liability insurance costs amount to one-quarter of one cent for each dollar of product purchase price—an insignificantly small amount.[58]

Web Note 7.13

In a recent article in the *Harvard Law Review*, Professors Polinsky and Shavell discuss the "Uneasy Case for Product Liability." We discuss that article and several comments on it in this web note.

D. Mass Torts

A "mass tort" is not a formal legal term but rather a term used to describe a situation in which a large number of tort claims arise from a single incident or use of the same product.[59] An example might be the Bhopal disaster in 1984 in India in which a

[58] See James A. Henderson & Theodore Eisenberg, *The Quiet Revolution in Products Liability: An Empirical Study of Legal Change,* 37 UCLA L. REV. 479 (1990). The figures cited in this study are for actions filed in federal courts. Most tort actions are filed in state courts, but the authors feel that the federal statistics also reflect trends in state courts.

[59] Mass torts are related to but distinct from class actions, which may be an administratively tractable method of dealing with mass torts. We will discuss the economics of class actions in Chapter 11.

cloud of a highly toxic chemical escaped from a Union Carbide plant and killed between 15,000 and 20,000 people and injured thousands more. Dealing with an incident of this sort may overwhelm the normal institutions and practices of the tort liability system. As a result, the law has increasingly tried to deal with the problems of mass torts through novel arrangements.

Consider the problems arising from asbestos. Asbestos has remarkable fire-retardant properties, which made it a valuable construction material. It was used extensively in the United States from the 1930s through 1979, when use virtually ceased. The cessation occurred because it became increasingly obvious that asbestos could be extremely dangerous to one's health, including killing some of those who inhaled asbestos fibers. Inhaling asbestos causes cancer, but the gap in time between exposure to asbestos and the appearance of cancer can be 20 years. During the 50 years of asbestos use and the decade or so during which removal of asbestos was a common practice (before being suspended as causing more harm than good), more than 25 million U.S. workers were exposed to ambient asbestos fibers and could, therefore, contract a debilitating disease or die. It is estimated that more than 225,000 premature deaths occurred between 1985 and 2000 because of exposure to asbestos fibers. And estimates are that an additional 10,000 people will die each year for the next decade or more because of exposure to asbestos. Much larger numbers of people have been injured but not killed by exposure to the fiber.

Naturally, when these health risks became widely known, a large number of claimants stepped forward to seek compensation from the asbestos manufacturers and others. Indeed, 600,000 claimants had come forward by the year 2000 to proceed against 6000 defendants representing 75 out of 83 possible industries (suggesting that this problem touches almost every branch of the U.S. economy). Several important firms have filed for bankruptcy because of earlier or reasonably anticipated adverse judgments involving asbestos.

A large number—perhaps a majority of claimants—may never develop an asbestos-related disease. Liability law does not compensate for *exposure* to risk, as opposed to the *realization* of a risk. A person exposed to asbestos must wait until she actually develops an asbestos-related disease before suing. However, the victims who develop such a disease must assert their claims without delay. Every jurisdiction in the United States has a statute of limitations that requires all those who seek compensation to come forward within a relatively short time to assert their claim against others.[60] Failing to do so may cause the victim's cause of action to lapse. In light of these statutes, claimants who think that they may develop an asbestos-related disease come forward as soon as they can. They sue when X-rays are consistent with the early stages of disease, even though disease may not develop fully. This uncertainty makes the claimants extremely uneasy but also creates an incentive for the defendants to contest liability (and to delay settlement as long as possible in the hope that asbestos-related diseases will never become manifest).

---

[60] Every legal system has a similar set of rules for encouraging those with legal claims to come forward. The period during which a victim must assert her claim or lose it is called a "prescriptive period" in the civil law systems. The law also uses the phrases "statute of repose" and *laches* to describe situations similar to those covered by a statute of limitation.

