

ON THE SOCIAL FUNCTION
AND THE REGULATION
OF LIABILITY INSURANCE

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Abstract

The sale of liability insurance presents us with a basic question. On one hand, individuals want to purchase liability insurance coverage, suggesting that its ownership is socially good. On the other, the risk against which liability coverage protects its holders is having to pay legally-mandated sanctions. And because the purpose of legal sanctions is in significant part to discourage and to punish unwanted behavior, the fundamental issue arises whether liability insurance might undermine the effect of the law and thus be socially undesirable.

This concern led to early resistance against the sale of liability insurance, and reservations about the wisdom of liability insurance are reflected today by certain limitations on the sale of coverage. However, liability insurance is widely held, and without apparently untoward consequences for the functioning of the legal system.

My purpose in this paper is to discuss what the economic theory of insurance and of liability law imply about the social desirability, or lack thereof, of liability insurance. I first consider the standard model of accidents and determine there that liability insurance is socially desirable. I then turn to the chief circumstance under which regulation of liability insurance coverage may be justified -- when incentives to reduce risk are inadequate. Inadequate incentives may arise because of judgment-proof problems or the possibility of escape from liability. Regulation of liability coverage may then help to augment diluted incentives to reduce risk. Notably, requirements to purchase coverage may improve incentives when insurers can monitor insured behavior; and the opposite form of regulation, forbidding coverage, may increase incentives when insurers are not able to monitor insured behavior.

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1. Introduction

The sale of liability insurance presents us with a basic question. On one hand, individuals want to purchase liability insurance coverage, suggesting that its ownership is socially good. On the other, the risk against which liability coverage protects its holders is having to pay legally-mandated sanctions. And because the purpose of legal sanctions is in significant part to discourage and to punish unwanted behavior, the fundamental issue arises whether liability insurance might undermine the effect of the law and thus be socially undesirable.

This concern led to early resistance against the sale of liability insurance. As Tunc writes, At the beginning of the nineteenth century, liability insurance would have been unthinkable. It would have been considered as immoral.¹ He goes on to mention significant objection to its sale in various European countries, in some instances extending into the twentieth century.² The most notable example of restriction of the sale of liability insurance was the complete ban on liability coverage in the former Soviet Union.³

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¹Tunc (1974, p. 50).

²Tunc (1974, pp. 50-51).

³On the Soviet ban on coverage, see generally Rudden (1966); and see also Tunc (1974, pp. 51-52).

Reservations about the wisdom of liability insurance are reflected in most countries today by certain limitations on the sale of coverage. In the United States, coverage may be disallowed against punitive damages, and more broadly against liability deriving from many types of intentional acts, especially criminal ones.⁴

Notwithstanding any worries about the role that liability insurance might play in weakening deterrence of undesirable behavior, such insurance has, of course, become significant in fact. Liability coverage is widely held and accounts for over 90 per cent of tort-related payments in the United States,⁵ and without apparently untoward consequences for the functioning of the legal system. Indeed, in some contexts we observe requirements to purchase liability insurance coverage (drivers of cars must usually purchase coverage).⁶ Evidently, experience has taught us the lesson that liability insurance is on balance socially useful.

My purpose here is to discuss what the economic theory of insurance and of liability law imply about the social desirability, or lack thereof, of liability insurance.⁷ In Section 2, I consider the standard model of accidents and determine there that liability insurance is socially desirable. The kernel of the explanation is (a) that liability insurance protects risk-averse parties against the risk of liability, and, at the same time, (b) that liability insurance policies tend to

⁴For description of limitations on types of liability insurance coverage that may be sold, see, for example, Keeton (1971, pp. 285-305), Keeton, et al (1984, p. 586), Jerry (1996, pp. 471-477), and McNeely (1941).

⁵From Appendix A of O Connell et al (1994), it is evident that total liability payments made in 1990 were \$65.199 billion, of which \$60.981 billion were made by liability insurers; thus about 93.5% of tort liability payments were made by liability insurers.

⁶On required coverage, see, for example, Keeton, et al (1984, pp. 601-603).

⁷In so doing, I will be building upon, and synthesizing to a substantial extent, previous work of mine bearing on the subject: see Shavell (1982), Shavell (1986), and Chapters 8 - 10 of Shavell (1987). Other economically-oriented writing on liability insurance includes Abraham (1986), Jost (1996), Polbom (1998), Priest (1989), Sarath (1991), and Skogh (1982).

contain terms that lead policy holders to reduce risk and thus do not unduly interfere with liability-associated incentives. The specifics of the argument leading to this conclusion depend importantly on the ability of insurers to monitor the behavior of insureds. But whether or not insurers have good information about insureds' behavior, the important conclusion holds that liability coverage is socially desirable, and thus provides support for the general sale of coverage that we see.

In Section 3, I extend the basic analysis in several respects.

Then, in Section 4, I turn to the chief circumstance under which regulation of liability insurance coverage may be justified -- when incentives to reduce risk are inadequate. Inadequate incentives may arise because of judgment-proof problems or the possibility of escape from liability. Regulation of liability coverage may then help to augment diluted incentives to reduce risk. Notably, requirements to purchase coverage may improve incentives when insurers can monitor insured behavior; and the opposite form of regulation, forbidding coverage, may increase incentives when insurers are not able to monitor insured behavior.

