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Legal cost insurance under risk-neutrality

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Summary
This paper presents a model of the interaction between a (potential) injurer and a (potential) victim. In combining the analyses of tort law and dispute resolution, one can investigate how the behaviour of a (potential) injurer is influenced by the fact that he may anticipate the outcome of a judicial dispute. Inefficiencies may result for several reasons. We focus on the role of legal costs. These costs constitute an inefficiency in itself. Furthermore, the level of legal costs may prevent a victim from making a credible threat to bring suit, implying that the injurer can engage in a harmful activity without any risk. This problem may be relieved by profit-seeking companies selling legal cost insurance policies to (potential) victims of harmful activities. We investigate why risk-neutral individual might be interested in legal cost insurance. The consequences for the interaction between potential injurer and victim and for efficiency are analysed.

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INTRODUCTION

The economic analysis of tort law studies the influence of liability on the level of care taken by an injurer (and the victim in bilateral cases) and on the number of activities. It is generally assumed that an individual who, given the operative system of liability, is obliged to pay damages will actually pay. Models of dispute resolution, however, suggest that these damages will not always be paid. In combining the analyses of tort law and dispute resolution, one can investigate how the behaviour of a potential injurer is influenced by the fact that he may anticipate the outcome of a judicial dispute. In doing so, one may gain insight in the implications of dispute resolution for the deterrent function of the law.

In a number of papers the analysis of tort law has been combined with what Shavell (1995) calls "the standard model of litigation". In these papers the analysis is focused on the question of how the choice of the level of care is influenced by the outcome of a potential dispute. In this, it is implicitly assumed that the injurer will always engage in his activity. The analysis in the present paper, on the other hand, assumes that the activity can be performed with one specific level of care only, and investigates whether a potential injurer does or does not engage in his activity, depending on the prospective outcome of an eventual dispute. The interaction between a (potential) injurer and a (potential) victim will be modelled in terms of four possible scenario's: (I) the injurer engages in his activity and the victim cannot (credibly threaten to) bring suit; (II) the injurer engages in his activity and the dispute ends in a settlement; (III) the injurer engages in his activity and the dispute ends in a trial; (IV) the injurer refrains from his activity. In the evaluation of the result of the interaction two types of inefficiency will be distinguished. The first type regards the number of activities, as the potential

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1 The standard reference is Shavell (1987).
2 Seminal papers on the standard model of litigation are Landes (1971), Gould (1973), Posner (1973) and Shavell (1982). Recent analyses based on the standard model are Smith (1992) and Shavell (1995). Because the answer to the question of whether a dispute will result in a settlement or a trial in the standard model depends on the parties' subjective probabilities of prevailing, this type of model has been called "optimism model". This in contrast to the so-called "private information models", where the emergence of trial depends on private information and related strategic behaviour. See P'ng (1983) and Bechuk (1984). Waldfogel (1998) presents some evidence on litigation that is consistent with the standard model rather than the private information model.
3 Papers dealing with the implication of disputes for the level of care but not for the number of activities are Polinsky and Rubinfeld (1988), Hylton (1990), Miceli and Segerson (1991), Gravelle (1993), Gravelle and Waterson (1993), and Shavell (1997). Shavell (1997) interprets the deterrent effect that suit has on the exercise of precaution as a positive externality of litigation. There is also a negative externality, since a party that makes a litigation decision does not take into account the legal costs that he induces on others. Consequently, the level of litigation can be either socially excessive or inadequate.
injuror may engage in an inefficient activity or refrain from an efficient one. The second type regards the method of dispute resolution, as a dispute may result in a costly trial.

The analysis starts from the standard European practice, where contingent fees are absent and the so-called Continental rule for allocating legal costs applies, i.e. the loser in a trial not only has to pay his own, but also the winner's legal costs. It will become apparent that inefficient outcomes may arise in several situations. The paper then specifically addresses one source of inefficiency, i.e. the presence of legal costs. The level of legal costs may withhold citizens from taking legal proceedings, either due to a binding credit restriction or because the expected net benefit from litigation is negative. This problem may be relieved by profit-seeking companies selling legal cost insurance policies to (potential) victims of harmful activities.