Dealing with this litigation has been extremely expensive. One estimate suggests that more than $50 billion has been spent on asbestos litigation. More than half of that amount has, it is alleged, gone to pay for transaction costs, rather than redounding to the benefit of victims. There are plausible estimates that total litigation costs have reached more than $250 billion, with almost all asbestos cases resolved, as of late 2009.

To deal with mass torts, the courts and legislatures have been willing to entertain novel practices. One reason for these novelties is a fear that relying upon standard tools of tort liability might lead to injustices. The slow development of asbestos-related diseases creates a conflict between the timeliness of claims required by statutes of limitation and the need to get compensation to deserving plaintiffs. To address this and other perceived problems with resolving the large number of asbestos claims through private litigation, Congress has proposed (in "The Fairness in Asbestos Injury Resolution Act" (2005)) for several years (but not enacted, as of July, 2010) the creation of a trust fund to provide limited compensation to victims of asbestos-related diseases and to limit liability of defendants.

Consider one more example—problems of proving causation arising in a mass tort having to do with the drug DES (diethylstilbestrol). DES was administered to pregnant women in the 1950s to prevent miscarriages. However, the drug caused genital diseases, including cervical cancer, in some of the adult women whose mothers had taken DES 20 or more years ago. By the time the connection between the adult diseases and the DES was discovered, it was all but impossible for the plaintiffs to produce evidence about which manufacturer had produced the DES taken by their mothers 20 years or more before. Standard theories of causation in tort required the plaintiff to demonstrate by a preponderance of the evidence that the defendant was responsible for the plaintiff's harm. In these instances, plaintiffs had been harmed by one of the manufacturers of DES, but they could not demonstrate which one or ones. Rather than allow the plaintiffs to leave the court empty-handed, the California Supreme Court fashioned a novel theory of liability—"market share liability"—according to which all the manufacturers who might have been selling DES to the plaintiff's mother would share liability for the plaintiff's damages in proportion to their market shares in the market for DES at the time of the mother's having taken the drug.[61]

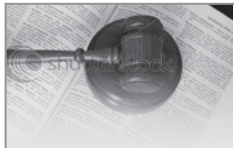
Web Note 7.14

The tragic events of September 11, 2001 gave rise to mass torts. See our website for a discussion of the methods by which the federal government put together an administered compensation package for those who lost relatives and others in the tragedy.

QUESTION 7.14: Explain how a potential victim's waiving a future claim (that is, an employee's agreeing not to seek compensation from his employer if he is injured on the job) is like a transaction in a UTC (which we explain in the box on pp. 272–73).

---

[61] See *Sindell v. Abbott Laboratories,* 26 CAL. 3D 588, 607 P.2D 924, 163 CAL. RPTR. 132, *cert. denied,* 101 S. CT. 285 (1980).



Vaccines and Products Liability

Many recent products-liability cases involve the duty of pharmaceutical manufacturers and doctors to warn those taking drugs of the potential risks involved.

One such case involved two polio vaccines. The first vaccine against this crippling disease was the Salk vaccine or IPV, which is a so-called killed-virus vaccine. The killed-virus vaccine prevents polio in the person who receives it without presenting the risk that the recipient will contract polio. The second vaccine was the Sabin vaccine or OPV, a "live-virus" vaccine. The recipient retains the live virus in his or her system and can pass it to others, who are themselves immunized against polio. This external benefit is so considerable that public-health authorities strongly recommended that young children take the Sabin vaccine instead of the older Salk vaccine. When only the Salk vaccine was available, there were 2500 cases of polio a year. After the development of the live-virus vaccine, polio virtually disappeared.

However, the live-virus presents a risk.[62] Approximately one of every 4 million people who take the vaccine or come in close contact with those who have taken OPV contracts polio.

The law should require vaccine manufacturers to warn recipients of the risk from the live-virus vaccine. That is precisely what the U.S. Court of Appeals for the Fifth Circuit held in *Reyes v. Wyeth Laboratories,* 498 F.2d 1264 (1974). After *Reyes,* it became standard practice for vaccine manufacturers to include package inserts warning of the risks of the OPV vaccine.

