

THIRD PARTY MORAL HAZARD

Gideon Parchomovsky

*Peter Siegelman**

ABSTRACT

In this Article, we analyze a phenomenon that has hitherto largely escaped the attention of legal scholars and economists, yet has far reaching implications for insurance law: third party moral hazard. Conventional moral hazard is a well-known and well documented phenomenon. It occurs when insurance reduces insureds' incentives to take precautions, thereby raising risk. Insurers have mostly done a good job managing the threat posed by conventional moral hazard through the design of the insurance contract and their relationships with their insureds. But insurance can also influence the risk-creating or loss-creating behavior of those who are *not* parties to the insurance contract: kidnappers, tort victims, hospitals, and so on. Insurance may create incentives for these third parties to cause or increase losses so that they can cash in on the additional funds made available by the relationship between the insurer and the policyholder. In this paper, we offer analytic examples of third party moral hazard and attempt to assess the significance of the phenomenon across a range of settings. A calibrated model of insurance demand reveals the circumstances under which third party moral hazard can be significant, and why those particular conditions are conducive to third party moral hazard. Normatively, we also offer policy recommendations for how to handle the problem. We demonstrate that third party moral hazard can be ameliorated via a combination of self-help, regulatory and technological measures. We also call for the introduction of a new private cause of action, "malicious interference with insurance" that would equip insurance companies and insureds with a new legal mechanism specifically designed to address third party moral hazard.

*Respectively, gparchom@upenn.edu and peter.siegelman@uconn.edu. We thank Uriya Beeri, Nadav Israeli, Daniel Margolin, Roi Ohayon, UConn Law Librarians Adam Mackie and Anne Rajotte, Daniel Margolin and Ben Weitz for research help. Above all, we thank Paul Cotler for seeing the manuscript through to the end and providing invaluable comments and suggestions. Ronen Avraham and Ariel Porat provided suggestions and insights, for which we are grateful. So did Tom Baker, Yoav Dotan, Brian Galle, Michele Graziadei, Ehud Guttel, Peter Kochenburger, Alexandra Lahav, Adi Leibovitch, Adi Libson, Pat McCoy, Ittai Paldor, James Quiggle, Dan Schwarcz, Rick Swedlof, Eyal Zamir and participants at The Contract and Insurance Law Workshop at Villanova Law School, Oct. 2018 and a seminar at the University of Turin and at the Hebrew University of Jerusalem.

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INTRODUCTION

In this Article, we highlight a problem that has so far largely evaded the attention of legal scholars and economists alike: the effect of insurance on the behavior of third parties.

Specifically, we show that the presence of insurance can induce third parties—anyone other than the insurer or the insured—to create or cause losses covered by insurance, even at a cost to themselves, in order to capture or otherwise divert an insurance payment. For reasons we explain below, we term this phenomenon “Third Party Moral Hazard,” and once one knows to look for it, examples are legion.

Begin with a video that went viral on the internet.¹ Footage shot from a dashboard camera shows the view out the front window as a car travels slowly down the street. Ahead of the car, a man wheels his motorcycle into the middle of the road. But as the car slows down to avoid hitting him, he drops his motorcycle and jumps backwards into the car, rolling up onto the windshield and then falling to the ground, writhing in “pain.” In a panic, the driver leaps out of the car and asks if he’s okay. But when she tells him that she has recorded the whole incident on camera, the motorcyclist and a “witness” who conveniently saw what had happened both flee.

The scene is an obvious case of attempted fraud—the “victim” was clearly looking to set up a claim against the driver for having injured him, when in fact he had deliberately caused his own (fake) injury. But the incident also hints at a deeper problem that is the subject of this article: the role of insurance in *causing* risks. Although the “victim’s” motives and reasoning are unknowable, it is highly likely that the presence of insurance played a significant role in his decision to stage the accident. We know that third party auto coverage (that is, insurance that covers liability to victims) is mandatory in Britain,² where the incident apparently occurred.

¹ ViralHog, *Insurance Scam Backfires on Scammer*, YOUTUBE (July 14, 2017), <https://www.youtube.com/watch?v=UnP7-1-W4VQ>. The video had more than 4 million views, and judging by the setting and accents, it appears to take place somewhere in Britain.

² Section 143(1)(a) of the UK Road Traffic Act of 1988 (as amended) states that “a person must not use a motor vehicle on a road or other public place unless there is in force in relation to the use of the vehicle by that person such a policy of insurance or such a security in respect of third party risks as complies with the requirements of this Part of this Act . . .” Section 143(2) makes it an offense to drive without appropriate insurance.

And (unlike in many US jurisdictions³) mandatory coverage in the UK is generous,⁴ so the presence of insurance would very likely have increased the funds available to pay the “victim” (if he could have proved liability).⁵ In short, there is strong reason to believe that this “accident” would not have occurred without the existence of insurance.

An even more appalling recent example comes from Sicily, where organized criminals have had a practice of deliberately inflicting significant and gruesome injuries to homeless people and drug addicts, in whose name they had previously taken out insurance policies.⁶ Here, too, the availability of insurance changes the behavior of third parties.

³ The following table summarizes mandatory auto insurance coverage for the 50 states:

	Summary Statistics for Required Auto Insurance Coverage (\$1,000) for 50 States, by Type of Coverage		
	Bodily Injury	Property	Liability
Average	23	46.5	17
Standard Deviation	8.5	17	9.5
Median	25	50	15
Minimum	0	0	0
Maximum	50	100	50

Source: Authors’ calculations, from data available at <https://injury.findlaw.com/car-accidents/car-insurance-laws-by-state.html>, as of Feb. 2019.

NOTE: Iowa and New Hampshire do not require insurance coverage, allowing proof of financial responsibility as an alternative; if insurance is purchased, there are mandatory minima. These states are coded as 0s.

⁴ Crucially, Section 145 of the UK Road Traffic Act defines what constitutes an acceptable insurance policy, which “. . . must insure [the policyholder] in respect of *any* liability which may be incurred by him . . . in respect of the death of or bodily injury to any person or damage to property caused by, or arising out of, the use of the vehicle . . .” (emphasis added). Policies are *not* required to cover “more than £1,200,000 in respect of all such liabilities as may be incurred in respect of damage to property caused by, or arising out of, any one accident involving the vehicle,” however.

⁵ At least in the US, personal injury plaintiffs typically limit their claims to the amount of the defendant’s insurance coverage. Thus, they rarely reach the defendant’s *own* assets, which are known among lawyers as “blood money.” Tom Baker, *Blood Money, New Money, and the Moral Economy of Tort Law in Action*, 35 L. & SOC. REV. 275 (2001). While we can’t be sure that the same norms apply to plaintiffs in the UK, we suspect that they do, which implies that high-limit insurance coverage makes fraud dramatically more profitable. And of course, many drivers do not have sufficient wealth to pay for the injuries they cause, so any recovery by the “victim” can only come from the insurer, if there is one. See, e.g., Eric Smith and Randall Wright, *Why Is Automobile Insurance in Philadelphia So Damn Expensive?* 82 AMER. ECON. REV. 756 (1992) (suggesting that there are large numbers of judgment-proof drivers in the U.S. who prefer to have minimal or no insurance coverage).

⁶ Frances D’Emilio, *Police Say Sicily Gangsters Crushed Limbs in Insurance Fraud*, ASSOCIATED PRESS (Aug. 8, 2018) <https://www.apnews.com/a38d73b5875e460dab91e770cb0017a9>. Eleven people were arrested, and the amounts of money in question allegedly reached several hundred thousand Euros in this case.