In Section 5, I conclude.

2. Liability Insurance in The Basic Model of Accidents and Liability

A. The Model

Let us begin by considering the now standard model of accidents and liability, and append to it the feature of liability insurance. In particular, let us assume that there are two types of parties, (potential) injurers and (potential) victims, and let us make the following assumptions.

First, injurers can reduce the risk of harm by exercising care, which may be interpreted

as precautionary behavior such as driving a vehicle with attention to road conditions or as investment in safety devices such as a beeper that sounds when a truck backs up.⁸

Second, any harm that occurs is entirely monetary in nature.

Third, injurers are always sued by victims, are held strictly liable for harm, and have the assets necessary to pay for harm.

Fourth, injurers and victims are risk averse, and liability insurance is sold at actuarially fair premium rates by a competitive insurance industry.

Fifth, two forms of insurance regulation are possible: forbidding coverage; and requiring full coverage.

Sixth, social welfare depends positively on the expected utilities of injurers and of victims. Thus, in the socially ideal outcome, two things are true. First, both injurers and victims are insured against financial risk (either explicitly, through insurance coverage, or implicitly, by the ability to collect damages through the legal system). Second, injurers take a precaution if and only if it is cost-justified. An injurer precaution is said to be cost-justified if its cost is less than the expected reduction in harm that it engenders. Thus, a precaution that costs \$1,000 and that lowers the probability of a \$100,000 harm by 3% is cost-justified, as the expected reduction in harm it brings about is \$3,000.⁹

The socially ideal outcome just described is not necessarily attainable, but it is a natural

⁸For simplicity, I abstract from the possibility that victims may reduce risk by actions of their own.

⁹The definition of cost-justified precaution given in the text applies for a discrete precaution. If expenditures on precautions are continuously variable, then a small increase in expenditures is cost-justified if its cost is less than the expected reduction it brings about. That is, if x stands for the expenditures on precautions, and $p(x)$ is the probability of harm h , an extra dollar should be spent on precautions as long as $-p'(x)h > 1$. Equivalently, the socially optimal level of precautions x^* is the x at which $-p'(x)h = 1$; thus, x^* minimizes $x + p(x)h$, the costs of care plus expected harm.

standard for comparison.

B. Liability Insurers Can Observe Care and Link Premiums to Care

I consider two contrasting assumptions about liability insurers: that they can observe an insured injurer's level of care and link insurance premiums to it; and that liability insurers cannot do this.

Suppose first that liability insurers can observe injurers' levels of care. Then injurers will purchase complete liability insurance coverage; for, as is well known from the theory of insurance, risk-averse individuals will buy full coverage when premiums are fair. Moreover, because the coverage amount will be full and the insurance premium will reflect the risk associated with their level of precautions, injurers will be induced to take any cost-justified precaution. For example, consider the precaution that costs \$1,000 and that lowers expected harm, and thus expected liability, by \$3,000. If the injurer takes this precaution, he will lower his insurance premium for full coverage by \$3,000, so he will clearly take the precaution.¹⁰

It follows that the outcome will be socially ideal. As just explained, injurers will take precautions whenever they are cost-justified. Further, no one will bear risk. Injurers will be protected against risk by their ownership of complete liability coverage, and victims will be protected against risk by the liability system.¹¹

A direct implication of this point, that the outcome will be socially ideal when liability

¹⁰Essentially the same conclusions noted in this paragraph can be shown to apply if insurers cannot observe the level of precautions ex ante and link premiums to the level of precautions, but can observe the level of precautions ex post, that is, if an injurer actually causes harm and makes a claim. In this situation, insurers can sell policies under which coverage is denied if injurers failed to take a stipulated level of care; such a policy will also provide insured injurers proper incentives to take any cost-justified precaution. See Shavell (1979).

¹¹The conclusion that liability insurance is socially desirable in this case is first proved in Shavell (1982).

insurance is sold, is that it cannot be socially desirable to limit or to forbid the purchase of liability insurance.

It should thus be observed that, as emphasized in the Introduction, the view that liability insurance interferes with liability-related incentives to take precautions may be incorrect. In the present case, the knowledge possessed by liability insurers of levels of precautions enables the insurers to link premiums to levels of care. The incentives of the liability system are then translated perfectly into the incentives associated with liability insurance.

C. Liability Insurers Cannot Observe Care and Link Premiums to Care

Now assume that liability insurers cannot observe injurers' exercise of care. In this more complex case, we know from the theory of insurance that, in general, injurers will tend to buy positive coverage but not full coverage.¹²

Consider again the precaution that costs \$1,000 and that would reduce expected liability by \$3,000, specifically, that would reduce the likelihood of a \$100,000 liability from 10% to 7%. If injurers were to purchase full coverage of \$100,000, they would have no incentive to take the precaution, so their risk category would be 10%, and the premium they would have to pay would be \$10,000. Suppose instead that injurers purchase only partial coverage, for instance, \$60,000 of coverage. Then they would bear the remaining \$40,000 of liability themselves in the event of an accident, and thus will be led to spend the \$1,000 on the precaution to reduce the risk of harm

¹²See, for example, Pauly (1974) and Shavell (1979).

to 7%.¹³ Because, then, insureds will be induced to take the \$1,000 precaution if they purchase the \$60,000, partial coverage policy, the liability insurer selling that policy will experience a risk of claims of only 7%, not 10%. This means that the fair premium rate for the \$60,000 coverage will be only 7 cents per dollar, not 10 cents per dollar. As a consequence, the fair premium for the \$60,000 policy will be \$4,200. The injurers may well prefer to have the \$60,000, partial coverage policy at a premium cost of \$4,200 (and to be induced to spend \$1,000 on the precaution) than to have full coverage at a substantially higher premium cost of \$10,000.¹⁴ For this reason, policies with partial coverage are often best for injurers.