The paper is organized as follows. In section 2 we present a model of the interaction between a (potential) injurer and a (potential) victim. We evaluate the outcome in terms of efficiency. In section 3, we discuss the implications of legal cost insurance. We investigate (a) the behavioural consequences if the (potential) victim is insured; (b) why risk-neutral individuals may be interested in legal cost insurance in the first place; (c) the implications for efficiency; and (d) the differences between private and public legal cost insurance. Section 4 concludes.

2 HARM, TRIAL AND SETTLEMENT

2.1 The model

In this section we present a model of the interaction between two individuals, a (potential) injurer A and a (potential) victim B. Both will be taken to be risk-neutral. At a certain point in time individual A considers whether or not he should venture upon an activity that will bring him a personal gain. However, that same activity causes harm to individual B. The legal rule is supposed to be one of strict liability. If harm occurs, victim B will want to hold the injurer liable and receive damages, so he will threaten A to litigate. If this threat is credible, A has to decide whether or not he will make a settlement offer that is high enough to be acceptable for B. If A does not make an acceptable settlement offer, B will bring the dispute to trial. Then, whether it is wise for A to engage in the activity after all, depends on his personal gain from the activity, corrected for the expected costs of compensatory damages and the expected costs of a legal procedure. The game tree in figure 1 depicts the structure of the model.
In order to decide whether or not to engage in the activity, the potential injurer has to answer three questions:

1. If I engage in the activity and the activity causes harm to a victim, can the victim credibly threaten to litigate?

2. In case the victim credibly threatens to litigate, what is the best option: making a settlement offer which is acceptable to the victim or allowing things to develop into a trial?

3. What is, given the answers to question 1 and 2, the best alternative: to engage or not to engage in the activity?

Ad. 1 Can the victim credibly threaten to litigate?

To formalize the model, we first assume that individual A has caused harm H, $H > 0$, to victim B. In case of harm, B will consider whether it is worthwhile to start a litigation procedure. B's subjective probability of success in a trial is denoted by $P_B$, $0 \leq P_B \leq 1$. If B prevails in the trial, individual A has to fully compensate harm H. Furthermore, under the Continental rule, the loser in a trial not only has to pay his own legal costs, but also those of the winner. Total legal costs are given by $C = C_A + C_B$, where $C_A$ and $C_B$ denote the legal costs made by A and B, respectively; $C_A > 0$, $C_B > 0$. Then, individual B's expected net benefit of litigation, indicated by $L_B$, is equal to:

$$L_B = P_B H - (1-P_B)C. \quad (1)$$

Assuming the injurer knows $P_B$, $H$ and $C$, victim B can credibly threaten A to litigate if and only if $L_B > 0$, i.e. iff $P_B > C/(H+C)$. 

Figure 1. Game tree
Ad. 2 Settlement or trial?
If the activity causes harm and the victim's net benefit of litigation is positive, A must face the eventuality that parties will end up in court. Let A's subjective probability of prevailing in court be equal to \( P_A, 0 \leq P_A \leq 1 \). When A prevails, he will be exempt from paying damages and his legal costs will be reimbursed by B. But when he loses, he has to compensate victim B for his harm \( H \) and for his legal costs \( C_B \); moreover, he then has to bear his own legal costs \( C_A \). Consequently, A's expected cost of litigation, indicated by \( L_A \), is given by:

\[
L_A = (1-P_A)(H+C).
\]  

