ON NEGLIGENCE VERSUS STRICT LIABILITY WHEN THE PARTIES CAN INSURE LOSSES

HENRIK LANDO

Abstract. The article compares the efficiency of strict liability and negligence in tort law when only the injurer acts (unilateral care), and the parties are risk averse. In its simplest form, the main argument is that the injurer has an incentive to act with due care under the negligence rule and will then not have to take out insurance. First-best can then be realized under the negligence rule. Under strict liability, on the other hand, the injurer’s liability insurance will be subject to moral hazard, which means that the outcome will be only second-best. This argument relies on the assumption that the insurer cannot condition coverage on the injurer’s act. If the insurer can do so at no cost, the two rules perform equally well. However, there are reasons why such conditioning may not be possible. Information about the victim’s act may reside with the victim, who has an incentive to bring it forward under the negligence rule but not under strict liability. And it may not be allowed for the injurer to induce the victim to come forward with the information for use in an insurance contract dispute between the liability insurer and the injurer, as it may be considered bribery of a witness. Moreover, even if this were possible, it might be costly for the insurer to condition the insurance contract on the many acts that the injurer can undertake.

It is argued that these arguments hold also when there may be a motive for the injurer to take out insurance under the negligence rule, as when the injurer’s acts are subject to randomness.

1. Introduction

The idea of this paper can be presented in its simplest form as follows. Consider an injurer that chooses between negligence and due care, and assume that the victim will obtain information about the injurer’s act based on which the victim can secure compensation if the injurer has chosen negligence. Knowing this, it will be optimal for the injurer to take due care, and there will be no reason for him to take out liability insurance as there will be no liability. The outcome will be first-best. Under strict liability, on the other hand, if the injurer is risk averse, he will take out insurance, which induces moral hazard. The outcome is then only second-best, which implies that the negligence rule may dominate strict liability even under unilateral care. This simple argument relies on two main assumptions. First, it assumes that the insurance company cannot condition coverage on the information the victim receives about the injurer’s act. If the liability insurer could induce the victim to come forward with this information, and if the insurer could condition coverage on the act, first-best could be achieved also under strict liability. I argue, however, that it is generally difficult for the insurer to pay the victim for coming forward with information concerning
the injurer’s act, and that even if it were possible, it might be difficult for the insurer to condition coverage on such information. There may in reality be many negligent acts that the injurer can take, and conditioning coverage on all of them is likely to be costly or even impossible. Second, the model assumes that the injurer does not take out insurance under the negligence rule, because he can avoid liability altogether by taking due care. In reality, potential injurers do of course take out liability insurance contracts under the negligence rule, presumably because they do not control their acts, or that of their employees, completely. To incorporate this reality, I assume that the act of care is subject to a stochastic shock, which means that even though the injurer decides to act with due care, his act may turn out to be negligent. In this modified model, the injurer may have an incentive to take out insurance, and it is then no longer obvious that the negligence rule may dominate strict liability, as the moral hazard problem arises under both rules. Under the negligence rule, the liability insurer will not condition coverage on due care by the injurer, since that would obviate the purpose of the insurance contract, which is to insure against lapses, but the insurer may set a deductible to be paid in case of negligence. Such sharing of the risk of lapses between the injurer and the insurer may be optimal, if it maintains the incentive for the injurer to decide to act with due care. If the information about the injurer’s act becomes publicly available (at no cost) also under strict liability, the insurer can, in theory, mimic the contract which is optimal under negligence by stipulating a deductible to be paid in case the injurer has acted in a manner that would be considered negligent under the negligence rule. It is shown that the two rules are then equally efficient. If, on the other hand, the victim’s signal will come forward automatically under the negligence rule, as the victim will not receive damages if he does not communicate it, whereas it will be costly for the insurer to induce the victim to communicate it under strict liability, then the negligence rule again dominates strict liability.

This article is structured as follows: The first section briefly summarizes existing literature on strict liability versus negligence. The second section analyzes a one-period model in which the injurer fully control his own acts and the injurer’s act is perceived by a victim who may or may not communicate the signal that she receives. It is demonstrated that the negligence rule may be more efficient than strict liability if the victim communicates the signal under the negligence rule but either does not communicate it or can only be made to communicate it at a cost under strict liability. The third section introduces the possibility of errors on the part of the injurer and demonstrates that if more information about the injurer’s act comes forth in a tort suit than in a legal dispute between the injurer and his insurer, the negligence rule is preferable even if the injurer takes out insurance also under the negligence rule. The fourth section discusses the incentive for the victim to adduce information about the injurer’s act, and the difficulties for an insurer to condition coverage on the injurer’s act, either specifically or by the use of the vague term negligence. The fifth section sums up the main argument and discusses how it relates to the application of strict liability in actual legislation.

