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Legal Cost Insurance as a Strategic Device

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Abstract

The paper shows that Legal Cost Insurance (LCI) is a device to enhance potential litigants' bargaining position rather than to re-allocate risk. Being insured decreases the cost an insured party has to bear if settlement negotiations fail and the case goes to trial. This shifts the threat points, which has an impact on the bargaining result. In negative expected value suits, LCI can make the threat to sue credible and motivate potential defendants to make positive settlement offers. Hence, even risk-neutral agents may find it beneficial to insure.

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Contents

1. Introduction	3
2. The model	4
3. Equilibrium analysis	6
3.1 The litigation stage	6
3.2 The insurance stage	8
3.2.1 The decision situation	8
3.2.2 Positive expected value cases	8
3.2.3 Negative expected value cases	9
4. Results and discussion	10
References	12

List of Figures

1 The interaction between P and D	5
2 Combinations of insurance parameters and Nash equilibria	11

List of Tables

1 Insurance stage, PEV case	9
2 Insurance stage, NEV case	9

1. Introduction

The literature on the economic analysis of insurance can be separated into three branches, namely the analysis of re-allocation of risk¹, of adverse selection², and of moral hazard³ effects of insurance. The first of these branches examines the risk-allocation among agents with different risk attitudes. In general, it is efficient if agents with higher risk aversion buy insurance from agents with lower risk-aversion. Adverse selection might lead to market failure if types of agents with higher risks cannot be separated ex-ante from those with lower risks. Finally, the moral hazard branch points out that insurance might lead to the choice of a lower level of precaution.

According to this, demand for insurance is created out of different risk attitudes or the agent's interest in substituting precaution for insurance. This implies that, if agents are risk-neutral and precaution plays no role, nothing can be gained from buying insurance.

In this paper, I analyze Legal Cost Insurance (LCI) as a strategic device that influences the interaction with other agents. The paper therefore proposes to add a new branch to the insurance literature. I show that agents might have a demand for LCI even if they are risk-neutral and if there is no way to influence the probability of a conflict that might lead to litigation. Hence, it is not the aspect of risk-allocation that makes LCI beneficial for potential litigants, but rather the possibility to improve their strategic position in a law suit.

LCI has two strategic effects in a game with settlement bargaining and trial. First of all, LCI can make the plaintiff's threat to sue credible even if the case has a negative expected value (NEV)⁴. Without LCI, this threat would be noncredible, and the potential defendant could not be motivated to make or accept a positive settlement offer. When the settlement negotiations take place, the insurance rate is already sunk. The second strategic effect of LCI is to shift the bargaining range and therefore the settlement result. This effect can make LCI attractive for both of the litigants even in a positive expected value (PEV) suit.

LCI is thus shown to be a useful institution which is required to ensure legal protection for property rights of low value, but does not necessarily lead to more litigation⁵. Some authors, however, criticize that LCI might lead to civil courts' caseload and to a kind of "arms race" among potential litigants⁶. The caseload hypothesis was empirically rejected

¹See e.g. ARROW (1971) and STIGLITZ (1974).

²See ROTHCHILD/STIGLITZ (1976) on signalling effects in the insurance market, or AKERLOF (1970), who applied this approach to a broader range of topics.

³See e.g. SHAVELL (1979).

⁴The idea to turn a NEV case into a positive expected value case by distributing the litigation costs over time is due to BEBCHUK (1996).

⁵See also KIRSTEIN (1998).

⁶E.g., see ADAMS (1981) and ADAMS/BLANKENBURG (1983).

at least for Germany⁷. My model allows to derive conditions under which the arms race hypothesis is valid; it also provides conditions under which this result can be avoided. The insurance parameters can be set in a way that settlement is induced without an arms race taking place.

The paper is organized as follows:

- Section 2 presents the model.
- In section 3, the equilibrium solution for positive and negative expected value suits is derived.
- Section 4 presents the main results and discusses briefly the impact of some modifications of the assumptions I made.