Instead of waiting for the judge to give his final verdict in court, A can also try to start a bargaining process with B in order to settle the dispute out of court. It can be assumed that this settlement bargaining takes place before the bulk of the legal costs has been incurred; for simplicity we shall assume that the costs associated with bargaining and settlement are zero. Suppose A is considering the possibility of a settlement, what amount should he then offer to victim B? It is clear that individual B will only be ready to accept a settlement offer by A, if it makes him at least as well off as a trial. This implies that a settlement offer to be acceptable to B should at least be equal to his expected net benefit of litigation \( L_B \), as given by (1). A "low" settlement offer, \( S_{\text{low}} < L_B \), will be rejected by the victim, because the expected payoff of rejecting \( (L_B-H) \) exceeds the payoff of accepting \( (S_{\text{low}}-H) \); cf. figure 1. A "high" settlement offer, \( S_{\text{high}} \geq L_B \), will be accepted by the victim, because the payoff of accepting \( (S_{\text{high}}-H) \) is at least as good as the payoff of rejecting \( (L_B-H) \).

As to injurer A, rationality prescribes that he does not pay more than the minimum amount that is required. Hence, in case of a settlement injurer A will pay victim B a settlement amount, indicated by \( S \), equal to:

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4 The analysis is not affected by this assumption, as long as these costs are smaller than the legal costs associated with a trial.

5 In the literature it is generally assumed that the settlement amount is somewhere halfway the settlement range, in between the minimum the victim wants to receive and the maximum the injurer is willing to pay. That assumption, however, is not appropriate for our model, given its decision structure. After injurer A has made his (final) settlement offer, victim B must decide whether or not the dispute will go to trial. If B does not accept the (final) settlement offer, he ends up with \( L_B \). So, injurer A can be confident that victim B will not decide to reject a settlement offer \( S = L_B \), as B cannot improve his position by going to court.
(3)

$$S = L_B.$$  

Injurer A has to decide whether or not he will make a settlement offer that is high enough to be acceptable for B. A will not make an acceptable offer, and allow things to develop into a trial, if and only if $L_A < S$, i.e. iff $P_A + P_B > 1 + C/(H+C)$. If $L_A \geq S$, A will aim for a settlement by offering individual B the amount $S$.

**Ad. 3 To do or not to do?**

We now return to individual A's initial question, whether it is interesting enough, taking account of the possible consequences, to engage in the activity after all. The personal gain of the activity itself to individual A is denoted by $G$. It is taken for granted that $G > 0$; otherwise it would not be interesting for A to even consider the activity. Once individual A starts the activity, individual B will suffer harm $H$.\(^6\) A's expected net benefit of the activity then not only depends on $G$, but also on the consequences of B's possible reaction to any harm. Can B really be expected to litigate? And if so, what then is A's subsequent best response, making a settlement offer which is acceptable to the victim, or allowing things to develop into a trial? We discuss the three possibilities one at a time.

If victim B cannot credibly threaten to litigate, individual A does not have to fear for paying damages or incurring legal costs. The expected net benefit of the activity is equal to $G$, which is positive by assumption. So, A will definitely start the activity.

If individual B can credibly threaten to litigate in case of harm, and a settlement is the least expensive option for A, his expected net benefit of the activity is given by $G - S$. A will be interested in the activity if the expected net benefit, $G - S$, is positive, i.e. iff $P_B < (G+C)/(H+C)$. When $G - S \leq 0$, A will be better off by abstaining from the activity.

If, on the other hand, (waiting for) a trial should be A's best response to a credible threat by B to file suit in case of harm, his expected net benefit of the activity is equal to $G - L_A$. A will then start the activity as long as $G - L_A > 0$, i.e. iff $P_A > 1 - G/(H+C)$. Otherwise, that is if $G - L_A \leq 0$, A will abstain from the activity.

\(^6\) It may be more realistic to assume that nature decides with a probability $\pi$, $0 < \pi \leq 1$, whether individual B suffers harm as a result of A's activity. Since this doesn't yield any additional insights, we present the case where $\pi = 1$. 
The findings from the model are summarized in figure 2. Area I comprises the cases where individual B cannot credibly threaten to litigate; in these cases A will always engage in the activity. For the cases in area II and III, engaging in the activity leaves individual A, on balance, with a positive net benefit; in these cases individual A engages in the activity and makes a settlement payment (area II) or allows a trial to develop (area III). Area IV comprises those cases where, given the costs associated with a prospective trial or settlement, A decides not to engage in the activity.

