

Beyond Moral Hazard – Some Thoughts On Criminal Hazard and Insurance

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Moral hazard is often cited as an example of a market imperfection. It originates in situations of informational asymmetry, where one party to a contract is better informed than the other. Generally, moral hazard arises in the enforcement of contracts where it is too costly to observe the behavior of a party to a contract and the fulfillment of the contract is measured at only one or a few margins (Eggertson 1990). This may encourage individuals to behave opportunistically or to evade responsibility for their actions.



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I. Moral Hazard

In the context of insurance, moral hazard mostly refers to the tendency of insurance protection to alter an insured individual's motivation to make precautions to prevent losses. "Anyone who is insured against a risk will not capture the full benefits of efforts to reduce the risk. The incentives to avoid or to mitigate losses are therefore compromised by insurance, unless an individual can somehow commit to undertaking optimal precautions at the time that an insurance contract is struck" (Winter, 1992, p. 62).

An accident or a theft may not be completely avoidable. However, in most cases the victim can influence the probability of the loss occurring (by self-insurance) or the size of the

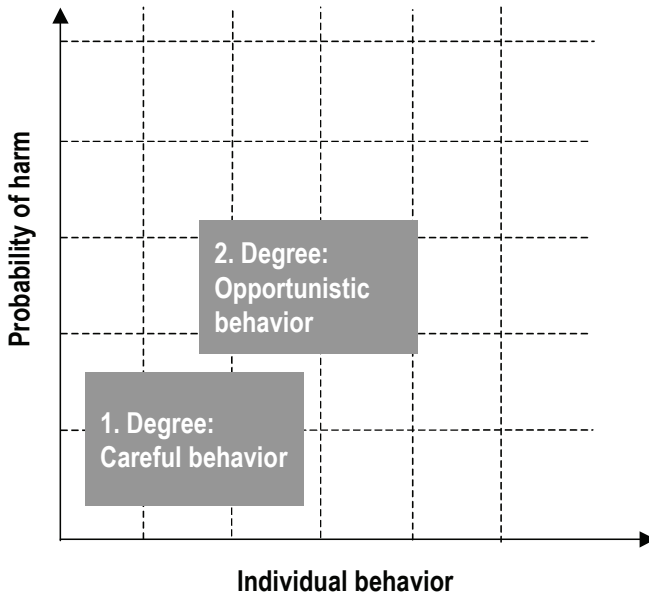
loss itself (by self-protection).¹ Hence, the behavior of an insured person is the crucial point of interest for the subject of risk allocation, see figure 1.

In the first degree of the set of individual behaviors, illustrated in Figure 1, a person acts carefully. A careful behavior satisfies actuarial standards and is unlikely to affect the risk exposure. In fact, a careful behavior will not distort any risk allocation at all. However, in the second degree, a person behaves opportunistic. An opportunistic performance imposes more pressure on materialization of

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Figure 1: Individual Behavioral and Probability of Harm



risks. For example, parking a car in a banned neighborhood will surely increase the probability of breaking and entering the car. And if personal items left in the car are completely insured against theft, an insured may be more likely to leave his camera on the back seat rather than putting it in the trunk. In this way, the provision of insurance may increase the probability of a loss and/or the size of the loss.

Moral hazard has been the subject of intense discussion in insurance theory.² The insurance literature distinguishes two forms of moral hazard:

Moral hazard ex ante: a policyholder alters his preventive efforts and therefore the probabilities of the loss occurring;

Moral hazard ex post: after the loss has occurred, the insured alters the magnitude of the loss itself.

The fact that we have insurance causes us to take more chances, to take too few preventive efforts, to file more claims, etc., than we would if we had no insurance. The crucial point is the extent to which the insurer can observe the level of precautions taken by the policyholder. The challenge facing the insurer is to design an incentive scheme aimed at mitigating the effects of moral hazard. As a rule, if the insurer cannot observe the extent of precautionary action, the premium increases in proportion to the amount of coverage.³

We see that any decision taken after an insurance contract is signed that affects the probability or the size of the insured loss is subject to inefficiencies due to moral hazard. Arnott sums up the moral hazard problem as follows: “Moral hazard arises when neither the states of nature nor individuals’ actions are observable to an insurer. What is observable is whether a particular accident has occurred. In