Although in the foregoing example, injurers were spurred to take a cost-justified precaution by purchasing a partial coverage policy under which they were made better off, that will not always be the case. In other words, in some circumstances, injurers will not be led to take a cost-justified precaution by a partial coverage policy that they will prefer, for the risk that they would have to bear in order to be induced to take the precaution may be too high to make the policy attractive. Whether they will be led to take a cost-justified precaution by bearing partial liability so as to make them better off depends on the cost of the precaution, the magnitude of the potential liability, and their degree of risk aversion.

As a general matter, when care is continuously variable, injurers' behavior is, under wide conditions, as follows. Injurers purchase partial coverage against liability; the level of care that

¹³They will reduce their expected out-of-pocket loss by $3\% \times \$40,000$ or by \$1,200 by so doing, which makes spending the \$1,000 worthwhile, especially because they are risk averse.

¹⁴To illustrate, suppose that for an injurer, the utility U of wealth y equals the square root of wealth, $U(y) = \sqrt{y}$, and that the initial wealth of an injurer is \$150,000. Then the expected utility of an injurer who buys a full coverage policy, at a premium cost of \$10,000, would be $\sqrt{140,000} = 374.16$. The expected utility of an injurer who buys the partial coverage \$60,000 policy, at a cost of \$4,200, and who is thus induced to spend \$1,000 on the precaution, would be $.93 \sqrt{144,800} + .07 \sqrt{104,800} = 353.89 + 22.66 = 376.55$, which is indeed higher than 374.16.

they exercise is positive but tends to be suboptimal. The outcome is not ideal because injurers level of care differs from the socially optimal level of care; the outcome is less than ideal also because injurers tend to bear some risk.

That the outcome with liability insurance is not socially ideal does not, however, imply that it can be improved upon by regulation, and in particular by forbidding the sale of liability insurance. It is true, of course, that forbidding sale of coverage would increase the level of care that injurers take, because then injurers would be completely exposed to liability. But if liability coverage is forbidden, injurers will be made worse off, as they will be denied the positive coverage that they would wish to buy. (In our example, they would be denied the \$60,000 of coverage that they would want to buy.) At the same time, victims would not be benefited by denying coverage to injurers. Indeed, victims should be indifferent whether or not injurers purchase coverage and about their level of care, for victims are, by hypothesis, fully compensated for loss by definition of strict liability. Because, then, prohibiting purchase of liability insurance lowers the expected utility of injurers and leaves unchanged the expected utility of victims, it is not socially desirable to forbid coverage.¹⁵

It should also be noticed that the other form of insurance regulation, requiring liability insurance coverage to be full, is not socially desirable. If full coverage is mandated, injurers can

¹⁵This conclusion that liability insurance is desirable and should not be regulated when liability insurers cannot observe care is first demonstrated in Shavell (1982). The proof is not as simple as the paragraph suggests it might be, though, because the paragraph *presumes that the level of liability equals harm* (this is why victims are indifferent about injurers' behavior). However, the possibility that liability might be set at some level different from harm (say, higher, in order to induce greater care, or lower, in order to relieve risk-bearing by injurers) must also be taken into account. The proof demonstrates that it is in fact jointly optimal for liability to equal harm and for liability insurance not to be regulated. (Lest it be thought that it is somehow obvious that liability should equal harm, let me note that it is not optimal for liability to equal harm—optimal liability is less than harm—if liability insurance is not available; see Proposition 2 of Shavell (1982).)

only be made worse off, for as explained they might well elect to purchase partial coverage. Victims, as indicated above, are indifferent about injurers' level of coverage and their behavior. Hence, requiring full coverage lowers the expected utility of injurers and leaves unchanged the expected utility of victims; thus requiring full coverage is not socially desirable.

Another way of explaining why regulation of liability insurance (either forbidding it or mandating full coverage) is not socially desirable is to observe that, given that damages equal harm, the social harm from accidents is borne fully by injurers -- the externality of harm is internalized. Thus, it should not be socially advantageous for the state to interfere with any contract that injurers happen to make, and in particular with a contract involving liability insurers.

D. Summary

What is the conclusion from examination of this simplest possible model of accidents, liability, and liability insurance? As has been seen, the sale of liability insurance raises social welfare and should not be regulated. This may be explained in two ways, given that the level of liability equals harm. First, liability insurance helps injurers who want it and does not harm victims, so the insurance must be socially desirable. Second, the social harm from accidents is borne entirely by injurers, meaning that there is no externality problem that would make contracts between injurers and others socially undesirable.