Figure 2. Outcomes of the interaction between A and B

2.2 Efficiency

Two types of inefficiency may be discerned. The first one regards the number of activities. An inefficiency of this type obtains if an injurer engages in an inefficient activity, where the harm to the victim outweighs the personal gain to the injurer ($G < H$). But there is also an inefficiency if an injurer abstains from an efficient activity, where the personal gain to the injurer surpasses the harm to the victim ($G > H$). The second type of inefficiency regards the method of dispute resolution. When a dispute ends up in a trial, the legal costs involved ($C$) imply a welfare loss.

In a first-best world, all activities with $G > H$ will take place, without ever resulting in a trial, and all activities with $G < H$ will be effectively deterred. In a second-best world, not all activities with $G < H$ will be deterred, and some activities will actually lead to a trial. In this second-best world, an activity with $G > H$ on balance may result in a welfare loss, if the activity leads to a trial and $C > G - H$. 
Using figure 2, we can take stock of the welfare implications of the interaction between A and B in the present model setting. As to the first type of inefficiency, it can immediately be seen from figure 2b that an efficient activity will always take place. However, as areas I, II and III of figure 2a point out, an inefficient activity will not always be refrained from. The second type of inefficiency may also occur, as is apparent from the presence of an area III in both figure 2a and 2b.

Of course, to what extent both types of inefficiency will obtain, and the size of the eventual welfare losses involved, depend on the actual distribution of PA and PB across the 0-1-square. 7 From figure 2 it immediately follows that the contribution to social welfare W of an activity with given values of G, H, and C can formally be represented by:

\[ W(G, H, C) = \int_{\text{area}} (G-H) f(P_A, P_B) \, dP_A dP_B + \int_{\text{area}} (G-H-C) f(P_A, P_B) \, dP_A dP_B + \int_{\text{area}} 0 f(P_A, P_B) \, dP_A dP_B \]

where \( f \) is the density function of the distribution of PA and PB across the 0-1-square. Summing over all the possible activities with their various values of G, H, and C, taking account of their distribution, then gives total social welfare that is generated by the system of tort law and dispute resolution studied.

The first way in which the law influences the efficiency of the interaction between a potential injurer and a victim is through (the distribution of) the probabilities to prevail, PA and PB. There is a simple rule that always yields an efficient outcome: assure that A and B can be certain that B will prevail if he has suffered harm and brings suit against A. When \( P_A = 0 \) and \( P_B = 1 \), it follows from the lower right-hand corner of figure 2a that individual A will abstain from any activity where \( G < H \); and if \( G > H \), individual A will engage in the activity, and settle the case by paying an amount equal to \( H \) if the activity inflicts harm to the victim. It is, however, hardly conceivable that this "simple rule" can be realized, since the outcome of litigation depends on a decision of the court. In the actual world of imperfect information, parties may provide the court with incomplete information on the relevant aspects of a case, either because it is costly to secure all the details, or because it may be helpful to their stand if the information is coloured. The court

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It may be noted that these findings comply with Shavell's (1997) observations on the divergence between the private and the social motive to litigate.
may then have problems in interpreting the available information on the kind of activity, the harm, the causation and the liability in a case. This is aggravated by the rule of law, which is formulated in very general terms so as to cover many different separate cases. For each case it has to be judged anew whether, in view of the available information and the precedents, it fits the rule. As a consequence it is not at all straightforward and common knowledge in which party’s favour the court will decide. But when the values of $P_A$ and $P_B$ are not restricted to the lower right-hand corner of the 0-1-square, inefficiencies appear to be unavoidable in practice.

There is still more to say about the consequences of $P_A$ and $P_B$. Notice that in this kind of model there can only be a trial if the parties collectively overestimate their chances. For a case to be in area III, it must hold that $P_A + P_B > 1 + C/(H+C)$. It follows that the inefficiency associated with dispute resolution through a trial can be avoided if the position of the injurer and the victim are clear enough to avoid too much optimism.