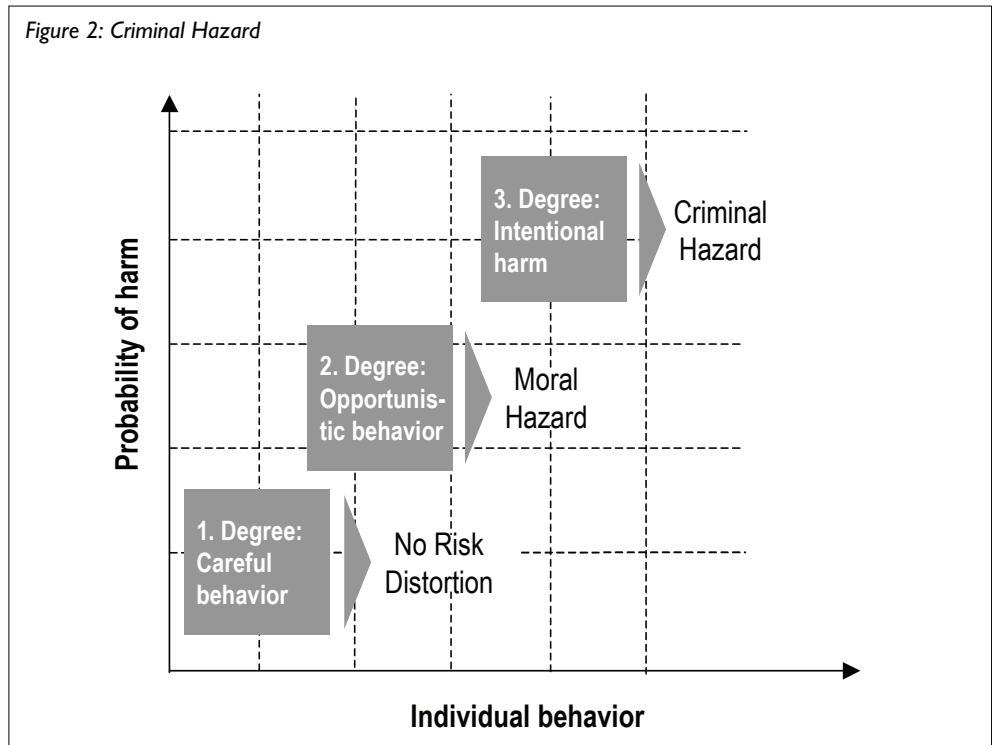
these circumstances, there is no mechanism by which the insurer can induce an insured individual to reveal either the state of nature or his precaution truthfully. Thus, the insured-against events are accidents of varying degrees of severity, conditional on neither the state of nature nor the insured's actions. The provision of insurance against these events will generally affect the individual's incentives to take precautions, i.e., has adverse incentive or substitution effects. There is therefore a tradeoff between risk-bearing and incentives."⁴

Because insurers in a competitive market cannot issue actuarial premiums under these circumstances, we know from Arrow (1963) that policyholders choose less than full coverage. Thus, there is a trade-off between risk-sharing and incentives for care, and the presence of moral hazard in insurance results in increased premiums.⁵

II. Criminal Hazard in Insurance

Because states of nature and individuals' actions are not entirely observable to insurers, it can be observed that insurance contracts induce individuals to act less carefully. However, the opportunistic behavior labeled 'moral hazard' is not the end of the story; some individuals go a step further and report losses that have not occurred at all. For example, a car owner who sells his car on the black market and reports it as stolen is engaging in criminal hazard, since the act is defined as criminal and its success is measured in terms of probabilities. To develop the idea of criminal hazard, consider the following ranking of behaviors, see figure 2.

While the problem inherent in moral hazard is that insured individuals might not truthfully report the size and circumstances of an accident or loss, the problem inherent in criminal



hazard is that the insured *intentionally* misrepresents facts. In this third degree of behavioral patterns, the insured causes *intentional harm* to the insurer. The key distinction here is between opportunistic behavior, which gives rise to moral hazard, and intentionally harmful actions, which give rise to criminal hazard. Two conditions of individually behavior must be fulfilled to rise to the level of criminal hazard:

- (1) the individual must act with a guilty mind (*mens rea*), and
- (2) the effect must constitute public harm⁶.