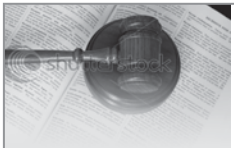
However, that resolution was only temporary. The more general trend toward absolute or enterprise liability for product-related harms has been felt in this market, too. In many recent cases, children, whose parents had been warned in accordance with *Reyes* but who, nonetheless, took the live-virus vaccine and developed polio, sued the manufacturers and received large awards. Without the defense of assumption of the risk after an adequate warning, the manufacturer cannot avoid liability. Therefore, the company must build this higher expected-liability cost into the costs of production.

Pharmaceutical manufacturers are so fearful of products-liability awards that they have become reluctant to manufacture and distribute beneficial drugs. In 1976, after an outbreak of swine flu, a dangerous illness, manufacturers of a swine flu vaccine refused to market it because private insurers, fearful of the product-liability consequences of 100 million or more injections, would not issue liability insurance. The companies offered the inoculations only after the federal government agreed to be the exclusive defendant in any actions for harms arising from the vaccine.[63] The DPT vaccine against whooping cough is in short supply in this country because the largest manufacturer, Eli Lilly & Company, has stopped producing the drug due to its fear of adverse products-liability judgments. Currently the following vaccines that were once manufactured by a number of firms in the United States are now produced by a single firm: measles, mumps, Sabin polio, Salk polio, and rabies. Worse still, the threat of product-liability suits may reduce the incentive of pharmaceutical companies to invest in research and development of potentially beneficial new drugs.

---

[62] See Edmund Kitch, *Vaccines and Product Liability: A Case of Contagious Litigation,* REGULATION (May/June 1985).

[63] The vaccine's manufacturers proved particularly astute in this matter. The vaccine seems to have caused a potentially paralyzing or fatal disease called Guillain-Barré syndrome in a small fraction of those who were inoculated. Numerous plaintiffs brought actions against the federal government, as the sole defendant, on a theory of inadequate warning. The federal government relatively quickly stopped the program of inoculation for swine flu.



Contractual Solutions to the Tort Liability Crisis[64]

A victim's right to compensation for accidental harm is a form of insurance. Victims buy these rights from insurance companies by contract and the tort system gives these rights to potential victims by law. The tort system, however, gives people far more rights to compensation than they buy from insurers. Critics of the tort liability system complain that it gives people insurance that they do not buy when they have to pay for it themselves. Thus, parents seldom insure their children's lives, and few people buy insurance against emotional distress or pain and suffering.

It is easy to see why people do not buy insurance for some kinds of harm that tort law compensates. Insurance transfers money from the uninjured state (the premiums paid by the customers for insurance policies) to the injured state (the claims made by the injured policyholders). For some tort claims, the cost of the transfer is very high. Thus, claims for nonpecuniary damages are very costly to assess and administer, and negligence is costly to prove in, say, medical malpractice cases. For other tort claims, the transfer is inappropriate because money is *not* more useful in the injured state than in the uninjured state. Thus, the death of a dependent child reduces the parents' need for money.

In principle, allowing potential victims to sell unwanted tort rights can solve the problem of unwanted insurance caused by tort liability. Here is how sales would work. A potential victim's right to damages in the event of a future accident is an "unmatured tort claim" (UTC). Imagine a market for UTCs. Potential tort victims could sell their right to recover and could include in the sale whichever of their tort rights they chose to sell and retain others for their own use. For example, a victim might sell the right to recover her nonpecuniary losses in an automobile accident but retain her right to recover her major pecuniary losses. Or she might sell the right to recover in the event of medical malpractice but keep the right to recover in the event of a product-related injury. If someone had sold her tort claims to a third party and was later injured, she could not recover from the injurer; she could, however, recover from an insurance company if she had bought insurance.