It has also been seen that the notion that liability insurance interferes with liability-related incentives to prevent harm is overly simple. There is no interference with incentives when insurers can observe care and link premiums to it; and interference is only partial when insurers cannot observe care, because only partial coverage tends to be purchased.

3. Extensions

I next consider the effect on the analysis and conclusions of two additional factors: the use of the negligence rule rather than strict liability; and the possibility of nonmonetary harm.

A. Negligence Rule

Under the negligence rule, unlike under strict liability, an injurer is not liable for harm that he caused if he took a level of care, called due care, insisted upon by the courts. It will be assumed that the level of due care chosen by the courts is the socially optimal, cost-justified level.

I claim that the opportunity to purchase liability coverage that would relieve a person of liability for his negligence is not obviously problematic and generally should not result in regulation of liability insurance. Thus, the conclusion I assert is essentially that reached under strict liability. The logic behind the conclusion, however, is somewhat different from what it was under strict liability.

Consider initially a perfectly functioning negligence system. In such a regime, it is well understood that rational parties should be led to take due care, assuming that they are not insured.¹⁶ In our example, suppose that the \$1,000 precaution constitutes due care, as this is justified by the \$3,000 reduction in expected harm it generates. An injurer will take the precaution, because that will free him of the liability he would otherwise bear, namely, a 10% chance of a \$100,000 liability. (More precisely, it is clear that the injurer will be led to take the precaution if he is risk neutral, and he will be even happier to take the precaution if he is risk

¹⁶The fundamental point that injurers will be induced to take due care (when it is set equal to the optimal level of care) was first demonstrated by Brown (1973) in a model with risk-neutral injurers (and without liability insurance).

averse, which is the assumption.)

Although an individual will wish to take due care if he is *not* insured, might he want to purchase liability coverage in order to act negligently? The answer is no -- because it would cost him too much. If an injurer were to purchase an insurance policy that covered him for negligently caused harm, he would decide not to take the precaution, that is, to act negligently, and thus would cause harm of \$100,000 with probability 10%. Hence, the premium for the insurance policy would have to be \$10,000. Clearly, when faced with the choice of paying \$10,000 for the insurance policy in question, or instead spending \$1,000 on the precaution so as not to be negligent, the injurer would do the latter.

Thus, in the standard model of the negligence rule, liability insurance does not interfere with the deterrent of that rule, because injurers do not want to purchase insurance policies that would allow them to be negligent owing to the cost of such policies.¹⁷

However, the reader may have noticed that because injurers are perfectly protected against risk by acting non-negligently, they will not buy liability insurance in the standard model, which is contrary to what we observe. Hence, to further our understanding of liability insurance, it will be necessary to modify towards greater realism the assumptions of the standard model.

To this end, let us now consider assumptions that explain why injurers might sometimes be found negligent despite their intention not to be negligent. Such assumptions include the possibilities that courts may err in assessing a party's actual level of care (speed on the road) or the level of care he should have taken. These types of error may result in findings of negligence

¹⁷This conclusion is first demonstrated in Shavell (1982).

even though injurers seek to be non-negligent. Another reason for findings of negligence is that a party's momentary level of care may not be fully under his control (a person might swerve on the road because he sneezes involuntarily). This means that the party may act in a way that is seen as negligent even though in a deeper sense his behavior is not negligent -- it is a person's momentary level of care that is observed by courts and that determines negligence, not his prudential habits. A closely-related reason for findings of negligence applies to firms and employees (or more generally to principals and their agents). A firm cannot control the behavior of its employees perfectly for a variety of reasons, and they will sometimes act negligently, even if the firm was acting optimally to control their behavior. (Firms cannot simply stipulate the behavior of employees -- employees inevitably have freedom of action in many respects-- and the ability of firms to sanction employees is limited, in part because an employee's assets are generally much lower than the liability that his behavior can create.) Hence, a firm may be found liable for the negligence of its employees despite its efforts to prevent employee negligence.

In the light of the foregoing, what would we expect to be true about the purchase of liability insurance and about the character of insurance policies? First, injurers will obviously want to purchase liability insurance: even though they may endeavor to be non-negligent, they know that they might sometimes be found negligent. Second, insurance policies will tend to provide protection against findings of negligence that could have resulted from factors beyond insureds' control, but will tend to exclude coverage against findings of negligence that are very likely to have resulted from factors that parties could control. Thus, for instance, we would expect policies to exclude coverage for negligence due to certain intentional acts, such as, perhaps, a considered corporate policy decision not to obey a safety regulation. Again, the reason

that we would not expect an intentional negligent act like that to be covered is that (a) covering the act would add more to policy premiums than it would cost the policy holder to take steps to avoid the type of negligence in question, and that (b) the policy exclusion would not put the policy holder at risk, because by hypothesis the policy holder can control and avoid the type of negligence at issue.