A guilty mind is disclosed by determining whether the loss was caused intentionally, to gain a personal advantage. Selling my car and reporting it as stolen falls under this classification, but parking in an area well known for criminal activity does not. While the first example illustrates a criminal hazard, the second is typically a matter of moral hazard: I do not violate any criminal statute by parking in a high-crime area, but my negligent behavior certainly affects the probability of a loss occurring.⁷

The second element of criminal hazard – whether the effect constitutes public harm – is not self-evident. Law and economics generally distinguish between private and public harm. In civil matters the nature of the harm is private,⁸ whereas in criminal matters the harm is public.⁹ One could argue that selling my *own* car and reporting it as stolen is not a public harm, since the insurance company is the only party adversely affected. To recover damages, the insurer could sue for fraudulent behavior under tort law. Fraud, however, is intuitively criminal, not tortious. Why? One reason, of course, is that a claim without a causative link between reported and actual loss is untrue, and the insurer – along with all other insured persons, who pay indirectly – suffers by paying such a claim. If such fraudulent actions were taken into account, no

insurance solution would be possible, or insurance would be sold at such high cost that it would, indeed, be a public harm.

In his famous work on the economics of crime and punishment, Becker (1968) gives a further reason why theft is socially harmful and not merely a means of redistributing resources. Becker argues that the time spent on planning and carrying out harmful acts is socially unproductive, because such acts do not create wealth, only forcibly redistribute it. Illegal acquisition of wealth is “rent seeking,” and therefore a public harm. Becker proposes approximating the social cost of theft by adding to the actual dollar amounts stolen the resources spent by potential victims protecting themselves against crime (Becker 1993, p. 391). In his Nobel lecture Becker elaborates on the social cost of theft as follows:

“In the early stages of my work on crime, I was puzzled by why theft is socially harmful since it appears merely to redistribute resources, usually from wealthier to poorer individuals. I resolved the puzzle by pointing out that criminals spend on weapons and on the value of the time in planning and carrying out their crimes, and that such spending is socially unproductive – it is what is now called ‘rent seeking’ – because it does not create wealth, only forcibly redistributes it. I approximated the social cost of theft by the dollars stolen since rational criminals would be willing to spend up to that amount on their crimes. I should have added the resources spent by potential victims protecting themselves against crime” (Becker 1993, p. 391).

Becker’s insights are very useful for our purpose. First, criminal hazard in insurance business is unproductive since the criminal makes expenditures (material as well as immaterial) in planning and carrying out insurance fraud. Second, because insurance fraud razes the actuarial risk distribution it also destroys the business platform of any insurance solution. As a consequence the insurer

must protect himself against *potentially* fraudulent behavior. That is, the insurer must invest both in precautionary activities to deter fraudulence and in claim inquiries that scrutinize the truth of the claims at issue. Hence, the social cost of criminal hazard can be approximated as the amount criminals spend perpetrating insurance fraud plus the costs to insurers of protecting against it.

III. Implications for Insurance

We have seen that insurance fraud is socially unproductive since it causes both private and public harm, thus a market failure is at hand. In order to reallocate scarce resources in Pareto point of view, we propose to use tools of economics theory and law. The reason for this approach is obvious:

- Due to information asymmetry the market will face the problems of both moral hazard and criminal hazard.
- Under these circumstances the market will not reach any social optimum.
- Rules created by law establish implicit prices for different kinds of behavior.
- The consequences of legal rules can be analyzed as response to implicit prices.
- Therefore, let us derive efficient implicit prices as an outcome from efficient legal rules to reallocate resources optimally.

In basic terms, an insurance is an offer to an customer considering risk transfer. He may accept it or not. If he accepts, a contract will be written between the insurer and the insured person. The contract and its enforcement through contract law will at least in part be able to combat moral hazard (i.e. by means of deductibles specified in the contract). But as criminal hazard also has severe consequences for third parties, contract law alone is not able to internalize the damages. What about tort law?