The law also affects efficiency through the height of the legal costs which, together with the values of the case-specific parameters $G$, and $H$, is determining the position of the border lines between the areas I-IV in figure 2. An increase in legal costs, for instance, lowers the expected net benefit of litigation of the plaintiff, cf. (1), and raises the expected cost of litigation of the defendant, cf. (2). As a result of this, a victim’s threat to bring suit will more often be incredible, while striving for a settlement is made more attractive for the injurer. Graphically, an increase in $C$ leads to upward and rightward shifts of the border lines between the areas I - IV, which produces an increase of area I and a decrease of area III; the impact on the size of areas II and IV depends on the circumstances. Because process law affects the size of the areas in figure 2, it also influences efficiency. An increase in legal costs definitely lowers the number of procedures that end up in court. The concomitant positive contribution to social welfare may, however, be counteracted by the increase in legal costs itself, and by any raise in the number of inefficient activities taking place.$^8$

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$^8$ The latter depends on what happens to the size of area IV, given that forces are at work in different directions. As for the increase in legal costs itself, this of course only implies a welfare loss if more and/or more valuable resources are being employed. Notice that an increase in legal costs for the parties might also be the result of government raising its tariffs for the entrance into court, when these tariffs did not cover all the relevant costs in the first place.
Thus far we argued that B's threat to bring suit against A will be credible if his expected net benefit of litigation is positive, i.e. iff $P_B H - (1 - P_B) C > 0$. Given $P_B$ and $H$, the expected net benefit will turn negative if $C$ is too high. But there is also another problem related to the height of legal costs. If B prevails, his legal costs will be restituted by A. This restitution takes places after the court has passed judgment. Until then, B will have to pay his legal costs in advance. The problem now is that he may be unable to do so because of a liquidity and credit restriction. Such a restriction obtains if B is a lower income citizen, who does not have much money in cash or on his bank account, and who cannot lend because of poor collateral. In such a case A can enter into his (potentially) harmful activity without any risk that he will be sued for damages. Without the introduction of an arrangement that effectively reduces the financial barrier for the victim to bring suit, the result will be inefficiency.

3 LEGAL COST INSURANCE

The problem that the level of legal costs may withhold citizens from taking legal proceedings, either due to a binding credit restriction or because the expected net benefit from litigation is negative, may be relieved by profit-seeking companies selling legal cost insurance policies to potential victims of harmful activities. The frequency with which each citizen is actually receiving harm that is so serious that it eventually brings him into a court-room, is on average rather low. One could then imagine private insurance companies charging an annual premium of a very reasonable size, that would be affordable to virtually anyone, and thus might help to remove the credit restriction of lower income citizens.

The discussion of legal cost insurance in this section will take four steps. First, we shall amend our model, by assuming that the (potential) victim is insured. Second, we reconsider whether the effects are such that ex ante potential victims will be interested enough to buy the insurance, and profit-seeking companies will be interested enough to make the insurance available. Third, we discuss the implications for efficiency. Finally, we compare private legal cost insurance with a public approach.

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9 This section is inspired by Kirstein (1998). His paper, however, does not consider the level of activities, but studies the interaction between the injurer and the victim when either/neither/both of them can buy legal cost insurance. Moreover, in equilibrium no trials take place at all.
3.1 The impact of legal cost insurance in the model

Let us assume that individual B has accepted an offer from a private insurance company to buy a legal cost insurance policy with a premium I. The premium I for the moment represents a sunk cost for B. Whenever B gets harmed by the activities of anyone else, he can call on his insurance company; any legal costs that are charged to him will be paid for by the insurance company.

Given this system of legal cost insurance, we investigate the interaction between A and B, following the three questions of section 2.

1. Individual B can credibly threaten to bring suit if his expected net benefit of litigation \( L_B = P_B H \) is positive, i.e. iff \( P_B > 0 \).