But perhaps the example that best illustrates the phenomenon we analyze in this Article is kidnap insurance.⁷ Some versions of this insurance cover all or part of the expenses incurred by the family of the victim. Like other forms of insurance, it is intended to provide policyholders with peace of mind, assuring them that if their loved ones fall victim to this crime, the insurer will cover part of the cost of securing their release. Perversely, however, the presence of insurance may actually increase the probability of kidnapping. There is evidence (albeit, largely anecdotal) that kidnaps respond positively to the presence of insurance: when kidnap insurance is banned, kidnaps tend to fall.⁸ And the amount of piracy—the marine version of kidnapping—also seems to be a positive function of ransom amounts paid.⁹ If the presence of insurance becomes known, it may induce additional efforts to nab victims, since insurance raises the expected payouts to kidnapping. Indeed, Italy, Colombia and other countries where kidnapping has been endemic have actually banned kidnap insurance (although there is evidence that it nevertheless continues to flourish in secret).¹⁰

These are not isolated examples. The effect of insurance on the behavior of third parties can also be seen in the operation of Directors & Officers (D&O) insurance, where insurance may induce third parties to bring suits against corporate officers in the hope of collecting from their insurer.¹¹ Similar effects can also be found in health insurance, where a wide range of wasteful (or even fraudulent) decisions is made possible by the availability of health insurance.¹²

Of course we are far from the first to note the distortionary effects of insurance. Economists and legal scholars have devoted extensive attention to this general problem. But existing scholarship has largely focused on the effect of insurance on *insureds*, ignoring third parties almost completely. This is true for both of the two main problems that have preoccupied insurance scholars, adverse selection and moral hazard. The former is concerned with

⁷ The story is actually more complicated than this simple example suggests. As we discuss at greater length below, kidnap insurance has apparently evolved various techniques to mitigate third party moral hazard problems. See Anja Shortland, *Governing kidnap for ransom: Lloyd's as a "private regime"*, 30 GOVERNANCE 283 (2017).

⁸ We appreciate that the evidence in favor of a causal relationship between insurance and kidnapping is not robust by the standards of modern social science.

⁹ Shortland at *Id*; see also Olaf J. de Groot, Matthew D. Rablen and Anja Shortland, *Barrgh-gaining with Somali Pirates*, European Security Economics Working Paper 74 (2012), available at https://www.diw.de/documents/publikationen/73/diw_01.c.408689.de/diw_econsec0074.pdf.

¹⁰ Meadow Clendenin, "No Concessions" With no Teeth: How Kidnap and Ransom Insurers and Insureds are Undermining U.S. Counterterrorism Policy, 56 EMORY L.J. 741 (2006).

¹¹ Again, the story is more complicated than it appears, and D&O insurers may have developed some clever strategies to fend-off strike suits of this kind. See discussion *infra*, Part I.B.2.

¹² In his seminal article on moral hazard, Kenneth Arrow noted that "[t]o some extent the professional relationship between physician and patient limits the normal [moral] hazard in various forms of medical insurance. By certifying to the necessity of given treatment or the lack thereof, the physician acts as a controlling agent on behalf of the insurance companies. Needless to say, it is a far from perfect check." Kenneth J. Arrow, *Uncertainty and the Welfare Economics of Medical Care*, 53 AMER. ECON. REV. 941, 961 (1963). Arrow did not seem to see the possibility of the opposite effect, however. He does briefly discuss "Third Party Control Over Payments" (*Id.* at 962), but the context is entirely different from ours.

overcoming asymmetric information that potential insureds have about themselves and ensuring a sustainable insurance pool that is comprised of high-risk and low-risk insureds alike.¹³ The latter results from the tendency for the presence of insurance to lead insureds to take less care than they otherwise would.¹⁴ Indeed, scholars of insurance law now believe that many features of insurance contracts and practices (such as pricing and underwriting) should be understood as effective efforts to control moral hazard.¹⁵

What distinguishes the above examples—and the others we discuss below—from traditional “first party” moral hazard is that the risk-causing effects of insurance are not brought about by a reduction in care or precautions by the insured policyholder.¹⁶ Rather, they are manifest as an increase in accident risk generated by the behavior of a *third party* in response to insurance.¹⁷ To see the distinction, return to the auto accident with which we started.

¹³ For a survey of empirical work on adverse selection, see Alma Cohen & Peter Siegelman, *Testing for Adverse Selection in Insurance Markets*, 77 J. RISK & INS. 39 (2010); for an accessible theoretical overview, see Liran Einav & Amy Finkelstein, *Selection in Insurance Markets: Theory and Empirics in Pictures* 25 J. ECON. PERSPECTIVES 115 (2011).

¹⁴ The pioneering reference is Kenneth J. Arrow, *supra* n. 12. For an intellectual history of the term and its uses, see Tom Baker, *On the Genealogy of Moral Hazard*, 75 TEXAS L. REV. 237 (1996).

¹⁵ Ronen Avraham, *The Economics of Insurance Law – A Primer*, 19 CONN. INS. LAW J. 29 (2012); Omri Ben-Shahar & Kyle D. Logue, *Outsourcing Regulation: How Insurance Reduces Moral Hazard*, 111 MICH. L. REV. 197 (2012).

¹⁶ In the insurance context, the “first party” typically refers to the insured policyholder; the “second party” is the insurer, and the third party (at least in liability insurance) is the “victim” who is injured by the policyholder’s negligence. In kidnap insurance, the victim of the kidnapping is the insured herself, but payment is made to the kidnapper (the perpetrator), so from an accounting perspective, the terminology still makes sense. See *infra* for more on third vs first party insurance and third party moral hazard.

¹⁷ The phrase “third party moral hazard” has been used four times in previous scholarship. See Randall R. Bovbjerg, *Liability and Liability Insurance: Chicken and Egg, Destructive Spiral, or Risk and Reaction?* 72 TEX. L. REV. 1655 (1994) (suggesting that liability insurance might lead to more misbehavior by third parties); Adrian Vermeule, *Congress and the Costs of Information: a Response to Jane Schacter*, 89 B.U. L. REV. 677 (2009); Richard A. Ippolito, *Freedom to Contract in Medical Care: HMOS, ERISA and Pegram v. Herdrich*, 9 SUP. CT. ECON. REV. 1 (2001); George A. Nation III, *We the People: the Consent of the Governed in the Twenty-first Century: the People's Unalienable Right to Make Law*, 4 DREXEL L. REV. 319 (2012). Other than the first, however, none of these authors treat the idea as more than a catch-phrase, and the problem has received virtually no systematic attention from legal scholars or insurance theorists.

There are some discussions that touch on the problem, including Kent D. Syverud, *On the Demand for Liability Insurance*, 72 Tex. L. Rev. 1629 (1994), Steven W. Pottier & Robert C. Witt, *On the Demand for Liability Insurance: An Insurance Economics Perspective*, 72 Tex. L. Rev. 1681 (1994), Alexander Fink and Mark Pingle, *Kidnap insurance and its impact on kidnapping outcomes*, 160 PUBLIC CHOICE 481 (2014) and Christopher Parsons, *Moral Hazard in Liability Insurance*, 28 Geneva Papers on Risk and Ins. Issues and Practice 448 (2003), which we discuss *infra*. Shavell (1982) offers a theoretical argument for why liability insurance is welfare-enhancing, even in the presence of (some) moral hazard of the conventional type, but does not address problems of third parties or endogenous victim misbehavior. Of course, there is the well-known result in the law and economics of tort law that a rule of strict liability for injurers (and fully compensatory damages) leads victims to take no care to prevent losses. Steven Shavell, *Foundations of the Economics Analysis of Law* at

Conventional moral hazard would occur if the policyholder drove more recklessly after having purchased insurance that limited or eliminated her responsibility for harms she caused.¹⁸ But that is clearly not the problem visible in the video: from what we can see, the driver appears to have acted entirely reasonably. It was, instead, the putative *victim* who altered his behavior because of the presence of insurance. In other words, this is an example of a third party moral hazard created by liability insurance.

Third party moral hazard operates differently from its conventional cousin. Under standard moral hazard, the chain of causation is straightforward: by removing (buying) an insured's potential losses, insurance weakens her incentive to avoid such risks. That provides a motivation for the policyholder to shift or externalize costs to her insurer. A fully-insured policyholder has very little reason to be careful. After all, what's the point of taking costly precautions if all they do is reduce the *insurer's* payout in the event of a loss?¹⁹

By contrast, third party moral hazard is about the creation of (real or apparent) losses by people other than the policyholder, in a way that capitalizes on the presence of insurance to transfer wealth to the loss-creator. If first party moral hazard is the failure of insureds to take costly precautions to prevent losses from occurring, third party moral hazard involves the deliberate causing of losses by someone other than the insured policyholder so as to obtain a payout from the insurer.