2. The model

Consider two risk-neutral players, P and D, that engage in a dangerous activity. For example, P is a pedestrian, D a driver; the latter might cause an accident that harms the former. The interaction takes place in three stages:

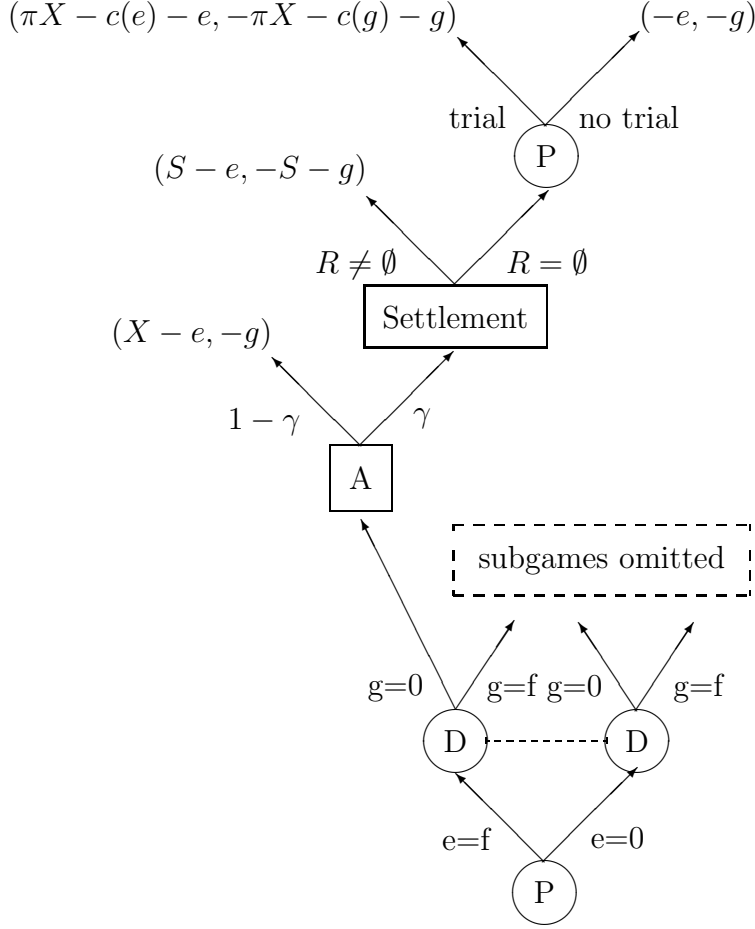
- **The insurance stage:** P and D simultaneously decide whether to buy a Legal Cost Insurance (LCI) or not.
- **The accident stage:** An accident might occur with probability γ , which causes harm to P, whose value of not having to suffer this harm is X .
- **The litigation stage** If an accident has occurred, the parties negotiate on a settlement. If they reach an agreement, the game ends with a payment S from D to P. If the parties do not reach an agreement, P has to decide whether to proceed to trial or not. In case of trial, the judge decides with probability π in favor of P.

Figure 1 represents these three stages graphically. The tree starts at the bottom with the decision of the parties whether to insure or not. Since this decision takes place simultaneously, the two decision nodes of D are within one information set, which is indicated by a dashed line between these two nodes.

The insurance stage leads to four possible combinations of decisions; to simplify **figure 1**, I cut out three of the subgames that arise out of the insurance stage, as it is indicated by the dashed box. Thus, **figure 1** shows the accident and litigation stages only for one of these four branches, namely the combination $e = f$ and $g = 0$ (where only P is insured).

⁷See BLANKENBURG/FIEDLER (1981) and RENNEN (1983); a more recent empirical study for the German Federal Government showed similar results, see JAGODZINSKI, W./RAISER, T./RIEHL, J. (1993).

Figure 1: The interaction between P and D



The accident stage is represented by the box labelled with "A". Either no accident occurs with probability $1 - \gamma$; $0 < \gamma < 1$ and the game ends⁸. Or, in case of an accident (with probability γ), the parties enter the litigation stage. The parties have no mean to influence γ . This assumption was made to exclude any precaution effect on the insurance decision.