---

1On the foundations of incomplete contract, see e.g. Segal [8].
ON NEGLIGENCE VERSUS STRICT LIABILITY WHEN THE PARTIES CAN INSURE LOSSES

2. The literature

There literature on the relative advantages of negligence and strict liability is voluminous, e.g. Schaefer and Mueller-Langer [7], Demougin et al. [1], Shavell [9], [10], and Fees et al. [2]. The main conclusion from the literature is that the comparison hinges on the parties' risk aversion, and on whether the injurer or the victim’s unverifiable acts and activity levels are the most important (see e.g. Shavell ([10]). Four articles address the information concerning the injurer's created under the negligence rule. Demougin et al. [1] note that the negligence rule provides information to an employer about an employee’s act which improves on the efficiency of the employment contract. Schaefer and Mueller-Langer [7] mention the informational advantage of the negligence rule and state that it has been relatively neglected. Fees et al. [2] emphasize that the due care standard created by the court under the negligence rule may benefit injurer’s generally when they are unaware of what is the correct level of care.

3. The model

We consider a setting of tort law where only the injurer acts while the victim stays passive. The injurer A can choose to perform or not perform an act \( x \in (0, 1) \). The probability of a harm, \( p(x) \), fulfills \( 0 < p(x) \leq 1, x = 0, 1 \), and \( p(1) < p(0) \). The cost of \( x \) is \( c(x) \), where \( c(1) > c(0) > 0 \). The harm to the victim \( V \) is \( L \). The injurer’s utility function \( U(W) \) is increasing but concave in wealth, \( U'(W) > 0, U''(W) < 0 \) for all \( W \). The victim’s utility function, \( V(Z) \), where \( Z \) is the victim’s wealth, is likewise concave in \( Z \). Since they are risk averse, the injurer and the victim may wish to take out actuarially fair insurance with the risk-neutral insurers \( J_I \) and \( J_V \), respectively. Under the rule of negligence, the victim \( V \) recovers a loss from \( J_V \) and the latter may then sue \( A \) to recover \( L \) in court, if \( A \) is liable, \( A \) can be compensated by \( J_I \) according to the contract terms. The standard of negligence is taken to be that \( x = 1 \) must be performed since \( p(1)L + c(1) < p(0)L + c(0) \).\(^2\) It is assumed that the court can ascertain \( p(1), p(0), c(1), c(0), \) and \( L \) such that the court can determine liability correctly if informed about \( x \). If \( x \) is performed, and an accident occurs, the signal \( s(x) \in R \) of \( x \) is received by the victim. \( s(x) \) is a stochastic variable that is, we assume, fully informative about \( x \).\(^3\) We are not here concerned about the verifiability of \( A \)’s act. Alternatively, the signal \( s \) may be received by everyone, as when the cause of an accident is readily apparent; we shall distinguish the case where the victim holds private information and where the information is public. If \( s \) is received by \( V \) only, there may be a cost \( t \) for \( V \) to convey this information to others. Under the rule of negligence, \( J_V \) presents a claim to \( A \) if and only if \( V \) informs \( J_V \) that \( x = 0 \) by conveying the signal \( s \). It will be assumed that \( A \) will not litigate when presented with the signal \( s \), but will anticipate the outcome of a trial and hence pay \( L \) to \( J_V \). \( A \) will then turn to \( J_I \) for compensation according to the insurance contract. Under strict liability, we assume it to be public information that \( A \) has caused the loss \( L \) to \( V \), and so after

\(^2\)This is a sufficient condition, but may not be necessary when the parties are risk averse.

\(^3\)For any given signal \( s \), either prob\( (s \mid x = 0) = 0 \) or prob\( (s \mid x = 1) = 0 \) and there is at least one signal that arises with positive probability under either act.
compensating $V$, $J_V$ presents a claim to $A$, who will not litigate but pay the amount and then seek indemnification from $J_I$ according to the insurance contract. $J_I$ can incentivize the injurer in three ways: by denying coverage if $x$ has acted with either simple or gross negligence, by denying coverage if $A$ has not performed $x = 1$, or by partial indemnification (a deductible). There can be two distinct reasons for not conditioning coverage on $x = 1$. There may be a cost $k_1$ of describing and negotiating $x$ in advance, or there may be a cost $k_2$ (which may be infinite if the victim cannot be brought to reveal crucial, private information) of verifying ex-post whether $x = 1$ was performed or not. Below, we discuss the possibilities for $J_I$ of conditioning coverage on $A$’s behavior and we also consider when the victim may be induced to reveal $s$. We will conclude that even if $s$ is communicated to $J_I$ it may be costly for $J_I$ to condition on it. We begin by stating the consequences of $s$ not being communicated under strict liability, under otherwise stylized, conventional assumptions:

**Proposition 1.** In a one-period model, if the signal $s$ is revealed under the negligence rule but it cannot be revealed under strict liability, or if conditioning on it in the insurance contract comes at a cost, the negligence rule dominates strict liability.