Third party moral hazard is related to—but distinct from—insurance fraud. Arson constitutes insurance fraud, for example, but does not meet the definition of third party moral hazard. Kidnapping is not insurance fraud, but may be subject to third party moral hazard; the same can be said for drug companies' co-pay coupons discussed *infra*.²⁰

It is important to appreciate that “third party” moral hazard is not necessarily linked to who is buying the insurance. Some of our examples can best be understood as “third party” insurance, in which the policyholder purchases coverage against losses that she imposes on others: traditional liability insurance is a classic example. Others are so-called “first party” insurance, where the insured buys coverage for losses to herself (for example, health and property-casualty insurance).

¹⁸⁴ (2004). For an extended and rigorous theoretical discussion of insurance fraud—which overlaps with our concerns—see Pierre Picard, *Economic Analysis of Insurance Fraud*, in Georges Dionne (Ed.), HANDBOOK OF INSURANCE (2nd ed: 2013).

¹⁸ There is some evidence that supports the existence of this kind of moral hazard. Alma Cohen & Rajeev Dehejia, *The Effect Of Automobile Insurance and Accident Liability Laws On Traffic Fatalities*, J. L. & ECON. 357 (2004) (finding that no-fault insurance laws increase accident risk).

¹⁹ In this respect, moral hazard is a kind of contractually-created externality—it divides or separates the *benefits* of being careful (which flow to the insurer, in the form of reduced payouts) from the *costs* of taking that care (which are usually paid by the policyholder).

²⁰ Although, this Article is primarily concerned with intentional behavior by third parties in the presence of insurance, third-party moral hazard is not limited to intentional behavior; the concept is broad enough to encompass Insurance-induced third party negligence. Third parties who interact with insureds may let their guard down, knowing that they would receive full compensation if harmed. We are grateful to Eyal Zamir for pointing this out to us.

While the distinction between first and third party insurance has important policy consequences,²¹ it is not central to the analysis of this Article because third party moral hazard can occur under both types of insurance. For instance, liability insurance is third party insurance, and as the car accident video demonstrates, there is ample scope for third party moral hazard in this area. By contrast, kidnap, health, and no-fault auto insurance are traditionally understood as first party insurance, but they can all be subject to moral hazard by someone other than the policyholder. In the case of no-fault auto insurance, scammers may collude with doctors and other providers to over-bill for treatment of insured victims, or even create claims from whole cloth.²² In kidnap insurance, loss-causers may respond to the presence of insurance by stepping up their activities, even though the insurance was obviously not purchased to compensate them. And health insurance is rife with opportunities to exploit the presence of insurance, as we suggest below.

Third party moral hazard is important for at least four reasons. First, the presence of third party moral hazard further negates the claim that full insurance is necessarily welfare-enhancing. It is well known that full insurance is not optimal when the risk being insured against is controlled or influenced by the insured.²³ The same logic applies where risk is partially determined by the behavior of third parties: If insurance generates any added incentives for risk-creation, welfare analysis must take the additional insurance-created risk into account as a social cost of insurance. This is something that standard analysis has completely failed to do. Even though spreading any *given* risk enhances welfare, if the process of doing so leads to sufficiently large increases in risk from third parties, insurance might even prove to be welfare-reducing on net.

Moreover, as we point out below, there is a variety of welfare costs imposed by third party moral hazard beyond the direct losses it generates. Whether the overall loss-creating effects are large enough to negate the risk-spreading benefit of insurance is ultimately an empirical question, but theory can shed some light on the problem, as we will demonstrate in Part II. In general, it seems implausible that third-party effects will be sufficiently large to make the presence of insurance welfare-reducing on net. Still, some countries have in fact banned or limited certain kinds of insurance in the belief that people are actually better off without it. Even if these claims turn out to be wrong, they are plausible enough to be taken seriously.

²¹ Guido Calabresi, *First Party, Third Party, and Product Liability Systems: Can Economic Analysis of Law Tell Us Anything About Them?* 69 IOWA L. REV. 833 (1983-84).

²² Discussed in more detail *infra*. Part I.B.

²³ In the theory of optimal allocation of resources under risk bearing, it can be shown that competitive insurance markets will yield optimal allocation [only] when the events insured are not controllable by individual behavior. If the amount of insurance payment is in any way dependent on a decision of the insured as well as the state of nature, then the effect [of insurance] is very much the same as any excise tax and optimality will not be achieved . . . by the competitive system . . .

Kenneth J. Arrow, *The Economics of Moral Hazard: Further Comment*, 58 AMER. ECON. REV. 537 (1968). Arrow's point follows whether control over risk is exercised by the insured policyholder or someone else with a stake in whether the risk materializes.

A second important reason to care about third party moral hazard is that it is not easily handled by the methods insurers have developed to limit ordinary (first-party) moral hazard. The standard recipe for combatting traditional moral hazard – and the optimal method for doing so, according to economic theory²⁴ – is risk-sharing in the form of a deductible.²⁵ When (conventional) moral hazard is a problem, insurance contracts will be designed so as to leave some of the risk with the insured policyholder (“skin in the game”), giving her an incentive to take loss-avoiding precautions – at least in some contexts.

But by definition, third party moral hazard occurs outside of any contractual relationship between the insurer and the policyholder: the whole point is that the insurer and the loss-causing third party are not in privity with each other. Neither is the size of any deductible paid by the policyholder directly relevant to the potential kidnapper or fraudster.²⁶ Rather, third party moral hazard is plausibly a function only of the total amount of insurance in force – the breadth and depth of insurance coverage in the market as a whole. So optimality can not be achieved by varying the amount of risk left with the insured policyholder, since it is someone else’s behavior that is causing the problem – a “someone else” who is not a party to the insurance transaction. Other (non-contractual) methods are thus required to deter the behavior of third-party risk-creators.²⁷ Crucially, many of these methods are inherently public or quasi-public: no insurer – unless it has a monopoly on the market – will be willing or able to do enough to limit third party moral hazard. It can only be effectively dealt with through actions by police forces, regulators, or coalitions of insurers. Private markets in risk are sometimes vulnerable to third party moral hazard; and when this is the case, they require some kind of supra-contractual regulation to function effectively. Put differently, contract alone is insufficient for efficient risk management.

A third reason to care about third party moral hazard is that the techniques that can be used to control it are themselves costly (as are any losses that nevertheless occur), and these

²⁴ The so-called “theorem of the deductible” states that “[i]f an insurance company is willing to offer any insurance policy against loss desired by the buyer at a premium which depends only on the policy’s actuarial value, then the policy chosen by a risk-averting buyer will take the form of 100 percent coverage above a deductible minimum.” Kenneth Arrow, *supra* n. 12 at 969.

²⁵ Besides deductibles, there are many other well-known strategies for controlling conventional moral hazard, as we discuss in section III. Most of these are ineffective against third party moral hazard, however, for reasons we discuss below.

²⁶ Deductibles or experience rating could give insureds some reason to adopt anti-third party moral hazard techniques such as car cameras. If the insured knows she’s on the hook for part of the losses caused by a third party (either because of a deductible or because her premiums will go up when she makes a claim), she will have at least some reason to protect herself against such losses. The case of drug coupons discussed *infra* is unusual, in that pharmaceutical companies are deliberately use deductible-offsetting policies to induce greater consumer demand.

²⁷ This is actually a major theme of George Akerlof’s classic article on adverse selection. See George A. Akerlof, *The Market for ‘Lemons’: Quality Uncertainty and the Market Mechanism*, 84 Q. J. ECON. 488 (1970). Akerlof’s point is not just that adverse selection can block mutually beneficial trades from occurring; his article is as much about explaining the existence of institutions that are designed to surmount the problem and permit such trades to take place, albeit at the cost of some frictions or deviations from the economist’s perfectly competitive market model.

costs will typically get included as part of the insurance “load,” which is the difference between the pure risk-based premium and the actual price charged that reflects administrative and other costs. Like any other insurer expense, detecting and combating third party moral hazard drives a wedge between the actuarially fair premium and the price consumers have to pay. In turn, this reduces demand for insurance, limits the efficacy of risk-spreading, and can induce follow-on selection effects. So in addition to the actual costs of third party moral hazard, there are the direct costs of combating it, and spillover effects on insurance consumers and the industry as a whole.