2. If B credibly threatens to litigate, A will opt for a trial (settlement) if \( L_A < (\geq) S \). As \( L_A = (1 - P_A)(H + C) \) and \( S = L_B \), this obtains iff \( P_A + P_B H/(H + C) > (\geq) 1 \).

3. If B cannot credibly threaten to litigate, A will engage in his activity as long as his personal gain \( G \) is positive. If B can credibly threaten to litigate and the realization of a settlement is the least expensive option for A, A will engage in the activity if \( G > S \), i.e. iff \( P_B < G/H \). If B can credibly threaten to litigate and a trial is the least expensive option for A, A will engage in the activity if \( G > L_A \), i.e. iff \( P_A > 1 - G/(H+C) \).

These results are summarized in figure 3.

Figure 3. The interaction between A and B under legal cost insurance

In our discussion of the impact of legal cost insurance, we start at those victims who were subject to a binding credit restriction, but who can take legal proceedings
now that they are insured. If not insured, these victims could not credibly threaten to bring suit. The full 0-1-square for the probabilities \( P_A \) and \( P_B \) in fact constituted area I. The (potential) injurer felt free to venture upon any harmful activity. If the (potential) victim is insured, figure 3 applies. Depending on the circumstances, the victim can now force the injurer to pay a settlement amount (area II); he has a chance that damages will be awarded in court (area III); or he may even enjoy the absence of harm, when A decides to abstain from an inefficient activity (area IV). The position of an insured victim is clearly better than the position of an uninsured victim.

For our evaluation we must also take a look at the second category of insured, i.e. those who would have been able to bring suit if uninsured. For this category, the introduction of legal cost insurance results in an increase in the expected net benefit of litigation. A comparison of figure 2 and 3 reveals the implications. First of all, area I disappears, because the expected net benefit of litigation will be positive for all \( P_B > 0 \). Second, there is an increase in area III: the injurer will more often let a dispute go to trial, because he observes that the settlement amount increases while his net cost of litigation is unchanged. Finally, there is an increase in area IV: the injurer will more often refrain from his harmful activity, because he has to reckon with higher expenses following from these activities.

### 3.2 The origin of legal cost insurance

We now must face the question that precedes figure 3. Is legal cost insurance in the mutual interest of both private insurance companies and (potential) victims? The standard explanation for the existence of an insurance like this is the risk-aversion of the (potential) victims. This argument cannot be applied in our model, as it is based on the assumption that all persons involved are risk-neutral.

But there is another factor at work here, the strategic position of (potential) victims. We have observed that the fact that a victim is insured improves his position vis-à-vis the injurer, not only if it really comes to a trial, but also apart from the actual appearance in a court-room. If injurer A knows that the (potential) victim B is insured, he will more often abstain from his activities; so B will experience less harm. Moreover, B will more often be in a position to credibly threaten to bring suit, and so be able to extort a profitable settlement from A. In these cases the net benefit to B definitely increases, even if there is no trial and the corresponding costs to the insurance company are equal to zero.

Of course, there are also cases (area III of figure 3) where the insurance
company is confronted with litigation costs. To analyse whether the insurance policy could represent a mutually beneficial trade in these cases, we must look at the combined (expected) net benefit of victim and insurance company. If the victim was legally impotent without the insurance policy, then the combined (expected) net benefit is definitely positive, at least as long as \( P_B > C/(H+C) \); similarly, if the victim was wealthy enough to take judicial proceedings without being insured, there is no change in the combined (expected) net benefit, but only a redistribution from insurance company to insured.

The only problem for a mutually beneficial insurance contract occurs when \( P_B < C/(H+C) \). Given the litigation costs, a trial would not be worthwhile for B, if he had to bear the full legal costs; but when these legal costs can be shifted to the insurance company, B's net benefit of litigation changes from negative to positive, and the case may actually end in a trial (cf. the upper left part of figure 3). If so, the combined (expected) net benefit of victim and insurance company would be negative.