From this descriptive conclusion about the nature of liability insurance policies that injurers would purchase, we can make some informed remarks about the answer to the question whether the policies are socially desirable. First, because the policies will have terms that induce injurers to take cost-justified care where care is under their control and not subject to legal error in assessment, the idea that injurers will simply avoid negligence law by purchase of insurance is incorrect. (This point is essentially that which I emphasized in the beginning of this subsection, applying to the model of the perfectly functioning negligence rule.) Second, liability insurance policies have value to injurers because they will face risk even though their actual behavior may be socially desirable (they endeavor to be non-negligent, and in truth may be non-negligent). And if injurers face risk, it is beneficial for them to be protected against it. This leads to the conjecture that liability insurance is socially desirable, or approximately so.¹⁸

Last, it may be remarked that the nature of the liability insurance policies that injurers should in theory desire, as described two paragraphs above, has a bearing on how courts should

¹⁸A full consideration of this issue would be complicated by a number of factors. An important factor is that uncertainty in the negligence determination (which, as I discussed, helps to explain the demand for liability insurance in the first place) tends to lead to the exercise of socially excessive levels of care (such as so-called defensive medicine). The reason is that added care reduces the chance of erroneous findings of negligence; this point was made by Craswell and Calfee (1986) in a risk-neutral setting. One suspects that the tendency toward excessive care will be exacerbated if parties are risk-averse. Liability insurance should attenuate the problem of socially excessive care, making the argument for liability insurance stronger than otherwise.

interpret insurance policies in disputes about coverage. Suppose that an insured asserts that a certain type of negligence is covered by a policy term whose meaning is not entirely clear, and that the insurer asserts that the negligence should not be covered. An important factor to which the courts should attend is the degree of control that the insured possessed over the behavior giving rise to the type of negligence. If the insured enjoyed substantial control over the behavior associated with the type of negligence (suppose the negligence was that the insured knowingly purchased a cheap, substandard device to avoid safety requirements), then the argument for not requiring the insurer to cover the negligence is strengthened. For that legal ruling will result in an interpretation of the insurance policy that is likely to have been the one that insureds would have chosen ex ante in a more detailed policy, as it will lower premiums without imposing risks on insureds. If, though, the insured did not have substantial control over occurrence of the type of negligence in question, converse reasoning suggests that the insurer should be required to make payment.

B. Nonmonetary Losses

In the basic analysis of Section 2, I assumed that losses were entirely monetary. If losses include nonmonetary components, do the basic conclusions change? In principle, the answer is that they do not; the conclusion that liability insurance is socially desirable in the basic model of accidents is not altered. To amplify, consider again, for simplicity, the situation where strict liability applies, and suppose that harm involves not only monetary losses but also death. Because death is so serious a harm, the optimal level of liability for death is high; this is necessary to induce proper precautions to prevent death. If the level of liability is appropriately high to

reflect death, there would be no apparent reason to interfere with the liability insurance market. For example, if the appropriate-for-deterrence level of damages for death is \$5,000,000, then injurers ought to be allowed to purchase coverage against that amount. The essence of the argument establishing this conclusion is what was given above in Section 2. Namely, allowing coverage will lead to ideal precautions if insurers can observe levels of care, and so forth.¹⁹

If the reader resists this conclusion, it may in part be attributable to the notion that court damage awards for death and for many other nonmonetary harms are not in fact sufficiently high to produce a generally desirable degree of deterrence. To the extent that that is the case, the argument just given does not apply, and as a second-best policy, it might be desirable to regulate liability insurance so as to enhance incentives to reduce risks. How to regulate liability insurance to accomplish that object will be addressed in the next Section.

4. Inadequate Deterrence and Regulation of Liability Insurance

Having explained why liability insurance is socially desirable in an overall sense in the basic model and certain extensions of it, let me now consider an important reason for regulation of liability insurance: that deterrence may be inadequate (quite apart from any inadequacy that might be caused by the purchase of liability coverage). I will first discuss the two principle sources of

¹⁹The argument when losses are nonmonetary is not identical to that when losses are monetary, however. Notably, when losses are monetary, victims are indifferent about the occurrence of accidents because they are fully compensated for harm. Here, when losses are nonmonetary, victims generally will not be indifferent about the occurrence of accidents even though the level of liability is optimal (they would not be indifferent about the occurrence of death even though the level of liability might be optimal). Nevertheless, the conclusion that it is not socially desirable to intervene with the sale of liability insurance can be established. One way of explaining why that is so is to reflect on the point that the level of liability is chosen by the state to optimally deter. The optimality of the state's choice means that the idea that there is too little deterrence is not sensible -- the state can and does address such a problem through its choice of the level of liability. I discuss this issue in Chapter 10 of Shavell (1987).

inadequate deterrence -- the judgment-proof problem, and escape from liability -- and then analyze regulation of liability insurance.²⁰

A. The Judgment-Proof Problem and Inadequate Deterrence

Assume here that the assets that injurers possess are less than the harm that they might cause. Because they will then be unable to pay fully for harm, they will be referred to as judgment-proof. Assume also for simplicity that liability is strict.

The first point to make is that the judgment-proof problem dilutes incentives to reduce risk.²¹ This is best seen initially assuming that injurers do not own liability insurance coverage. Then it is obvious that, because their assets are less than the harm they might cause, injurers might not take cost-justified precautions. An individual who can reduce the risk of a \$100,000 harm from 10% to 7% by expending \$1,000 on a safety device probably will not do this if his assets are only \$20,000;²² for the private value to him of the 3% reduction in his effective liability of \$20,000 is only \$600, rather than its social value of \$3,000.