Proof: When $s$ is revealed under the negligence rule, $A$ can escape liability by choosing $x = 1$. $A$ will then not take out insurance. $V$ will take out insurance that covers the loss $L$ which occurs with probability $p(1)$. Since there is no moral hazard in $V$’s insurance, the first-best is realized under the rule of negligence. Under strict liability, $J_I$ cannot condition coverage on $s$, since $s$ is not communicated. Other means of inducing $A$ to choose $x = 1$ expose $A$ to risk and so first-best cannot be realized under strict liability. This difference implies that the negligence rule Kaldor-Hicks dominates strict liability, as can be seen in the case where the insurer incites the injurer to perform $x$ through a deductible. If, due to the deductible, the injurer takes the act $x = 1$, the injurer will act in the same way under strict liability as under the negligence rule, but $A$ will bear risk due to less than full coverage. Then, if the deductible is $d$, the injurer pays the actuarially fair premium $p(1)(L - d)$ and bears the risk of the income loss $d$ which occurs with probability $p(1) > 0$. The injurer would prefer to pay the full premium $p(1)L$ and then bear no risk, since she is risk averse, rather than pay the premium $p(1)(L - d)$ and bear the risk $d$. The total amount which the injurer is willing to pay for a switch from strict liability to negligence, where she will not be liable if she performs the act $x = 1$, is hence greater than $p(1)L$. However, $p(1)L$ is the premium which the victim must pay on her insurance, which is not inflected with moral hazard, under the negligence rule, and so the victim would be satisfied with this payment for shifting to the rule of negligence. Therefore, the rule of negligence Kaldor-Hicks dominates strict liability when the insurer’s optimal strategy is to induce $x = 1$ through a deductible. If the insurer does not induce $x = 1$, the injurer pays a premium of $p(0)L$ which is greater than the amount $p(1)L$ which the victim must obtain to agree to change the rule from strict liability to negligence.

If, on the other hand, the signal $s$ is public information such that there is no cost for the victim’s insurer $J_V$ of verifying $x$ ex-post, but $J_I$ can only condition coverage on $x = 1$ at a cost, the negligence rule remains more efficient than strict liability, since this cost is
simply avoided under the negligence rule. □

The idea that drafting costs may give an advantage to the negligence rule seems most relevant when \( x \) is not a single act but many acts that must all be performed. It is often easier to realize ex-post that a significant act was not undertaken than to specify all acts ex-ante. This is the well-known advantage that standards may have over rules (e.g. Kaplow ([3])).

We now introduce the possibility of errors in the execution of precaution. \( A \) may not control her own or her employees’ acts, and so may want to insure even under the negligence rule. Moral hazard may then arise also under this rule. To model the possibility of error, let the actually performed act be \( y \in (0,1) \) and let the probability of a mistake be \( \epsilon \), such that although the injurer chooses the act \( x = 1 \), she chooses \( y = 0 \) with probability \( \epsilon \) and \( y = 1 \) with probability \( 1 - \epsilon \). If \( x = 0, y = 0 \) with certainty. Neither the court nor any other than the injurer can observe whether \( y = 0 \) was due to a lapse or due to \( x = 0 \). As above, a signal \( s \) is informative of \( y \) and may be either public or private information. We are interested in how well the insurance contracts can perform if \( A \) takes out insurance under either rule.\(^4\) I first show:

**Proposition 2.** When both parties take out insurance under either rule due to the possibility of error in exercising precaution, if the signal \( s \) of the injurer’s act is public information and can be conditioned on in the liability insurance contract at no cost, then strict liability and the rule of negligence will realize the same level of efficiency.