A market for UTCs could be extremely flexible. Consider, for example, how a regime of no-fault automobile insurance could result from a market in UTCs. Suppose that drivers sell some of their rights to recover for tortious injuries in automobile accidents to their own insurance companies. Their own insurers might then waive these rights in exchange for payment from the insurance companies of other drivers.

If it were legal to sell and buy UTCs, potential victims would probably substitute first-party insurance for the current method of compensation through the tort liability system. This first-party insurance would probably be a cheaper means of compensating victims than is the tort liability system. But what about the deterrence function of tort law? How will the creation of a market for UTCs induce potential victims and injurers to take care? Interestingly, there might be no significant difference in deterrence from the current system, and there might be an improvement. There will, after all, be someone proceeding against the injurer for recovery in the event of an accident; it just might not be the victim. Indeed, the deterrence effect under UTCs may be better than under the current system: Third parties who have purchased UTCs may have a strong incentive to monitor the behavior of potential victims and injurers for optimal precaution.

---

[64] The material in this box is based on Robert D. Cooter, *Towards a Market in Unmatured Tort Claims,* 75 VA. L. REV. 383 (1989). See also PAUL RUBIN, TORT REFORM BY CONTRACT (1993).

Current American law prohibits victims from selling tort claims to lawyers. Thus, the plaintiff cannot contract with her lawyer to receive a fixed fee before the trial in exchange for giving the lawyer all, or almost all, of the damages eventually awarded by the court. Current law, however, does not prohibit nonlawyers from buying some matured tort claims, and a small market has already developed on the Internet.

QUESTION 7.15: Imagine a system of contractual or elective no-fault with respect to product-related injuries. Manufacturers would offer with their products schedules of benefits that they would pay if consumers should be injured while using the products. In the event of an injury, there would be no inquiry into the product's defect or the user's fault; benefits would simply be paid to the injured consumer according to the contractual schedule. Pain and suffering would not be compensable; collateral benefits would be deducted; and a few other restrictions would apply. Those manufacturers who chose not to offer elective no-fault would still be strictly liable for product-related injuries under the current system. Explore the efficiency of this elective no-fault system. (See J. O'CONNELL, ENDING INSULT TO INJURY (1975).)

Workers' Compensation

The most prominent form of no-fault liability in the United States is the system for dealing with employee accidents that occur on the job, which are common. In any given year approximately 3 percent of all industrial workers will be injured while on the job sufficiently to result in lost work time. This risk of on-the-job accidents is slightly higher than the risk of accidents off the job—for example, in the home.

Through the late nineteenth century, the common law of job-related accidents made it extremely difficult for plaintiff-employees who had been injured on the job to recover from their employers or from anyone else.[65] Early in the twentieth century, most industrialized countries, including the United States, adopted an alternative to tort liability for dealing with on-the-job accidents—namely, a system of compulsory compensation of injured employees without regard to fault. Today all but three states in the United States have a compulsory system for nearly all workers, and more than 90 percent of the United States labor force is covered by workers' compensation systems. The systems typically work in the following way. Employers contribute sums to the state workers' compensation system based on the dollar amount of their payroll. When an employee is injured, he

(*Continued*)

[65] There were three defenses available to the employer: (1) common employment (also known as the "fellow servant rule"), under which the employer could escape liability by claiming that the proximate cause of the plaintiff's harm was the negligence of another employee; (2) assumption of the risk, under which the employer could argue that the employee willingly assumed the risk of a job-related injury (on the economics of job-related risks, see KIP VISCUSI, RISK BY CHOICE (1983); and (3) contributory negligence, under which the employer could escape liability by showing that the employee's own negligence had contributed to the harm.

files a claim with the state governmental agency that administers the system. If the agency determines that the harm is job related, then it awards the employee compensation according to a statutory schedule of benefits. For example, the compensation for a lost finger may be $5000. For other injuries, the benefits may be determined in a relatively brief evidentiary hearing. For example, the victim may be awarded two-thirds of the lost wages and full compensation of medical and rehabilitation expenses. In the event of a dispute between the employee and the workers' compensation commission, a process of appeal and adjudication is available.