The second point to emphasize is that the judgment-proof problem also lowers injurers incentives to purchase liability insurance.²³ The reason is that insuring against liability that one would not otherwise fully bear, because one's assets would be exhausted, is in a sense a private

²⁰The points to be discussed about regulation of liability insurance are to a large extent made in Shavell (1986) and Chapter 10 of Shavell (1987).

²¹This issue is addressed generally in Shavell (1986).

²²If, however, the person were very risk averse, he would still spend \$1,000 to reduce the chance of the \$20,000 effective liability by 3%.

²³This reduction in incentives to purchase insurance is studied in Huberman, Mayers, and Smith (1983) in a model with exogenously determined risks, and in Shavell (1986) in a model where insureds affect risks.

waste for a potentially judgment-proof party. The individual with assets of \$20,000 who faces a 10% risk of liability of \$100,000 would have to spend \$10,000 on premiums for full coverage, 80% of which would be attributable to coverage of the \$80,000 that he could not pay in the absence of insurance coverage. Consequently, the individual might well decide against buying full coverage even though he is risk averse. In general, a risk-averse party might rationally decide to purchase less than complete coverage, or no coverage at all; his purchase decision will depend on what his assets are in relation to the potential liabilities, their likelihood, and his degree of risk aversion.

The dulling of incentives to purchase insurance coverage complicates the nature of the dilution of incentives to reduce risk that is caused by the judgment-proof problem, but the risk-incentive dilution problem continues to hold in its fundamental aspect. How to address the problem will be seen in Sections C and D below to depend importantly on whether or not liability insurers can observe insured behavior and link premiums to it.

B. Escape from Liability and Inadequate Deterrence

The likelihood of escaping liability is a factor that I have not yet discussed. This likelihood may be significant. In the area of tort, the probability of escaping liability may be of relevance because injurers who ought to be liable are not brought to account: they might not be identifiable as the cause of losses (as in many environmental cases) or might not be sued because of litigation costs. In the context of public law enforcement, whether of civil regulations or of the criminal law, the probability of escaping liability is, of course, often a very important factor.

The main implication of the possibility of escaping liability is a problem of inadequate

deterrence of harm. If the probability p of sanctions is less than 1 and the magnitude of the sanction is equal to the harm h , then the expected sanction ph will be less than h , leading to too little deterrence. I will assume that sanctions are not raised sufficiently to create adequate deterrence,²⁴ as seems frequently to be the case in fact.²⁵

C. Forbidding Liability Insurance

Given that there may be a problem of inadequate incentives to reduce risk, I now address the question whether regulation of liability insurance can be of help by enhancing incentives. I first consider the policy of forbidding liability insurance coverage. As will be seen, this policy might be socially desirable, and it might also be socially undesirable. A crucial consideration in evaluating which is the case is whether liability insurers can observe levels of care.

Suppose first that liability insurers cannot observe levels of care. In this situation, forbidding the purchase of coverage will tend to increase incentives to reduce risk. The reason is that any insurance coverage that injurers purchase will reduce their incentives when insurers do not link premiums to their level of care. By preventing the purchase of coverage, an injurer's entire assets are made vulnerable to collection, and this will induce him to increase his level of care. For example, if a judgment-proof person with assets of \$20,000 purchases coverage of, say, \$25,000, against liabilities that could range up to \$100,000, and insurers cannot observe his level

²⁴If the level of the sanction s is raised to h/p , however, then $ps = h$ and the analysis in the basic model applies. Namely, liability insurance is socially desirable as long as there is not a judgment-proof problem (but the party's assets must be at least h/p , rather than just h , for there not to be a judgment-proof problem).

²⁵Moreover, in theory as well, it is not optimal to set sanctions so that $ps = h$, for that would be too expensive; enforcement cost savings are desirable to obtain by employing a lower expected sanction than h . See Polinsky and Shavell (1984).

of care, he will take less care than if he is prevented from purchasing any coverage at all, and his entire assets of \$20,000 are exposed to risk.

Because forbidding the purchase of coverage can increase levels of care, it can ameliorate the problem of inadequate incentives caused by the judgment-proof problem or by escape from liability. However, this policy of preventing coverage suffers from the social disadvantage that it lowers the expected utility of injurers by increasing the risk they bear. In consequence, forbidding coverage will be desirable only if the increase in incentives it produces is sufficiently important.²⁶

A conjecture is that in many contexts, such as that of crime, forbidding coverage may be desirable because the inadequacy of incentives caused by the judgment-proof problem and/or escape from liability is significant.²⁷

Next suppose that liability insurers are able to observe levels of care and link premiums to it. In this case, what can be said about forbidding liability insurance coverage? Here, when injurers purchase coverage, because the premium they pay reflects risk, they do have incentives to take care, as I have discussed. The strength of these incentives depend on how much coverage injurers purchase. As I will explain in the next section, if injurers are required to purchase full liability insurance coverage, their incentives will be socially desirable, assuming that they do not

²⁶As I indicated above, this conclusion that forbidding liability insurance may be socially desirable is first argued in economic terms in Shavell (1986) and Chapter 10 of Shavell (1987). However, Polborn (1998) states that forbidding liability insurance cannot be socially desirable. His interesting conclusion is correct given his model, but can be shown to rest on his assumption that there is only one positive level of possible harm and liability. Under that assumption, if a judgment-proof injurer purchases coverage, it will be in an amount such that, together with the injurer's assets, the victim will definitely be fully compensated (the crucial step in Polborn's argument). However, if there are many levels of possible liability, or a continuum of levels, then it is quite possible for an injurer to purchase positive coverage and be unable to compensate fully the victim for some levels of harm.