Proof: Under the negligence rule, \( J_I \) can employ the signal \( s \) by having \( A \) pay part of the damages that occur when the signal reveals that \( y = 1 \). Under the negligence rule, a deductible \( d_n \) which induces the act \( x = 1 \) must fulfill the condition:

\[
\epsilon(p(0)U(w_0 - d_n - \pi_n) + (1 - p(0))(U(w_0) - \pi_n)) + (1 - \epsilon)U(w_0 - \pi_n) - c(0) - (1 - \epsilon)c(1)
\geq p(0)U(w_0 - d_n - \pi_n) + (1 - p(0))U(w_0 - \pi_n)
\]

If \( y = 1 \) (if \( x = 1 \) and there is no lapse) there is no liability. Hence, when \( x = 1 \) is induced, the premium is given by \( \pi_n = \epsilon p(0)(L - d_n) \)

Under strict liability, if the insurer can condition on the act, because \( s \) is verifiable, the insurer can simply mimic the contract under negligence:

When the insurer observes \( y = 1 \), a deductible \( d_s \) is subtracted from coverage. The premium is \( \pi_s \), and so the incentive constraint reads:

\[
\epsilon(p(0)U(w_0 - d_s - \pi_s) + (1 - p(0))(U(w_0) - \pi_s)) + (1 - \epsilon)U(w_0 - \pi_s) - c(0) - (1 - \epsilon)c(1)
\geq p(0)U(w_0 - d_s - \pi_s) + (1 - p(0))U(w_0 - \pi_s)
\]

\(^4\)We hence disregard self-insurance in what follows, since the idea is to explore the difference between the rules when insurance is taken out regardless of the rules.
This constraint is the same as that under negligence when \( d_s = d_n \), and so outcomes are identical.

We now consider the case where \( s \) is private information on the part of the victim and the victim cannot be induced to reveal it under strict liability.

**Proposition 3.** When \( A \) takes out insurance under either rule due to the possibility of error in exercising precaution, if the signal \( s \) is private information and is not revealed under strict liability, the negligence rule is more efficient than strict liability.

Proof: Under the negligence rule, \( J_I \) can employ the signal \( s \) by having \( A \) pay part of the damages that occur when the signal reveals that \( y = 1 \). Under strict liability, if \( J_I \) cannot condition on \( y \), there is no way in which the signal \( s \) can be employed, so the insurer simply has one less instrument at his disposal. Under the negligence rule, a deductible \( d_n \) which induces the act \( x = 1 \) must fulfill the condition:

\[
\epsilon (p(0)U(w_0 - d_n - \pi_n)) + (1 - p(0))(U(w_0) - \pi_n)) + (1 - \epsilon)(U(w_0 - \pi_n) - \epsilon c(0) - (1 - \epsilon)c(1)) \\
\geq p(0)U(w_0 - d_n - \pi_n) + (1 - p(0))U(w_0 - \pi_n)
\]

(3)

If \( y = 1 \) (if \( x = 1 \) and there is no lapse) there is no liability. Hence, when \( x = 1 \) is induced, the premium is given by \( \pi_n = \epsilon p(0)(L - d_n) \). Under strict liability, the deductible \( d_s \) that induces \( x = 1 \) is given by the condition:

\[
\epsilon (p(0)U(w_0 - d_s - \pi_s)) + (1 - p(0))(U(w_0 - \pi_s)) + (1 - \epsilon)(p(1)U(w_0 - d_s - \pi_s) + (1 - p(1))U(w_0 - \pi_s) - \epsilon c(0) - (1 - \epsilon)c(1)) \\
\geq p(0)U(w_0 - d_s - \pi_s) + (1 - p(0))U(w_0 - \pi_s)
\]

(4)

When \( x = 1 \) is induced, the premium is given by \( \pi_s = \epsilon p(0)(L - d_s) + (1 - \epsilon)p(1)(L - d_s) \). The major difference between negligence and strict liability is that the deductible is realized when there is an error or when \( x = 0 \) under the negligence rule, but also on the equilibrium path under strict liability. Hence, under the negligence rule, the risk to the injurer is small (and vanishes as \( \epsilon \) converges to zero), despite the existence of a deductible, while under strict liability, the risk to the injurer is significant and stays significant when \( \epsilon \) converges to zero.

In a multi-period model, \( J_I \) may be able to incentivize \( A \) through increasing the premium as a function of the number of accidents (experience-rating). Note, however, that even in a multi-period setting, the insurance contract is likely to be more efficient under the negligence rule, since the insurer will be more informed about \( A \)'s act. Under strict liability, \( A \)'s premium may be raised over time although \( A \) has chosen \( x = 1 \), if there happen to be many accidents. Hence, \( A \) is exposed to more risk under strict liability than under the rule of negligence, even in a multi-period setting.