In the workers' compensation system, workers relinquished their right to sue their employers in tort law for on-the-job injuries and, in exchange, employers assumed strict liability for injuries suffered on the job. Is this an improvement? Almost all states in the United States compel employers to participate in the workers' compensation system, but Texas allows employers to opt out. Texas generates some data to compare a workers' compensation system and a system of tort liability. When large Texas firms opt out, they create their own system for compensating injured workers. If injured workers do not want to accept compensation offered under the employer's plan, then they must sue the employer in tort law and prove that the employer's negligence caused the injury.

Morantz investigated the claims for on-the-job injuries by employees of two large companies. These two companies opt out of workers' compensation for the retail outlets inside Texas, and they must remain inside this system for their retail outlets outside Texas. Morantz found a lower frequency of indemnity claims in Texas than outside of it, and she also found lower average per-claim costs. While she demonstrated cost savings to employers, the welfare effects on workers remains to be determined by future research.[66]

Conclusion

The tort liability system plays a significant role in reducing the frequency with which we accidentally lose our property, health, and lives. By allocating the cost of accidents, the tort liability system provides incentives for precaution, much as markets allocate costs and provide incentives for production. Improving the efficiency of the tort liability system can make the world safer at no more cost. Observers note various signs of inefficiency in tort liability law, such as significant differences in the level of compensatory damages for the same injury in different countries of similar wealth, unpredictable decisions about liability and damages from one case to another ("liability disparity"), defensive medicine, and vaccine shortages. Moving beyond anecdotes requires careful statistical studies that remain in short supply. The statistical knowledge that we do possess at this time, which we reviewed, is enough to debunk some myths about the tort liability system.

[66] For a report on work in progress, see Alison Morantz, *Rethinking the Great Compromise: What Happens When Large Companies Opt Out of Workers Compensation?*, Berkeley Law and Economics Workshop, 14 April 2008.

Suggested Readings

BAKER, TOM, THE MEDICAL MALPRACTICE MYTH (2005).

Bar-Gill, Oren, & Omri Ben-Shahar, *The Uneasy Care for Comparative Negligence,* 5 AM. LAW & ECON. REV. 433 (2003).

Black, Bernard, Charles Silver, David A. Hyman, & William M. Sage, *Stability, Not Crisis: Medical Malpractice Claim Outcomes in Texas, 1988-2002,* 2 J. EMP. LEGAL. STUD. 207 (2005).

DEWEES, DONALD, DONALD DUFF, & MICHAEL J. TREBILCOCK, EXPLORING THE DOMAIN OF ACCIDENT LAW (1996).

GAWANDE, ATUL, COMPLICATIONS: A SURGEON'S NOTES ON AN IMPERFECT SCIENCE (2002).

Hyman, David A., *Medical Malpractice: What Do We Know and What (If Anything) Should We Do About It?,* 80 TEX. L. REV. 1639 (2002).

PORAT, ARIEL, & ALEX STEIN, TORT LAW UNDER UNCERTAINTY (2002).

Schwartz, Gary T., *The Beginning and the Possible End of the Rise of Modern American Tort Law,* 26 GA. L. REV. 601 (1992).

Shavell, Steven, *Liability for Accidents*, in A. MITCHELL POLINSKY & STEVEN SHAVELL, EDS., HANDBOOK OF LAW AND ECONOMICS, v. 1 (2007).

SUNSTEIN, CASS R., REID HASTIE, JOHN W. PAYNE, DAVID A. SCHKADE, & W. KIP VISCUSI, PUNITIVE DAMAGES: HOW JURIES DECIDE (2002).