First, they negotiate on a settlement. These negotiations are represented by the box labelled with the word "settlement". If the bargaining range, denoted as R , is non-empty, the parties reach a settlement, and the game end with a payment $S \in R$ from D to P. If, however, the bargaining range is empty, P has to decide whether to proceed to trial or not. I furthermore assume zero negotiation costs and equal bargaining power.

In case of trial, the plaintiff P has to bear costs that are denoted as $c(e)$, where $e \in \{0; f\}$, $f > 0$ is the insurance fee. $e = 0$ means that P is uninsured and has to pay his

⁸The possibility of opportunistic suits is thus excluded. See KIRSTEIN/SCHMIDCHEN (1996) and (1997) for an analysis of opportunistic suits and judicial detection skill.

full costs, whereas $e = f$ means that P is insured and only has to bear a deduction $c(f)$ which is non-negative, hence $c(0) > c(f) \geq 0$. The trial costs of the defendant D are respectively denoted as $c(g)$ with the insurance fee $g \in \{0; f\}$. Litigation costs are allocated according to the American rule: Each party has to bear its own trial costs.

P prevails in trial with probability $\pi \in]0, 1[$. Hence, his expected payoff from proceeding to trial is πX minus the trial costs $c(e)$ minus the insurance fee e he paid in advance. D's expected payoff in case of a trial is $-\pi X - c(g) - g$ (recall that in the example tree, g is zero). If P does not proceed to trial, the parties only have to bear their insurance fees, if they have bought an insurance during the first stage.

I assume that the insurance fee is valid for one period and that γ is the probability of an accident during this period. Furthermore, I assume that the parties have the same expectations concerning the probabilities γ and π .

3. Equilibrium analysis

3.1 The litigation stage

If settlement negotiations fail, P will proceed to trial if, and only if, the expected payoff impact of the trial is positive. This is the expected judgement πX minus the trial costs P has to bear, namely $c(e)$. Hence, P will try the case if, and only if, $c(e) < \pi X$. The expected net value of a trial is $\pi X - c(e)$ for P and $-\pi X - c(g)$ for D. If P does not proceed to trial, the value of this decision is zero for both of the parties.

The settlement range R is determined by the decision of P. He will only accept settlement offers S that exceed the value of his decision, namely:

$$S \geq \begin{cases} 0 & : \pi X < c(e) \\ \pi X - c(e) & : \pi X > c(e) \end{cases}$$

If he credibly threatens to proceed to trial, P will only accept settlement payments that exceed the (positive) net expected value of the trial⁹. If, on the other hand, his threat to proceed is non-credible he would accept any positive settlement payment.

D anticipates the trial decision of P and will only accept settlement payments that hold

$$-S \geq \begin{cases} 0 & : \pi X < c(e) \\ -\pi X - c(g) & : \pi X > c(e) \end{cases}$$

If D expects P to proceed to trial, he would accept any settlement payment that is smaller than his expected loss from trial, $S < \pi X + c(g)$. If he expects P not to proceed,

⁹For simplification, I assume that a settlement offer is also acceptable if it equals the threat point.

D will only make negative settlement offers. From these considerations, the settlement range can be derived¹⁰:

$$R = \begin{cases} [\pi X - c(e), \pi X + c(g)] & : \pi X > c(e) \\ \{0\} & : \pi X < c(e) \end{cases}$$

If $\pi X > c(e)$ holds, the parties reach a settlement with $S \in [\pi X - c(e), \pi X + c(g)]$. If, on the other hand, $\pi X < c(e)$ holds, neither settlement nor trial will take place. The bargaining position of P depends on the credibility of his trial threat¹¹ Let me now define

- $\pi X > c(0)$ as Positive Expected Value (PEV) case,
- $\pi X < c(0)$ as Negative Expected Value (NEV) case, and
- $c(f) < \pi X$ as the Credibility Condition.