However, it is quite likely that the probability distribution of \( P_A \)'s and \( P_B \)'s is such that these latter cases do not occur so often that their negative effect on the combined net benefit of victim and insurance company outweighs the positive (or zero) effect of all the other possible cases. Then it will prove possible to find a premium that makes the insurance a mutually beneficial trade.\(^\text{10}\)

### 3.3 Efficiency

In discussing the efficiency implications of legal cost insurance, we have to distinguish victims who cannot credibly threaten to bring suit in absence of legal cost insurance, and those can.

If an uninsured victim cannot credibly threaten to bring suit, the full 0-1-square for the probabilities \( P_A \) and \( P_B \) in fact constitutes area I. Once insured this victim may credibly threaten to bring suit. The potential injurer will now abstain from inefficient activities located in area IV; this is a clear contribution to efficiency. On the other hand, several conflicts will now end up in court, with the concomitant costs; from an efficiency point of view this is a deterioration. On balance, the effect on social welfare can both be positive and negative.

\(^{10}\) It can be shown, for instance, that if the distribution of the probabilities \( P_A \) and \( P_B \) is independently uniform across the 0-1-square, and the activity concerned is efficient (\( G > H \)), the advantage to B of being insured would be 3 times the expected costs of the insurance company; and if the activity is inefficient (\( G < H \)) the (relative) difference would even be higher.
If an uninsured individual can credibly threaten to bring suit, insurance on the one hand leads to a growth of area III, i.e. more conflicts lead to trial. On the other hand, it leads to a growth of area IV, i.e. more inefficient activities will be effectively deterred.

Legal cost insurance may increase efficiency if the welfare gain stemming from increased deterrence outweighs the welfare loss due to an increase in the number of trials.

3.4 Private vs public insurance
In the preceding sections we focussed on legal cost insurance, whereby private insurance companies sell legal cost insurance policies. Risk-neutral potential victims may be interested in legal cost insurance, because it improves their position vis-à-vis the injurer. An alternative may be public insurance: the government may provide subsidized legal aid. With subsidized legal aid, the victim does not have to finance the full legal costs $C_B$ in order to bring suit. Depending on his income, he only has to pay a deductible, which will be indicated by $D_B$. The remainder of B's legal costs, $R_B = C_B - D_B$, is taken care of by the government. If injurer A loses in court, he will have to bear all litigation costs, $C$. In that case B's deductible will be reimbursed by A, as will the expenses taken care of by the government. If victim B loses in court, his deductible $D_B$ will not be reimbursed; moreover, he has to pay the legal costs of the winner, $C_A$. In that case B's costs boil down to $C_A + D_B$, which is equal to $C - R_B$. The outcome of the interaction between A and B is summarized in figure 4.\footnote{In our formulation of the system of subsidized legal aid, we have been inspired by actual Dutch practice. It is straightforward to find the outcome of the interaction between A and B. Individual B can credibly threaten to bring suit if $P_B > (C-R_B)/(H+C-R_B)$. If B credibly threatens to litigate, A will opt for a trial (settlement) if $P_A + P_B(H+C-R_B)/(H+C) > (\varepsilon) 1 + (C-R_B)/(H+C)$. If B cannot credibly threaten to litigate, A will engage in his activity as long as his personal gain $G$ is positive. If B can credibly threaten to litigate and the realization of a settlement is the least expensive option for A, A will engage in the activity if $P_B < (G+C-R_B)/(H+C-R_B)$. If B can credibly threaten to litigate and a trial is the least expensive option for A, A will engage in the activity if $P_A > 1 - G/(H+C)$.}
Essentially, public insurance has the same effects as private insurance (cf. figure 2, 3, and 4). Once subsidized legal aid is available to a victim, his expected net benefit of litigation improves. The subsequent implications are in similar vein as when the victim is privately insured. And both arrangements help to relieve the credit restriction of lower income citizens. Notice that the results of figure 3 and 4 would fully coincide if $C - R_B = 0$.