²⁷Moreover, in the area of crime, the ability of insurers to observe relevant behavior *ex ante* and link premiums to it is small, a general factor that I am about to discuss further.

escape liability. Thus, in that situation, forbidding coverage could not be socially desirable.²⁸

D. Requiring Liability Insurance

Let me now consider the opposite policy of requiring purchase of full coverage²⁹ and examine this policy under the two hypotheses about insurers' ability to observe levels of care.

Suppose that liability insurers cannot observe levels of care. Then requiring the purchase of full coverage will result in no care at all being taken.³⁰ Hence, requiring the purchase of coverage will worsen, not ameliorate, the problem of inadequate risk reduction. If the judgment-proof person is forced to purchase full coverage against a \$100,000 liability, he will not have any incentive to take care, whereas he would have an incentive to take care if he had purchased only partial coverage (or if he had been forbidden from purchasing any coverage).

Consequently, requiring the purchase of coverage might be socially undesirable, as it might aggravate the problem of inadequate incentives to take care. Requiring the purchase of coverage does, however, increase insurance protection for injurers, a social benefit, so that it is not necessarily the case that requiring the purchase of full coverage is undesirable in the case at hand.

Next, suppose that liability insurers can observe levels of care. In this situation, requiring

²⁸However, if there is a problem of escaping liability, then requiring full coverage will not cure the problem of inadequacy of incentives, and forbidding coverage could be the superior policy.

²⁹In this Section, I assume for simplicity that the requirement is implementable, and in particular that injurers have sufficient assets to purchase full coverage. If their assets are too low, they will not be able to meet the requirement.

³⁰Of course, in more realistic models, such as those involving multiple periods with the possibility of increases in premiums as a result of a history of claims, insureds would have a positive incentive to take care even if coverage is full. But the point to be made would still hold.

the purchase of full coverage will result in optimal levels of care, assuming that there is not a problem with escape from liability. Thus, for example, requiring a judgment-proof individual who would not have purchased full coverage (or any coverage) to purchase full coverage will result in his taking optimal care. It will also protect him fully against risk. Therefore, requiring the purchase of full coverage will be socially desirable.^{31 32}

There is an additional and important social benefit of requiring full coverage that applies whether or not liability insurers can observe levels of precaution and link premiums to it. This concerns the level of activity of injurers. Injurers influence risk through their decisions about what level to engage in risk-creating activity. For example, an individual alters accident risks on the road not only by his exercise of care when driving, but also by his decisions about how many miles to drive; a firm that transports oil by supertanker influences the risk of oil spills not only by its exercise of care when transporting oil, but also by the amount of oil that it ships.³³

If an injurer is required to purchase full liability insurance coverage, then he will be paying in his premium for the full expected harm caused by his activity (whatever is his level of care). Thus, presuming that insurers can link their premiums to the level of activity, the injurer will have a socially desirable incentive to moderate his level of activity. The number of miles an individual drives, and the number of gallons of oil that are transported by supertankers, will tend to be

³¹This point, which I made in Shavell (1986) and Chapter 10 of Shavell (1987), was also made, in slightly different form, by Jost (1996).

³²If the reason for inadequate care is escape from liability, the requirement to purchase full coverage may be moot. A person who is not judgment-proof, but who might escape liability, will desire to purchase full coverage in the absence of any requirement to do so. The level of care he will be led to take, though, will be lower than optimal, because his expected liability will be less than expected harm. A full discussion of this case is beyond the scope of this article.

³³The distinction and significance of the difference between level of activity and level of care is first made in Shavell (1980).

influenced, and to fall appropriately, when liability insurance is full, rather than not.

Several remarks should be added about the preceding argument concerning activity levels. First, although the argument increases the appeal of a requirement of full coverage, it does not demonstrate that full coverage is desirable. If insurers cannot observe levels of care, requiring full coverage could on net be an undesirable policy.³⁴ Second, the force of the argument about activity levels is reduced if the negligence rule applies, for under that rule parties are not liable for all harms that they cause, but only for negligently caused harms. Hence, requiring full coverage will not result in optimal activity levels (but will still tend to improve activity levels, due to the possibility of being found negligent, as discussed above). Third, the argument about activity levels presumes, as noted, that liability insurers can observe activity levels (miles driven, gallons of oil shipped) and link premiums to activity levels. This seems plausible in most contexts, more plausible, in any case, than that insurers can observe levels of care.