The purpose of tort law is to protect the interests of people in their property (and persons) from damage by others. However, regulating and deterring fraud by means of tort law is inefficient for two reasons. First, under tort law, only the harm caused to an insurer by a policyholder is compensated. If fraudulent behavior is disclosed, the policyholder must repay the value of the reported loss plus some compensation for administrative costs.¹⁰ However, since the probability of detection is less than one, compensatory damages must be calculated according to expected values, which normally is not feasible. Second, in the light of *potential* criminal hazard, the insurer must take the cost of fraud into account in premium calculations.¹¹ This results in increased anticipated expenses, and thus higher premiums. Such premium loading is inefficient and distorts the market for risk bearing.

We see that relying on tort law alone, behavior exemplifying criminal hazard leads to external effects which are not internalized in compensatory damages. As a consequence, compensation through tort law does not give rise to sufficient incentives, because the expected profits of a criminal hazard exceed the social costs. In other words, the implicit price of a criminal act is too low. Therefore, we have to rise the implicit price of fraudulent behavior, and this is done through criminal law making.

To reach an efficient resource allocation in the insurance industry compensation in tort law must be supplemented by some punishment prescribed by criminal statute, for example, fines and incarceration. Under such a system the perpetrator of fraud would expose himself to the risk of punishment in addition to the expense of compensation, both of which he must internalize in his behavior. The implicit price of fraudulent behavior goes up, and in optimum social cost equals social benefit of fraud.¹²

IV. Summary

The prevalence of criminal activity is determined not only by the rationality and preferences of would-be criminals but also by economic factors. In this paper we have shown that fraudulent behavior follows a criminal intent and gives rise to a harmful externality – that is, a public harm. More significantly, it is a cost imposed on third parties without their consent.

It is important here to differentiate between moral and criminal hazard. Insurance fraud is a criminal act, which has severe public consequences. To minimize the external effects, punishment of some kind must be introduced. Punishment under contract and tort law (by means of compensation) does not produce sufficient incentives, since the public harm is not internalized in the behavior of the perpetrator.

In sum, the cost of protecting against criminal hazard is an expenditure only for the insurer, not for the perpetrator. Therefore we suggest to make the perpetrator worse off by raising the cost of committing a criminal hazard. This is accomplished by criminal law. Thus, the free market does not clear. Only an institutional solution enhance social welfare – in this case for us all.

Notes

- ¹ This type of problem is a general one, arising in all situations where there is some element of uncertainty.
- ² Cummins and Tennyson (1996) provide an excellent evidence of moral hazard in automobile insurance markets.
- ³ This result is derived under the assumption of declining marginal productivity of preventive efforts. Let the probability of becoming ill π be a function of preventive efforts (e). Then $\pi = \pi(e)$ having the following properties: $\pi(0) > 0$, $\pi'(e) < 0$ and $\pi''(e) > 0 \forall e \geq 0$. As prevention is normally a negative function of coverage rate, the premium must increase progressively with coverage. See also Shavell (1979) on moral hazard and cost of care, and Breyer and Zweifel (1996) on moral hazard in health insurance.
- ⁴ Arnott (1992), p.326.
- ⁵ By requiring customers to share the marginal cost of care, coinsurance and deductibles are effective means of countering moral hazard.
- ⁶ Compare e.g. Cooter and Ulen (1988, pp. 507).
- ⁷ In a lawsuit, parking in a high-crime area could be a matter of negligent behavior. In that case, only partial compensation would be paid.
- ⁸ In classical tort theory, three conditions are necessary: 1) a breach of a duty; 2) the occurrence of damage; and 3) a causative link between breach of duty and harm. See Cooter and Ulen (1988), pp. 326-340.
- ⁹ Public harm is harm caused to a public good. A threat to a public good such as peace or security is socially harmful since it affects all citizens.
- ¹⁰ It is unlikely this will lead to effective incentives. In the light of potential criminal hazard, the insurer must consider the cost of fraud in premium calculations. This results in increased expenses and, hence, a distorted risk allocation.
- ¹¹ The cost of fraud is calculated as the difference between reported and actual losses.
- ¹² The question of whether fraud has social benefits is interesting. However, we do not need to solve this issue here. For the model, it is enough to assume that social benefit is positive or zero.

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