Finally, victim precautions against third party moral hazard may have different efficiency consequences from those taken against conventional risks. Human-caused risks (including third party moral hazard) have a strategic aspect that ordinary risks do not. Hurricanes do not decide where to strike based on how flimsy the housing stock is,²⁸ but kidnappers presumably *do* take potential targets’ precautions into account when choosing their victims.²⁹ If precautions can shift activity without reducing *overall* risk, social and private benefits will diverge. When A builds a higher wall to deter kidnappers, and as a result they end up kidnapping B instead, the wall will have helped A, but only by diverting risks somewhere else—it yields little or no gain to society as a whole.³⁰ Private efforts to deter insurance-motivated kidnapping, piracy and cyber-attacks—even if they are successful at the individual level—are therefore less socially-beneficial than we would be led to believe by a partial equilibrium analysis of their efficacy.

Yet, third party moral hazard can be ameliorated via a combination of self-help measures, external monitoring, and private and criminal enforcement. Normatively, therefore, we propose a series of technological measures whose implementation may facilitate detection of accident-causing activities. Finally, and most importantly, we call for the recognition of a new cause of action—malicious interference with an insurance relationship—that would enable insurers and insureds alike to bring private actions against third parties who maliciously attempt to take advantage of the insurance coverage of the insured.

Structurally, the Article unfolds in three parts. In Part I, we review the evidence and theoretical explanations for third party moral hazard in kidnapping, liability insurance, health insurance and life insurance. Part II uses a crudely-calibrated model of insurance demand to assess the importance of third party moral hazard relative to the risk-spreading gains from

²⁸ But see Matt Hickman, *Study Reveals Why Trailer Parks Always Seem to be in the Path of Tornados*, MOTHER NATURE NETWORK (April 28, 2014) <https://www.mnn.com/earth-matters/climate-weather/blogs/study-reveals-why-trailer-parks-seem-to-always-be-in-the-path-of>, April 28, 2014 (summarizing a scientific study concluding that hurricanes tend to strike more often in “transition zones” between different types of landscapes, and that trailer parks are often located in such areas). The original study is Olivia Kellner and Dev Niyogi, *Land Surface Heterogeneity Signature in Tornado Climatology? An Illustrative Analysis over Indiana, 1950–2012*, 18 EARTH INTERACTIONS 1 (2014).

²⁹ The displacement/diversionary effects of insurance against human-caused harms were first noted by Jack Hirshleifer, *War Damage Insurance*, 35 REV. ECON. & STATISTICS 144 (1953).

³⁰ We discuss this problem below in the context of the welfare economics of crime reduction.

insurance (as a purely theoretical matter). Part III discusses normative questions and policy options. A short conclusion ensues.

I. THIRD PARTY MORAL HAZARD IN ACTION: EXAMPLES

In this Part, we discuss the existence and empirical significance of third party moral hazard in several domains of insurance. In most cases, we acknowledge, the evidence is largely anecdotal. It is difficult to pin down the extent of third party moral hazard and there have been few if any attempts to do so.³¹ That stands to reason—since most insurance data are kept in the hands of insurers, much of third party moral hazard is already illegal or morally dubious, and the phenomenon itself has not attracted much attention. Still, there is abundant evidence that the problem is worth paying attention to.

A. Kidnapping and Related Problems

1. Kidnapping and Insurance: Theory

The general economics of kidnapping has been the subject of considerable analysis, both empirical and theoretical.³² There is very little on the impact of insurance, however. A key finding of most theoretical models is that the number or frequency of kidnappings will depend on the average amount that victims are willing and able to pay. In other words, there is an upward-sloping supply of kidnaps, so that the higher the expected ransom, the greater the number of kidnappings.³³

The question of interest to us is whether the presence of insurance enhances victims' willingness or ability to pay ransoms. If so, the availability of insurance would likely cause more kidnaps. Common sense would seem to suggest an affirmative answer. As Fink and Pingle³⁴ point out:

³¹ See sources cited *supra* n. 17.

³² Reinhard Selten apparently used kidnapping to motivate the idea of a sub-game perfect equilibrium in game theory, for which he was subsequently awarded a Nobel prize. See Marco Vannini, Claudio Detotto, and Bryan McCannon, *Ransom Kidnapping*, in Jurgen Backhaus, ed. ENCYCLOPEDIA OF LAW & ECONOMICS (2015) at 5 (citing Selten's 1976 unpublished working paper). Available at https://www.researchgate.net/publication/273574256_Ransom_Kidnapping; see also Alexander Fink and Mark Pingle, *Kidnap insurance and its impact on kidnapping outcomes*, 160 PUBLIC CHOICE 481 (2014). In addition to the quantity of kidnappings, insurance might also have a separate effect on average kidnap "severity" –for example, the fatality rate—discussed *infra*.

³³ Vannini et al, *supra* at 7 (summarizing conclusions of the Selten model of bargaining between kidnapper and victim). Of course, this is an "all else equal" result. And supply might be price-insensitive or "inelastic," but that is almost certainly a special case.

³⁴ Fink and Pingle, *supra* at 491.

The provision of kidnap insurance might have an effect on the probability that kidnappings are contemplated. For instance, a potential kidnapper might hear about a successful exchange of a victim for ransom that may have been facilitated with the aid of an insurance company, or a potential kidnapper might conclude from the presence of a kidnap insurance market that his potential victims are on average willing to pay more ransom compared to the situation when no kidnap insurance market exists.³⁵

Indeed, in Fink & Pingle's game theoretic model, "the existence of a competitive insurance market [always] increases the maximum [ransom] demand a family is willing to pay." The size of the supply-side response to this increase is left open, however.³⁶ And as we will see below, these results need not obtain in models that allow for certain institutional innovations.

2. Kidnapping & Insurance: Empirical Evidence

The available empirical evidence on whether the presence of insurance actually increases kidnappings is unfortunately quite weak, since it is virtually impossible to find exogenous changes in the availability of kidnap insurance that would be required to make a valid inference about its effects.³⁷ Venezuela, Colombia, and Italy have all banned kidnap insurance at one time or another,³⁸ but these legal interventions were much broader than merely limiting or banning insurance. That makes it difficult to assign responsibility for any subsequent changes in kidnappings to insurance bans, as opposed to any of the other forces in play. Some historical case studies are worth considering, however.

Italy has long been an important locus of kidnapping. "[I]n the period 1960–2000, . . . [there were] 592 cases and an average of 14.4 abductions per year, [which] had a dramatic impact and placed the country at the top of the worldwide kidnapping hotspots throughout the 1970s and most of the 1980s."³⁹ In 1991, Italy reacted to its large and growing kidnapping problem by imposing severe restrictions on ransom payments. (This was a broader intervention

³⁵ *Id.* In their model, the positive effect of insurance on the volume of kidnapping occurs whenever "insurance increases [victims'] maximum ransom offer," which in turn depends on some technical conditions. Even if insurance increases total kidnappings, it might still reduce *fatal* kidnappings, since higher ransom payments "push[] [some victim] offers above the net willingness to kill of the marginal kidnapper, reducing the fraction of fatal kidnappings." *Id.* at 493. The net effect on the total volume of fatal kidnappings depends on the relative size of the kidnap-increasing and fatality-reducing effects.

³⁶ *Id.* at 490. As the authors point out, higher willingness to pay will not lead to an increase in kidnaps if all potential kidnaps "were always contemplated by the potential kidnapper." *Id.*

³⁷ For example, if countries ban kidnap insurance only when kidnappings are unusually bad—as seems likely—then kidnappings will tend to decline after the adoption of an anti-kidnapping insurance law purely by chance (even if the law actually had no effect). Quantitatively sophisticated readers will recognize this as an example of the well-known regression fallacy.

³⁸ Vanini et al at 8.