5. Conclusion

I have argued here that the point of departure for our thinking about liability insurance is what practical reality suggests, namely, that such insurance is socially desirable. The reason that liability insurance is socially desirable can be expressed in two ways. One is that the incentives to reduce risk are not subverted by liability insurance in the manner that some writers too readily assume. For insurance policies tend to be structured in order to induce insureds not to cause losses. The other way to explain the desirability of liability insurance is to observe that, by setting

³⁴That is, because requiring full coverage would lower care to zero, and the activity level effect might be small, requiring full coverage might be undesirable.

the level of liability equal to harm, society accomplishes the internalization of harm (at least under strict liability). Having done that, liability insurance contracts can be regarded as contracts that are made in the absence of externalities; as such, liability insurance contracts should raise social welfare for the reason that contracts in general raise social welfare, namely, that parties want to make them.

I have also explained that regulation of liability insurance may be socially desirable, principally as an answer to the problem of inadequate incentives to reduce risk. These problems were traced to two important sources: the judgment-proof problem, and escape from liability. I emphasized that the form of liability insurance regulation that is called for to alleviate the problem of inadequate incentives depends very much on what variables liability insurers can observe and link to premiums. Either forbidding coverage or requiring coverage could be socially desirable in different circumstances.

My surmise is that a proper theoretical understanding of the somewhat complex relationship between liability and insurance is of importance for proper policy making, especially for proper regulation of liability insurance. This need is suggested by, among other things, the gross error that the Soviets arguably made in forbidding coverage altogether in their country. The need for clear thinking about liability insurance is also illustrated by the justification typically given for requirements to purchase liability insurance coverage. The justification that one typically encounters is that a requirement to purchase coverage provides an implicit form of insurance protection for victims, who might otherwise not receive compensation from judgment-

proof injurers.³⁵ This justification is mistaken, assuming, as appears to be true, that it is much more expensive to insure victims via the legal system than directly by first-party insurance coverage.³⁶ The proper justification for required liability coverage, then, should center on the question whether this will improve incentives to reduce risk.

³⁵See, for example, Jerry (1996, pp. 847-849) and Keeton et al (1984, pp. 602-603).

³⁶On the relative costs of the liability system and the insurance system as methods of compensation, see for example Shavell (1987, p. 263).

References

- ABRAHAM, Kenneth S. *Distributing Risk: Insurance, Legal Theory, and Public Policy*. Yale University Press, 1986, New Haven.
- BROWN, John P. Toward an Economic Theory of Liability, 2 *Journal of Legal Studies* 1973. 323-350.
- CRASWELL, Richard, and John CALFEE, Deterrence and Uncertain Legal Standards, 2 *Journal of Law, Economics, & Organization* 1986. 279-303.
- HUBERMAN, Gur, David MAYERS, and Clifford W. SMITH, Jr. Optimal Insurance Policy Indemnity Schedules, 14 *Bell Journal of Economics* 1983. 415-426.
- JERRY, Robert H., II. *Understanding Insurance Law*. 2nd ed. Matthew Bender, 1996, New York.
- JOST, Peter-J. Limited Liability and the Requirement to Purchase Insurance, 16 *International Review of Law and Economics* 1996. 259-276.
- KEETON, Robert E. *Insurance Law*. West, 1971, St. Paul.
- KEETON, W. Page, Dan B. DOBBS, Robert E. KEETON, and David G. OWEN. *Prosser and Keeton on the Law of Torts*. 5th ed. West, 1984, St. Paul.
- MCNEELY, Mary Coate. Illegality as a Factor in Liability Insurance, 41 *Columbia Law Review* 1941. 26-60.
- O CONNELL, Jeffrey, Phillip A. BOCK, and Stewart PETOE. Blending Reform of Tort Liability and Health Insurance: A Necessary Mix, 79 *Cornell Law Review*. 1994. 1303-1338.
- PAULY, Mark. Overinsurance and Public Provision of Insurance, 87 *Quarterly Journal of Economics* 1974. 531-536.
- POLBORN, Mattias K. Mandatory Insurance and the Judgment-Proof Problem, 18 *International Review of Law and Economics* 1998. 141-146.
- PRIEST, George. Insurability and Punitive Damages, 40 *Alabama Law Review* 1989. 1009-1035.
- POLINSKY, A. Mitchell, and Steven SHAVELL. The Optimal Use of Fines and Imprisonment, 24 *Journal of Public Economics* 1984. 89-99.

- RUDDEN, Bernard. *Soviet Insurance Law*. Law in Eastern Europe. Monograph No. 12. Sijthoff, 1966, Leyden.
- SARATH, Bharat. Uncertain Litigation and Liability Insurance, *22 Rand Journal of Economics* 1991. 218-231.
- SHAVELL, Steven. On Moral Hazard and Insurance, *92 Quarterly Journal of Economics* 1979. 541-562.
- SHAVELL, Steven. Strict Liability versus Negligence, *9 Journal of Legal Studies* 1980. 1-25.
- SHAVELL, Steven. On Liability and Insurance, *13 Bell Journal of Economics* 1982. 120-132.
- SHAVELL, Steven. The Judgment Proof Problem, *6 International Review of Law and Economics* 1986. 45-58.
- SHAVELL, Steven. *Economic Analysis of Accident Law*. Harvard University Press, 1987, Cambridge.
- SKOGH, Göran. Public Insurance and Accident Prevention, *2 International Review of Law and Economics* 1982. 67-80.
- TUNC, André. *Introduction*. Chapter 1 of Vol. 11 (Torts) in *International Encyclopedia of Comparative Law*. Mouton, 1974, The Hague.