This allows to derive the first result of this paper:

Proposition 1: *If, in NEV cases, P is not insured, then his trial threat is non-credible. If the LCI holds the Credibility Condition, then it would make his trial threat credible.*

Moreover, in NEV cases, an LCI that holds the Credibility Condition motivates D to make a positive settlement offer. The reason is that an LCI decreases the costs a plaintiff has to bear in case of trial. The insurance fee is sunk when then the plaintiff has to make his trial decision, hence it is only the deduction that is relevant when P has to make this decision. LCI can be interpreted as distribution the total litigation costs over time - which can turn NEV suits into credible threats, as analyzed by BEBCHUK (1996).

Under the assumption of equal bargaining power, the settlement payment the parties agree upon can be derived as the arithmetic mean of the parties' threat points. Let me now define

$$h := \frac{c(0) - c(f)}{2}$$

The share of a party's litigation costs that is covered by the LCI hence is $2h$. Since an LCI contract consists of the insurance fee and the deduction or the amount that is covered, each possible LCI contract can be described by the parameters (f, h) for comparative statics purposes.

Taking into account the effect of NEV suits and assuming that LCI holds the Credibility Condition, the settlement results $S = S(e, g)$ with $e, g \in \{0, f\}$ are:

¹⁰Again for simplification, I treat $R = \{0\}$ as equivalent to "no settlement", because the consequences of these two events are just the same.

¹¹See GOULD (1973) or NALEBUFF (1987, 198).

- $S(f, f) = \pi X + \frac{c(f) - c(f)}{2} = \pi X$
- $S(f, 0) = \pi X + \frac{d(0) - p(f)}{2} = \pi X + h$
- $S(0, f) = \begin{cases} 0 & : \pi X < p(0) \\ \pi X + \frac{c(f) - c(0)}{2} = \pi X - h & : \pi X > p(0) \end{cases}$
- $S(0, 0) = \begin{cases} 0 & : \pi X < p(0) \\ \pi X + \frac{c(0) - c(0)}{2} = \pi X & : \pi X > p(0) \end{cases}$

Obviously, in PEV cases $S(f, 0) > S(f, f) = S(0, 0) > S(0, f)$ holds, whereas in NEV cases $S(f, 0) > S(f, f) > S(0, 0) = S(0, f)$ holds.

3.2 The insurance stage

3.2.1 The decision situation

In the insurance stage P expects to receive $X - e$ if no accident occurs (with probability $1 - \gamma$), and $S(e, g) - e$ in case an accident has occurred (with probability γ). His optimal insurance decision is

$$e^* = \operatorname{argmax} \gamma S(e, g^*) + (1 - \gamma)X - e$$

with $e \in \{0; f\}$. D expects $-g$ if no accident occurs and $-S - g$ in case of accident. His optimal decision is

$$g^* = \operatorname{argmin} \gamma S(e^*, g) + (1 - \gamma)g$$

with $g \in \{0; f\}$. The following two sections show the insurance stage as a 2x2 game, where the payoffs are the subgame value of the litigation stage as derived in the previous section.

3.2.2 Positive expected value cases

Let me first consider the positive expected value case. **Table 1** shows the insurance stage as a 2x2 game. In this game, P's strategy $e = 0$ means not to insure, whereas $e = f$ denotes the decision for insurance. The equilibrium analysis leads to the following result:

Proposition 2: *In a PEV case, the strategy combination $(e = f, g = f)$ is a Nash equilibrium in dominant strategies if, and only if, $f < \gamma h$. This Nash equilibrium is Pareto-inefficient.*

Table 1: Insurance stage, PEV case

D	$g = 0$	$g = f$
P		
$e = 0$	$\begin{array}{c} -\gamma\pi X \\ (1 - \gamma)X + \gamma\pi X \end{array}$	$\begin{array}{c} -\gamma(\pi X - h) - f \\ (1 - \gamma)X + \gamma(\pi X - h) \end{array}$
$e = f$	$\begin{array}{c} -\gamma(\pi X + h) \\ (1 - \gamma)X + \gamma(\pi X + h) - f \end{array}$	$\begin{array}{c} -\gamma\pi X - f \\ (1 - \gamma)X + \gamma\pi X - f \end{array}$