³⁹ Vanini et al, at 4.

than merely banning kidnap insurance, however – private negotiations between kidnappers and victims were apparently outlawed, and the victim’s families’ assets were automatically subject to a freeze whenever a kidnap was reported; any subsequent ransom payments had to be approved by state prosecutors, who were reluctant to authorize such transactions.⁴⁰⁾ Anecdotal evidence is consistent with the view that the policy worked – reported kidnap volume fell substantially after the law was put into place.⁴¹

Like Italy, Colombia has also had a long tradition of kidnappings. According to one US court, Columbian “abductions for ransom [were] literally everyday occurrences – 1717 abductions, or approximately 5 per day, occurred in 1991, while 1320 abductions, or almost 4 per day, occurred in 1992.”⁴²

The presence of insurance was likely a factor in Colombian kidnappings. According to a recent report by a peace activist group, “[i]t has been reported that [Colombian] guerrillas sometimes run the names of the detained persons through a laptop to check out what they are worth, and whether they have kidnap insurance.”⁴³ Whether or not insurance actually motivated kidnappings, the Colombian Congress believed that it did. The Colombian Anti-Abduction Act of 1993 specifically prohibited kidnap insurance in an attempt to curtail

⁴⁰ Celestine Bohlen, *Italian Ban On Paying Kidnappers Stirs Anger*, N.Y. TIMES, (Feb. 1, 1998) <https://www.nytimes.com/1998/02/01/world/italian-ban-on-paying-kidnappers-stirs-anger.html>. “[U]nder Italian law, families are barred from paying ransom or negotiating with kidnappers, except with the permission of a prosecutor and the cooperation of the police. [Moreover, the law] imposes an automatic and obligatory freeze on assets belonging to the kidnapped victim's family.” There was already an anti-kidnapping statute in force from 1974. Vanini et al, *supra* at 9.

⁴¹ Bohlen, *Id.*, reports that between 1969 and 1998, Italy experienced almost 700 reported kidnappings (about 25 per year), while in the seven year period between 1991 and 1998, there were only 38 reported kidnappings (about 5.5 per year). Of course, the raw numbers do not demonstrate that the law itself was responsible for the drop in kidnappings; among other things, it may be have been the case that making ransom payment illegal simply led to a drop in the rate at which kidnaps were reported to the police.

⁴² *Hargrove v. Underwriters at Lloyd's, London*, 937 F. Supp. 595, 600 (S.D. Tex. 1996). Another US court concluded that kidnappings for ransom in Colombia were “a form of fundraising” and were “virtually day to day news.” *Curtis v. Beatrice Foods Co.*, 481 F.Supp. 1275, 1278 (S.D.N.Y.1980).

⁴³ Pax Cristi Netherlands, *The Kidnap Industry in Colombia: Our Business?* 30 (2001). This evidence is consistent with insurance having a positive effect on the aggregate amount of kidnapping. But it is also possible that insurance has no overall effect and simply redistributes a fixed number of kidnaps to targets who have insurance and away from those who do not.

kidnappings.⁴⁴ The statute – subsequently declared unconstitutional in part⁴⁵ – also strengthened penalties against kidnapping and also made it illegal to pay ransom of any kind.

The bottom line is that while it's difficult to prove that kidnap insurance increases kidnappings, the limited available evidence is entirely consistent with that possibility, and some theoretical models predict it.

3. Welfare Effects of Kidnap Insurance

Despite the likely existence of a third party moral hazard – a positive supply response to kidnap insurance – insurance might nevertheless be welfare-enhancing on balance for three reasons.

a. Risk-Spreading

First, kidnap insurance allows risk-spreading. In Fink and Pingle's model, for example, insurance will be welfare-enhancing, even though it generates additional kidnappings, as long as the supply response is sufficiently small. If so, victims and their families benefit from the increased risk-spreading that kidnap insurance provides. If these gains are large enough, insurance will still be good for society despite the additional costs it imposes via third party moral hazard.

In this sense, third party moral hazard is similar to its conventional first party cousin. Even if insurance increases losses via ordinary (first party) moral hazard, it does not follow that the world is better off without it. Insurance still contributes positively to welfare as long as the losses it causes are smaller than the gains it generates by shifting risk away from risk-averse parties to risk-neutral ones.

b. Severity Effects

Second, kidnap insurance may reduce the severity of kidnappings. By allowing victims' families to redeem them from those kidnappers with a greater "willingness to kill" (and hence, a greater ransom demand), insurance may reduce kidnap fatalities.⁴⁶

⁴⁴ Under the Act, any person who, "knowing that money is going to be destined to pay a ransom for the release of an abducted individual, participates in the transaction thereof," is considered to have aided and abetted the kidnapper, and faces up to five years in prison. See Act 40, article 7, paragraph 2. Article 12 of the Act provides that "[w]hoever participates in an insurance contract the purpose of which is to guarantee payment of a ransom in possible abduction cases, or *who participates in the negotiation or intermediation of the ransom demanded thereof*," faces up to two years in prison.

Hargrove, supra n. 40 at 600. Kidnap insurance contracts were also declared void under the statute, and ransom payments by a corporation could trigger suspension of governmental contracts.

⁴⁵ *Id.* at 600.

⁴⁶ Fink and Pingle, *Id.* On the other hand, it is possible that there is a "marginal deterrence" effect of anti-kidnap laws. See Claudio Detotto, Bryan C. McCannon, Marco Vannini, *Evidence Of Marginal Deterrence: Kidnapping and Murder in Italy*, __ INT. REV. OF L. & ECON. __ (2015) (finding that murderers

c. Reducing Willingness to Pay? Of Cartels and Externalities Over Time

Finally, it is possible that kidnap insurance might actually *decrease* victims' willingness to pay ransoms by helping to solve a classic overpayment problem that un-coordinated payments would usually entail. (This possibility is not contemplated in the kidnap/insurance models discussed earlier.) According to a perceptive recent study, it appears that international kidnap insurers have managed to organize the market so as to avoid the overpayments that would otherwise occur, and that would lead to increases in kidnappings.⁴⁷

The payment of ransoms generates an important externality over time—higher ransoms today make kidnapping more attractive and thereby encourage future kidnaps. However, individual victims or their families are concerned only with their own case. They do not care about whether their payment raises the likelihood of *subsequent* kidnappings, and thus have a tendency to “overpay” relative to the socially optimal ransom.⁴⁸ If the insurance industry is properly organized, the presence of insurance may offer a way to overcome this externality, *reduce* ransom payouts, and thereby actually lower the volume of kidnaps.

The evidence that victims of kidnapping will want to “overpay” ransom demands is quite compelling. For example, the 1991 Italian law discussed earlier was at least arguably quite effective in reducing kidnappings. Nevertheless, some victims were still kidnapped under the new regime, and their families were apparently outraged that the authorities impeded their efforts to pay generous ransoms to secure the return of their family members.⁴⁹ The same scenario unfolded in the kidnapping of Thomas Hargrove by FARC guerillas in Colombia in

of Italian kidnap victims went up when the punishment for kidnappings was increased, reducing the *additional* punishment for “kidnap + murder” over kidnap alone.)

⁴⁷ See Anja Shortland, *supra* n. 7 (suggesting that an effective cartel governs international commercial kidnap insurance, and has evolved to limit overpayment that would occur if victims negotiated individually with kidnappers).

⁴⁸ This logic is well known. See, e.g., Rivka Weil, *Exodus: Structuring Redemption of Captives*, 36 CARDOZO L. REV. 177 (pointing to the difference between one-off and repeat players in kidnap situations); Yvonne M. Dutton, *Funding Terrorism: The Problem of Ransom Payments* 53 SAN DIEGO L. REV. 335 (2016) (arguing that countries that refuse to pay ransoms when their citizens are kidnapped by terrorists should attempt to persuade other countries to adopt similar policies); Yvonne M. Dutton and Jon Bellish, *Refusing to Negotiate: Analyzing the Legality and Practicality of a Piracy Ransom Ban*, 47 CORNELL INT. L. J. 299 (2014) (arguing that a ransom ban is inconsistent with criminal law’s retributive goals, since it punishes innocent ransom-payers who act under duress and is likely to be ineffective). But see Samantha Kenney, *Regional Shortcomings and Global Solutions: Kidnap, Ransom and Insurance in Latin America*, 14 CONN. INS. L.J. 557 (2008) (arguing that a private market for kidnap insurance should be permitted, but that an international convention against kidnapping for ransom should be promulgated by the United Nations).

⁴⁹ Bohlen quoted several kidnap victims or their families who were vehemently opposed to the no-ransom law. One father stated that “[t]he law should be abolished, immediately. . . . If there had not been any such law, [my daughter] would have been freed at least four months earlier. When the life of a hostage is at stake . . . putting forward purely legal arguments makes absolutely no sense.” *Supra* note 38.