4. ON THE VICTIM’S INCENTIVE TO COMMUNICATE \( s \)

It may be taken for granted that it is easier to induce the victim to report her information concerning \( s \) under the negligence rule, but it may be worth considering the issue
carefully. The victim may not have an incentive to spend the amount \( t \) to communicate her information when she is covered by insurance in any event. Also, \( J_I \) may conceivably pay \( V \) to come forward with information about \( A \)'s negligence, and may then in anticipation of this information condition on it in the contract with \( A \). Why would we expect \( J_V \) to be able to induce \( V \) to report her information but not expect that \( J_I \) would be able to do the same? One reason is that the right to solicit witness testimony by paying for it is limited by law. In the US, the rules have been described as follows:

The general rule is that witnesses are entitled to an attendance fee and travel expenses under 28 U.S.C. §1821 for testifying at a trial, hearing, or deposition. In addition, many state and model ethical rules allow compensation of a fact witness for time and expenses incurred by the witness in the preparation of his or her testimony (although some jurisdictions consider this type of payment improper). Some states have gone so far as to allow no payments to a fact witness, because such payments raise the risk of perjury. The American Bar Association BA has stated in a formal opinion that '[t]he amount of such compensation must be reasonable so as to avoid affecting, even unintentionally, the content of a witness’s testimony.' By contrast, it is comparatively easier for \( J_V \) to induce \( V \) to communicate her information. If the deductible is \( d_n \) and the reasonable cost that may be compensated is \( r \), \( V \) may want to communicate her information if \( d_n + r > t \).

5. CAN THE INSURER RESTRICT COVERAGE IN CASE OF NEGLIGENCE?

In some cases it is not necessary for \( V \) to bring information to bear on the behavior of \( A \). This information may be automatically provided, in some cases through a simultaneous police investigation (as in traffic accidents). When the signal \( s \) is public information, and it is costly for \( J_I \) to condition explicitly on \( x \), perhaps because \( x \) is a vector of acts that must be performed, the possibility arises that \( J_I \) may condition coverage on \( A \) acting with due care. Naturally, this is a vague term, but insurers often condition on \( A \) not acting with gross negligence, also a vague term. If \( s \) would be publicly available, and \( J_I \) could condition on due care, strict liability would do just as well as negligence under our assumptions. However, it is well-known that third party insurers are restricted in their ability to restrict coverage in case of simple negligence. For example, the Danish Insurance Contract Law states the restriction as follows in §20:

It cannot be validly agreed that the company shall be exempt from liability, if the insured event has been caused by a negligence, which cannot be designated as gross.

This restriction may warrant an explanation since it can be optimal under strict liability for the parties to let the insurer bear the risk of accidents that occur despite due precautions. It would, however, go beyond the limits of the present paper to delve deeply into this issue. I shall only offer two tentative explanations. One may be that the insured is often

ill-informed about the terms of the contract, and may not be aware of a term that does not cover under simple negligence. This concern may perhaps be alleviated if the insurer must inform explicitly about a term restricting coverage in case of negligence, but the insured may e.g. not understand exactly what negligence means. Moreover, some policyholders may not understand that the insurer is likely to be in a strong bargaining position, in part due to superior information, when claims must be sorted out under such a term. Be this as it may, the fact remains that such contracts are not allowed in jurisdictions familiar to the present author.

6. Conclusion

In most court cases involving tort damages, both the defendant and the plaintiff are insurance companies. Then, the negligence rule may be more efficient than strict liability because the victim is likely to bring forward her information about the injurer’s act under the negligence rule, and this information increases the efficiency of the liability insurance contract. Under strict liability, it is harder and sometimes impossible for the injurer’s insurance company to enlist the victim’s information. Moreover, even if the victim’s information is not needed, e.g. because the injurer’s behavior is clear for everyone to see, it may be hard for the injurer’s insurer to condition coverage on the injurer’s degree of care. Care may involve many acts that are hard to all specify ex-ante in the insurance contract, and the insurer may be legally restricted in conditioning coverage on due care on the part of the injurer.

Naturally, in any real world choice between strict liability the advantage brought up in this article should be weighed against other well-known factors such as the presence of hidden acts by the injurer, which arise when the signal received by the victim either is itself not fully informative of the acts taken by the injurer or cannot be communicated to the court (verified).

The advantage of the negligence rule identified in this article is likely to be more significant the greater the moral hazard problem. This depends in part on how well incentives for precaution can be controlled over time e.g. through experience rating. But even in a system of experience rating, it may be important for the insurer to know whether accidents incurred were due to negligence or bad luck, so the fact that more information is produced under the negligence rule is also an important concern in a multi-period setting.

References