Suppose the two arrangements exist side by side. Unless the own contribution they have to pay in case of legal proceedings comes very much near the market price for legal assistance, victims who are entitled to legal aid subsidies in general will not opt for insurance. Low income victims can avoid the insurance premium by relying on the government provision, which roughly provides them with the same advantages; on the other hand, there is no noticeable difference in their personal tax burden when they opt for an alternative to the government provision. Consequently, low income victims will not buy private legal cost insurance, unless $C - R_B$ is too high. High income victims, on the other hand, who are not entitled to legal aid subsidies will more often opt for private legal cost insurance.

From an efficiency point of view it might be argued that there are some reasons to prefer private insurance to government subsidies, now that there are no major differences in their effects. These reasons are related to individual freedom of choice and the funding of the arrangement, and to cost-effectiveness. In case of private legal cost insurance any (potential) victim can make his own choice as to whether buying insurance is interesting enough for him; so we can be sure that the
arrangement only comes into being as the result of a mutually advantageous trade. In case of legal aid subsidies there is no direct relation between paying for and calling on the arrangement; so it is very likely that there are people who, if they had had the choice, would not have bought this "insurance". Furthermore, there are people who - because of their incomes - are not entitled to legal aid subsidies and yet are assessed to pay (efficiency distorting) taxes. As to cost-effectiveness, it may be surmised that a private insurance company is operating with less X-inefficiency than a governmental bureaucracy in treating requests for legal assistance. While these arguments have some value, it nevertheless should be remarked that there are at least two counterarguments. When (potential) victims after all make the choice not to buy insurance, and following that decision cannot credibly threaten to bring suit in case of harm, deterrence is less forceful, and more inefficient activities will take place in society, than if the government makes a once and for all choice to introduce a legal aid subsidy scheme. Secondly, and as to cost-effectiveness, there may be substantial economies of scale and savings on transaction costs involved, when the government provides the "insurance" through one counter (with one administration), and on a compulsory basis (without marketing efforts, screening of candidates, etc.).

4 CONCLUSION
In this paper we investigated the interaction between an individual A who considers whether or not to engage in an activity that causes harm to B, and the individual B who is legally entitled to damages but may have to take judicial proceedings to compel A to actually pay. The interaction between A and B can result in four outcomes: (I) A engages in the activity, and B cannot credibly threaten to litigate; (II) A engages in the activity, B credibly threatens to litigate, and A makes a settlement offer which is accepted by B; (III) A engages in the activity, B credibly threatens to litigate, and A allows things to develop into a trial; (IV) A does not engage in the activity. The outcome in a specific case depends on the values of the personal gain obtained by the injurer (G), the size of the harm (H), the sum of the legal costs of A and B (C), and the subjective probabilities of prevailing of both individuals (P_A and P_B).

From a social welfare point of view, ideally an injurer should always feel urged to settle and pay a full compensation of the harm inflicted on a victim. In that

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12 For a similar discussion of the arguments in favour of public versus private provision of social security, see Aarts and De Jong (1998).
case, an injurer will only engage in efficient activities, i.e. activities yielding a personal gain that outweighs the harm. In a world of imperfect information, however, the interaction may yield two types of inefficiency. The first one materializes when a potential injurer engages in an activity that causes harm to a victim that outweighs the personal gain obtained by the injurer. The second one obtains when the dispute results in a trial rather than a settlement.

In this paper we concentrated on inefficiencies that originate from the level of legal costs that may withhold the victim from making a credible threat to bring suit. If potential victims have an opportunity to buy legal cost insurance, this problem may be eliminated. It has been shown that legal cost insurance may come into being even if potential victims are risk-neutral, as being insured strengthens their strategic position vis-à-vis potential injurers.

The introduction of legal cost insurance leads to an improvement in the deterrent function of the law: more inefficient activities will be effectively deterred. This is a clear contribution to efficiency. On the other hand, a larger number of activities will now end up in court. Legal cost insurance may increase efficiency if the welfare gain stemming from increased deterrence outweighs the welfare loss due to an increase in the number of trials.
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