1994: his employer refused to pay ransom, in part because it feared a wave of future kidnappings, but his family wished to do so and negotiated with the kidnappers.⁵⁰

Before kidnap victims are known, everyone should favor banning or limiting the payment of ransoms, since it reduces kidnaps.⁵¹ But once a kidnap has occurred, families of current victims *want* to be able to pay (large) ransoms, regardless of the negative consequences for future victims.⁵² The same logic is at work in the case of Somali maritime pirates (who are really just ship-nappers).⁵³ Conditional on being a victim of piracy, victims want to be able to pay large ransoms, since they ignore the future incentive effects that such payments provide.

In game-theoretic terms, kidnapping entails a classic example of “dynamic inconsistency.” Ex ante, it is always optimal to deny that you will pay ransom in the future so as to deter kidnappers. But if a kidnap nevertheless occurs, it is usually optimal to pay the ransom, despite having earlier promised not to do so.

How might insurance fit into the picture? The key to internalizing the kidnap externality is to have some party who is responsible not only for current ransom demands but for *future* ransoms as well. That payor is then in a position to appreciate both the present benefits of higher ransom payments *and* the future costs that *it* will end up having to pay.

National governments are durable institutions that might be motivated to take this long view.⁵⁴ And a properly organized insurance industry – one with very few players who engage in significant information sharing – might be able to achieve the same long run perspective. As Anja Shortland perceptively points out, some kidnap insurance is in fact organized in a way that internalizes the (future) costs of today’s overly generous payouts. Most international kidnap insurance is written by a small and tightly-knit group of brokers who operate out of

⁵⁰ Hargrove’s employer “adopted a public position refusing to pay ransom. This position was grounded, in part, on a fear of further kidnappings if ransom were paid.” *Hargrove supra*, at 598 (S.D. Tex. 1996). After Hargrove was released, his family then sued the employer’s insurance company over its initial refusal to negotiate, arguing that “if the Defendants had immediately begun negotiating with the kidnappers to pay a portion of the ransom demand, Hargrove would have been released much sooner. The Plaintiffs [sought] \$25,000,000 in actual damages, and \$75,000,000 in punitive damages.” *Hargrove, supra* at 599.

⁵¹ With apologies to John Rawls, one might term this ex ante perspective “operating behind the ski mask of ignorance.”

⁵² As Block and Tinsley point out, “one may as well enact legislation forbidding a mugger’s victim from responding ‘life’ to the threat of ‘your money or your life.’” W. BLOCK & P. TINSLEY, *Should the law prohibit paying Ransom to kidnappers?* 6 AM. REV. POLIT. ECON. 40 (2008); cf MICHAEL SCOTT MOORE, THE DESERT AND THE SEA: 977 DAYS CAPTIVE ON THE SOMALI PIRATE COAST (2018) (suggesting that forbidding payment of ransom is futile).

⁵³ See Olaf J. de Groot, Matthew D. Rablen and Anja Shortland, *Barrgh-gaining with Somali Pirates*, Economics of Security Working Paper 74 (2012), who find empirically that “higher past ransoms are positively associated with subsequent ransom amounts. Hence higher ransom amounts impart a negative externality on future victims.” at 2. Cf. Vannini et al.

⁵⁴ But see Gaia Pianigiani, *Italy Denies Paying Ransom for Release of Aid Workers*, N.Y. TIMES (Jan. 16, 2015) <https://www.nytimes.com/2015/01/17/world/europe/italy-aid-workers-syria.html> (suspecting that the Italian government may have secretly paid ransom to terrorist kidnappers in Syria against public policy).

Lloyds of London.⁵⁵ If perhaps not a formal cartel, the insurers are in close communication with each other about their payouts. Their ability to coordinate among themselves means that they are in a position to protect their *own* future interests by not over-paying for kidnap victims today. Because paying too much today will cause it to pay even *more* in the future, a monopoly insurer (or a tightly-knit group of insurance companies) has the motivation to hold the line on ransom payouts.⁵⁶ That is an incentive that any individual victim lacks.

B. Liability Insurance

1. General Considerations

Liability insurance pays others (third parties) for losses that an insured policyholder has imposed on them and for which the insured could be held legally responsible. By virtue of this structure, liability insurance is an obvious place to look for third party moral hazard, since it directs funds not to policyholders themselves, but to those claiming to have been injured by them.

a. Definition

We stress that in the context of liability insurance, third party moral hazard should be defined as the effect of insurance on “false” or “unjustified” claims of liability, not on *total* claims.⁵⁷ In a world where information is incomplete, lawsuits are expensive to bring, defendants may be judgment proof, capital markets are imperfect, courts sometimes make errors, plaintiffs are risk averse, and there are strong social norms against complaining, not

⁵⁵ Anya Shortland, *supra*. Shortland focuses on the market for employees of first world companies, governments and NGOs working in the third world. We know, for example, “that foreigners . . . account for a relatively large amount of ransom payments, although they are few in number compared with the thousands of Colombian victims every year.” *The Kidnap Industry in Colombia: Our Business?* *Supra* note 41. Markets for insuring locals (e.g., in Colombia or Nigeria) are run locally, and little is known about how they function. But it is unlikely that local insurance companies are able to coordinate amongst themselves as Shortland reports is the case for international insurers.

⁵⁶ The largest insurer, Hiscox, has roughly 60-70% of the market, according to its website: “We write two thirds of the industry’s kidnap and ransom insurance premium, and have led the development of this market for 21 years.” <http://www.hiscoxlondonmarket.com/kidnap-and-ransom>.

⁵⁷ A major theme of Kenneth S. Abraham’s, THE LIABILITY CENTURY (2008) is that liability insurance actually makes liability possible by creating incentives for injured victims to sue. Without it, there would be very little reward for successful litigants, and no reason to bring even meritorious suits.

everyone who is injured will choose to bring a lawsuit.⁵⁸ Of course, none of these considerations preclude those who have not actually been injured from filing.⁵⁹

If introducing liability insurance increases the number of *meritorious* lawsuits brought, insurance-induced litigation would presumptively be welfare-enhancing. This is a key normative difference between third party moral hazard in litigation and, for example, kidnapping. The optimal amount of kidnapping is zero, so all insurance-induced kidnaps are welfare-reducing. But there are almost certainly “good” lawsuits that are never actually filed. As a result, insurance-induced litigation may be welfare-enhancing (or reducing), depending on whether it generates more good suits than bad ones, and on the relative costs and benefits of each. Ultimately, it is the net effect of liability insurance that is relevant for welfare analysis.⁶⁰

b. Mechanisms

Liability insurance can create third party moral hazard if it raises the expected return to filing a claim.⁶¹ There are several ways this could occur. The simplest story is based on deep pockets and wealth constraints: liability insurance will often allow successful claimants to collect more than would be possible if injurers had to pay out of their own pockets.⁶² Suppose X is accused of causing \$100,000 in harm, but has wealth of only \$10,000. A lawsuit costs \$5,000 to bring and \$5,000 to defend, and has a 10 percent chance of success. In the absence of insurance, the suit has an expected value to the plaintiff of

⁵⁸ Richard L. Abel, *The Real Tort Crisis – Too Few Claims*, 48 OHIO ST. L. J. 443 (1987); William L.F. Felstiner, Richard L. Abel & Austin Sarat, *The Emergence and Transformation of Disputes: Naming, Blaming, Claiming . . .* 15 L. & SOCIETY REV. 631 (1980-1981). For example, one careful study of medical malpractice found that of 1047 patients sampled at one academic hospital, 17.7 percent (185) experienced at least one serious adverse event (defined as causing temporary physical disability, or worse) during their stay. But only 1.2 percent of patients (13) made any claim for compensation. That amounts to only 7% of those who were injured. Lori B. Andrews et al., *An Alternative Strategy for Studying Adverse Events in Medical Care*, 349 LANCET 309, 311 (1997).

⁵⁹ Sachin S. Pandya & Peter Siegelman, *Underclaiming and Overclaiming: Bringing Law Back Into the Dispute Pyramid*, 38 L. & SOC. INQ. 836 (2013).