If the LCI fee is too small, the parties are in a prisoners' dilemma situation: It is individually rational to insure, because this improves the bargaining result, but if both parties are insured, the settlement payment is just the same as between uninsured parties¹². If, on the other hand, the LCI fee is sufficiently high, namely $f > \gamma h$, then the strategy combination $(e = 0, g = 0)$ is the Nash equilibrium, which is Pareto-efficient.

3.2.3 Negative expected value cases

The insurance stage in the NEV case is represented in **table 2**.

Table 2: Insurance stage, NEV case

D	$g = 0$	$g = f$
P		
$e = 0$	$\begin{array}{c} 0 \\ (1 - \gamma)X \end{array}$	$\begin{array}{c} -f \\ (1 - \gamma)X \end{array}$
$e = f$	$\begin{array}{c} -\gamma(\pi X + h) \\ (1 - \gamma)X + \gamma(\pi X + h) - f \end{array}$	$\begin{array}{c} -\gamma\pi X - f \\ (1 - \gamma)X + \gamma\pi X - f \end{array}$

¹²N.B. that this result is not entirely driven by the assumption that the parties face equal litigation costs and insurance fees. The prisoners' dilemma result is not excluded if different litigation costs and insurance fees are assumed.

This game can have three different Nash equilibria in pure strategies, as the next proposition claims:

Proposition 3: *In NEV cases, the Nash equilibria in pure strategies of the insurance stage game are¹³:*

- $(e = 0, g = 0)$ if, and only if, $f > \gamma(\pi X + h)$
- $(e = f, g = 0)$ if, and only if, $\gamma(\pi X + h) > f > \gamma h$
- $(e = f, g = f)$ if, and only if, $f < \min\{\gamma h; \gamma \pi X\}$

$(e = 0, g = f)$ will never be a Nash equilibrium, since $f > 0$. The game does not have a Nash equilibrium in pure strategies if, and only if, $\gamma h > f > \gamma \pi X$.

Figure 2 shows the possible parameter constellations and the resulting equilibria. The lower diagonal line represents $f = \gamma h$; above this line, the condition $f > \gamma h$ is fulfilled. The upper diagonal line stands for $f = \gamma(\pi X + h)$, the horizontal line (which is partly dashed) represents $f = \gamma \pi X$.

LCI contracts with (f, h) combination that are situated between these lines in **figure 2** would implement the strategy combination $(e = g, g = 0)$ as the Nash equilibrium. This holds above the dashed line as well as below. (f, h) combinations above the upper diagonal line would implement $(e = 0, g = 0)$. If the LCI contracts consist of parameter constellation above the horizontal line, but below the lower diagonal line, then the insurance stage game would have no Nash equilibrium in pure strategies. Below the horizontal and the lower diagonal line, $(e = f, g = f)$ would be implemented.

If the legal system aims to protect the legitimate claim of P and simultaneously to discourage D from buying insurance only for redistributive purposes, then the Nash equilibrium $(e = f, g = 0)$ should be implemented by setting the insurance fee f such that