⁶⁰ John Nyman’s analysis of first party moral hazard in health insurance has a similar structure. He suggests that although the presence of insurance does cause greater utilization of medical care, this effect is actually welfare-enhancing because the increase comes from people who would otherwise be unable to afford the care, but would willingly pay for it if they could. For example, suppose a kidney transplant costs \$300,000 and is necessary for survival. In the absence of insurance, most victims of kidney cancer would not be able to afford a transplant; with insurance, they can. Insurance does generate increased utilization of medical care; but the additional insurance-induced demand has positive welfare effects, instead of reducing welfare (as is the case under the conventional understanding of moral hazard). For an accessible summary, see generally, John A. Nyman, *Is ‘Moral Hazard’ Inefficient? The Policy Implications Of A New Theory*, 23 HEALTH AFFAIRS 194 (2004).

⁶¹ We are unaware of any theoretical treatment of the issues. Steven Shavell, *On Liability and Insurance*, 13 BELL JOURNAL OF ECONOMICS 120 (1982) pioneered the analysis of moral hazard in liability insurance, but does not discuss whether insurance can increase the volume of false claims.

⁶² This is just the flip-side of the well-known judgment proof problem that occurs when the harm that injurers cause is greater than their wealth, which acts as an upper bound on their ability to pay. Steven Shavell, *The Judgment Proof Problem*, 6 INT’L REV. OF L. & ECON. 45 (1986).

$$EV = 10\% \times (\$10,000 - \$5,000) + 90\% \times 0 - \$5,000 = -\$4,500.$$

If instead the injurer is fully insured (including defense costs), then the expected value of the lawsuit becomes \$5,000. While plaintiffs may find negative expected value suits to be worth bringing in some circumstances,⁶³ the rate of return to pursuing litigation is obviously higher in the presence of insurance than without it (other things equal).

Insurance could also generate an increase in (false) claims of liability if insurers have less incentive or ability to detect such claims than would an uninsured individual defendant. And under some circumstances, insurers might willing to spend less to defend a lawsuit (or would be more willing to settle) than an individual defendant.

2. Directors & Officers (D&O) Liability Insurance

Directors and Officers (“D&O”) liability insurance protects corporate officials, as well as the corporation itself, against potential liability arising from negligent actions and omissions that harm the corporation.⁶⁴ D&O liability insurance pervades the corporate world⁶⁵ and covers in virtually all public corporations in U.S. and Canada.⁶⁶ While D&O insurance is purchased by corporations, it primarily benefits corporate officials by providing them reimbursement for costs and payments incurred in litigation against them. By law, D&O liability insurance is only applicable to non-intentional breaches of the duty of care. As Tom Baker and Sean Griffith explain, it excludes “claims involving fraud or personal enrichment, claims either noticed or pending prior to the commencement of the policy period and claims between insured persons.”⁶⁷

Although D&O liability insurance also protects corporate officials from suits brought against them by the corporation, its principal effect is to protect directors and officers from derivative suits brought by shareholders.⁶⁸ In principle, the duty of care is owed to the corporation, and if breached by an official, the corporation may sue her. Corporations, however, are reluctant to sue their officials. To remedy this problem, corporate law empowers individual shareholders to sue on the corporation’s behalf. For this reason, such suits are known as derivative shareholders’ suits. By contrast to the corporation, individual shareholders have no qualms about suing corporate officials. On the contrary, they have strong monetary incentives

⁶³ STEVEN SHAVELL, FOUNDATIONS OF THE ECONOMIC ANALYSIS OF LAW 419-23 (2004).

⁶⁴ See Tom Baker & Sean J. Griffith, *The Missing Monitor in Corporate Governance: The Directors' & Officers' Liability Insurer*, 95 GEO. L.J. 1795, 1801 (2007) (“D&O insurance protects corporate officers and directors and the corporation itself from liabilities arising as a result of the conduct of directors and officers in their official capacity.”).

⁶⁵ Tom Baker & Sean Griffith, *Predicting Corporate Governance Risk: Evidence From the Directors' and Officers' Liability Insurance Market*, 74 U. CHI. L. REV. 487, 487 (noting that “[N]early all public corporations purchase D&O policies.”).

⁶⁶ Tillinghast Towers Perrin, 2005 Directors and Officers Liability Survey, 20 fig. 21 (2006).

⁶⁷ Baker and Griffith, *supra* note 62, at 1804-05.

⁶⁸ Baker and Griffith, *supra* note 63, at 487.

to file such suits.⁶⁹ Hence, D&O liability insurance primarily covers directors and officers against the risk of monetary liability arising from suits brought by shareholders.⁷⁰ In addition to sheltering directors and officers from derivative suits that stem from breaches of the duty of care, D&O liability insurance also protects them in the case of securities class actions.

Champions of D&O liability insurance contend that it lowers “the cost of compensating risk-averse directors and officers and encourages them to take appropriate business risks.”⁷¹ Furthermore, they emphasize the salutary effects of insurance on firm management and corporate governance. As Clifford Holderness wrote:

Monitoring services provided by the insurance convey distinct benefits to both the insurer and the client company’s shareholders. They reduce the insurer’s exposure, and they encourage directors and officers to act in the shareholders’ interests. Moreover, these services, which supplement other monitoring efforts, will be provided even if insurance shifts no risk beyond what is shifted by indemnification, because the policies reimburse companies for their indemnification payments.⁷²

Detractors of D&O liability insurance maintain “that liability insurance largely nullifies the disciplining potential of litigation, causing directors and officers to be less attentive to their duties to shareholders.”⁷³

Naturally, the key question for present purposes is whether the existence of D&O liability insurance creates a third party moral hazard in the form of enhanced litigation. At first blush, it seems clear that the answer is yes.⁷⁴ After all, the prevalent belief among legal scholars is that derivative litigation rates are higher in the U.S. than in other countries, due, in part, to the broad availability of D&O liability insurance. Echoing this conventional wisdom, Dan Puchniak listed “the high levels of directors and officers (D&O) liability insurance,” as one of the principal factors that contribute to the high rate of derivative litigation in the U.S.⁷⁵

⁶⁹ See Giora Shapira, *Shareholder in Respect of a Loss Suffered by the Company: The Problem of Overlapping Claims and “Reflective Loss” in English Company Law*, 37 INT'L L. 137, 137 (2003) (describing the legal standard for bringing individual shareholder actions as “not farfetched”).

⁷⁰ Core, John E. "The directors' and officers' insurance premium: An outside assessment of the quality of corporate governance," 16 J. L. ECON. & ORG. 449, 450 (2000) (noting that "D & O insurance covers the monetary costs of lawsuits against directors and officers by shareholders or third parties.).

⁷¹ Clifford G. Holderness, *Liability Insurers as Corporate Monitors*, 10 INT'L REV. OF L. & ECON. 115, 115-116 (1990).

⁷² Holderness *supra* note 69, at 118.

⁷³ *Id.* at 116. This is, of course, a form of conventional (first-party) moral hazard: insured directors face less or no liability risk, and hence have less incentive to be careful to avoid harms to others.

⁷⁴ See generally Parsons *supra* note 17 (discussing theoretical signals of third party moral hazard in D&O liability insurance schemes).

⁷⁵ Dan W. Puchniak, *The Derivative Action in Asia: A Complex Reality*, 9 BERKELEY BUS. L. J. 1, 17 (2012).

Studies from other countries seem to suggest the same conclusion. For example, Mark West studied the spike in derivative litigation in Japan in the 1990s. West suggested that the presence of insurance was the main driver of the litigation trend.⁷⁶ He added, however, that the causal mechanism was not necessarily third party moral hazard, but rather standard moral hazard: corporate directors and officers became less circumspect in the fulfillment of their duties once they knew they were insured.⁷⁷

Economists have expressed the same view. Sanjai Bhagat, James A. Brickley & Jeffrey L. Coles wrote “[w]ithout insurance, in a judgment against the manager damages may easily exceed the manager's wealth. The derivative suit has somewhat limited value if it cannot achieve its purpose: the reimbursement of the corporation for losses due to negligence or malfeasance.”⁷⁸ Similarly, Maria Gutierrez noted that “[w]hen the director's wealth is low, the incentives for the shareholders to sue can be maintained only through the adoption of an insurance policy (that guarantees the shareholders will receive the full amount of the damage award).”⁷⁹

A careful examination of the relationship between the presence D&O insurance and derivative litigation rates reveals a far more nuanced picture, however. The high rate of derivative litigation in the U.S., relative to other countries, cannot prove, on its own, that D&O liability insurance generates a third party moral hazard problem. Nor can the fact that companies with high D&O liability insurance coverage get sued more often. There are three possible explanations for the fact that firms with D&O liability insurance are sued more often. The first explanation is standard moral hazard. Directors and managers who have insurance tend to be less diligent in the performance of their obligations. The second explanation is that firms with high coverage are more poorly managed to begin with. It is for this reason that such firms spend a lot on D&O liability insurance. This is a classic adverse selection story:⁸⁰ the higher premia reflect the higher risk, and the subsequent lawsuits merely prove that point. The third, and final explanation, is third-party moral hazard.