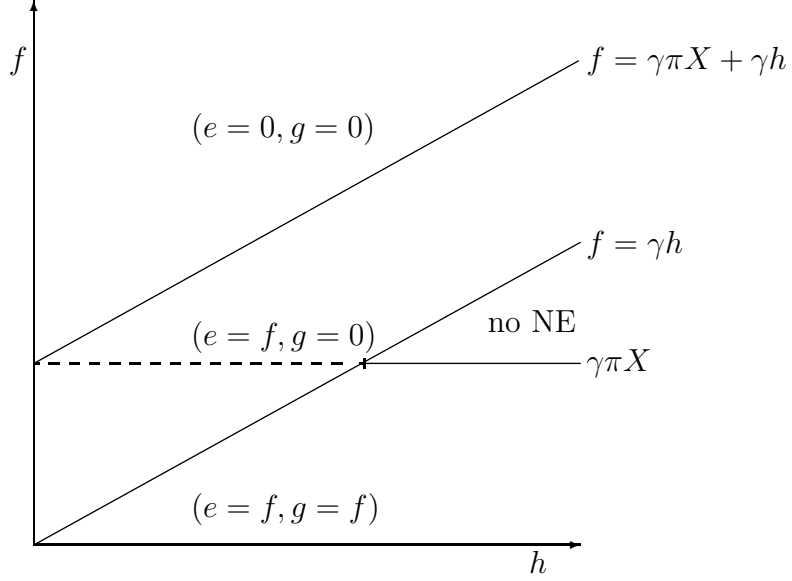
$$\gamma(\pi X + h) > f > \gamma h$$

with $2h = c(0) - c(f)$.

¹³**Proof of Proposition 3:**

- If $f > \gamma(\pi X + h)$, then $e = 0$ is the dominant strategy for P; $g = 0$ is always the best answer of D on this. Hence, regardless of D's best answer on $e = f$, the Nash equilibrium is $(e = 0, g = 0)$, q.e.d.
- If $f > \gamma h$, then $g = 0$ is the dominant strategy of D; with $\gamma(\pi X + h) > f$, the best answer of P is $e = f$. Hence, regardless of P's best answer on $g = f$, the Nash equilibrium is $(e = f, g = 0)$, q.e.d.
- If $f < \min\{\gamma h; \gamma \pi X\}$, which implies $\gamma(\pi X + h) > f$, the strategy $e = f$ is dominant for P and the best answer of D would be $g = f$. Hence, regardless of D's best answer on $e = 0$, the Nash equilibrium is $(e = f, g = f)$, q.e.d.

Figure 2: Combinations of insurance parameters and Nash equilibria



4. Results and discussion

The three propositions derived in the previous sections allow to state some results:

- In NEV suits, where the threat to sue is non-credible and thus the defendant is not motivated to make a positive settlement offer, an LCI that holds the Credibility Condition provides a credible threat for the plaintiff and thereby induces a settlement.
- Even in PEV suits, LCI can be attractive for the parties in order to improve their settlement position. However, they might be in a prisoners' dilemma ("arms race") situation.
- It is possible to regulate LCI such that legitimate claims lead to positive settlements, but arms races (in PEV cases) and insurance only for redistributive purposes (in NEV cases) are prevented.

The litigation fee f and the deduction $c(f)$ should be set up in a way that the conditions $c(f) < \pi X$ and $\gamma(\pi X + h) > f > \gamma h$ with $2h = c(0) - c(f)$ are fulfilled. Then LCI provides a credible trial threat, induces a settlement solution in NEV cases, and simultaneously prevents a prisoners' dilemma ("arms race") in PEV cases. In equilibrium, such an LCI contract is attractive for potential plaintiffs, even though the model has excluded re-allocation of risk as well as substitution of precaution effort.

The assumptions that were made to set up the model look quite restrictive: Litigation costs for both parties, insurance fees, and deductions are equal, the American rule governs the cost allocation, the parties share common beliefs on the probabilities of the accident and of the plaintiff's victory in court, the damage is common knowledge, the parties know the other one's threat point in the settlement negotiations.

To relax some of these assumptions might lead to different results. E.g. BEBCHUK (1984) and (1988) analyzes settlement under incomplete information - in these models the plaintiff can hope for a positive settlement even in NEV cases¹⁴. However, to replace the American by the British cost allocation rule would lead to very similar conditions for Nash Equilibria, which would allow to state the same qualitative results as above in this section. The same holds for the introduction of different litigation costs, deductions, or insurance fees. The conditions for equilibria then turn out to be more complicated, but still allow for the same interpretations as derived from the easier model presented here.

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¹⁴See also NALEBUFF (1988).

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