It should be noted that the three explanations are not mutually exclusive; they can clearly co-exist and, as we will show, there are empirical studies that provide support for each. For example, a recent study by Stuart Gillan & Christine Panasian reports that firms with high

⁷⁶ Mark D. West, *Why Shareholders Sue: The Evidence from Japan* 30 J. LEGAL STUD. 351, 375-76 (2001).

⁷⁷ *Id.* at 376.

⁷⁸ Sanjai Bhagat, James A. Brickley & Jeffrey L. Coles *Managerial Indemnification and Liability Insurance: The Effect on Shareholder Wealth* 54 J. RISK & INS. ASS'N. 721 (1987).

⁷⁹ Maria Gutierrez, *An Economic Analysis of Corporate Directors' Fiduciary Duties* 34 RAND J. ECON. 516, 531 (2003). See also Chen Lin, Michah S. Officer & Hong Zou, *Directors' and Officers Liability Insurance and Acquisition Outcomes*, 102 J. FINANCIAL ECON. 507 (2011) (noting that D&O liability insurance “can attract frivolous shareholder suits”).

⁸⁰ Empirical tests for adverse selection often rely on the theory's prediction of a positive correlation between an insured's risk of loss and the volume of insurance coverage she purchases. the so-called “positive correlation test.” For a survey, see Alma Cohen & Peter Siegelman, *Testing for Adverse Selection in Insurance Markets*, 77 J. Risk & Ins. 39 (2010).

D&O liability insurance are indeed more likely to be involved in litigation. In exploring the root cause for the correlation, Gillan and Panasian arrive at the tentative conclusion that “the association we find is more likely attributable to opportunism or moral hazard in the managers’ actions.”⁸¹ The article did not consider the third party moral hazard explanation, however.

A study by John Core that used data on Canadian corporations also reported significant correlation between D&O insurance premia and “the quality of firms’ governance.”⁸² In analyzing the reasons for this finding, Core endorses the second explanation, i.e., that higher D&O liability insurance is indicative of poor governance structures. Here, too, we found no reference to the third party moral hazard hypothesis.

Other empirical studies are consistent with the third party moral hazard hypothesis. Tom Baker and Sean Griffith examined the elements that affect settlements of class actions. They use a qualitative research methodology, i.e., interviews with industry participants responsible for settling securities cases. While Baker and Griffith do not focus on third party moral hazard or even mention the term, the answers to their questions suggest that industry participants view D&O insurance as a critical element that shapes their litigation strategy. As one respondent, a claims head, asserted: “I think it is easier to get money out of an insurance carrier than it is out of an insured. Why? Because it is a third party’s money.”⁸³

Baker and Griffith further report that another respondent, a plaintiff’s lawyer, was far more specific about the effect of D&O liability insurance on plaintiffs’ motivation to sue:

Indeed, one of our plaintiffs’ lawyer participants suggested that one way to avoid securities litigation was to buy very little D&O insurance. Clearly, this was facetious advice; a highly solvent underinsured company might be as desirable a target as an adequately insured company. But the point of the comment was plain: we sue for the insurance. As a result, insurance limits can serve as an anchor for settlement amounts.⁸⁴

Finally, in a 2018 article, Donelson, et al., reported a strong correlation between firms’ levels of D&O insurance and their likelihood of being involved in securities litigation.⁸⁵ The study takes advantage of a unique feature of New York law that mandates disclosure of D&O insurance

⁸¹ Stuart L. Gillan & Christine A. Panasian, *On Lawsuits, Corporate Governance, and Directors' and Officers' Liability Insurance*, 82 J. RISK & INS. 793, 805 (2015).

⁸² John E. Core, *The directors' and officers' insurance premium: An outside assessment of the quality of corporate governance*, 16 J. L., ECON. & ORG. 449, 476 (2000). Accord John E. Core, *On the corporate demand for directors' and officers' insurance*, 64 J. RISK & INS. 63, 84 (1997) (reporting that “firms with greater litigation risk and higher distress probability are more likely to purchase D&O insurance and carry higher limits”).

⁸³ Tom Baker & Sean J. Griffith, *How The Merits Matter: Directors' and Officers' Insurance and Securities Settlements* 157 U. PA. L. REV. 755, 806-07 (2009).

⁸⁴ *Id.* at 805.

⁸⁵ Dain C. Donelson, Justin J. Hopkins and Christopher G. Yust, *The Cost of Disclosure Regulation: Evidence from D&O Insurance and Non-Meritorious Securities Litigation*, 23 REV. ACCOUNT. STUD., 528 (2018).

premia. No such requirement exists in the law of other states. The study then compares the exposure to securities litigation of New York firms and non-New York firms. Donelson et al., note that information about D&O premia have two possible effects on litigation: First, high premia can signal to lawyers a potential for high settlement rates. Second, high premia may indicate that the insurer thought that the firm represented a high legal risk. Analyzing a large database of class action brought against firms between 1998 to 2010, they found that “the relation between premiums and litigation is stronger for firms incorporated in New York, compared to firms incorporated elsewhere. As this relation is based on premium levels (rather than disclosure presence), this implies that the disclosure content affects litigation.”⁸⁶

Donelson et al. suggested that their “results provide a more nuanced interpretation of prior D&O insurance research.”⁸⁷ In particular, they distinguished their findings from those of Gillan and Panasian, explaining that knowledge of D&O liability premia “may partially drive the relation between premiums and litigation.”⁸⁸ Furthermore, they estimated that if D&O premia were known in all states, it would have led to an increase of 12 to 19 percent in securities class-action litigation over the period they studied.⁸⁹ The authors also highlighted the potential costs of non-meritorious lawsuits, explaining that

In addition to potential costs of nonmeritorious litigation, both in terms of lawyer fees, nuisance settlements for cases that survive a motion to dismiss, and lost managerial time, excessive selection of nonmeritorious cases would undermine the credibility of the U.S. securities litigation system.⁹⁰

3. No-Fault Automobile Insurance

No-fault auto insurance is designed to speed up the payment of lower-value claims and reduce claims-processing costs. Rather than litigating who was at fault in smaller claims, no-fault makes a policyholder’s own insurer responsible for compensating him or her. In New York, for example, medical and other expenses totalling less than \$50,000 are covered by each insured’s (mandatory) Personal Injury Policy (PIP). More serious injuries can be litigated in the usual manner, with the injurer’s insurer responsible for compensating the victim.

⁸⁶ *Id.* at 530. The authors also point out that although “the filing of cases based on disclosed premiums is inefficient for the overall legal system, it does not appear to be irrational for plaintiffs’ lawyers.” *Id.*

⁸⁷ *Id.* at 531.

⁸⁸ *Id.*

⁸⁹ *Id.* at 531. “Applying the higher dismissal rate of New York firms to the broader Compustat/CRSP sample projects to between approximately 160 to 260 additional nonmeritorious suits that might have been filed over the 13-year sample period, which is equivalent to 12% to 19% total securities class actions over this period.”

⁹⁰ *Id.*

Even though no-fault operates as first-party insurance, it apparently offers substantial opportunities for third party moral hazard. The extent of the problem is hard to assess. Data are difficult to obtain and—if they are from insurers—almost impossible to verify. But there is abundant anecdotal evidence demonstrating elaborate and well-organized schemes to falsify and exaggerate claims, run as sophisticated criminal enterprises in several states.⁹¹

According to testimony by a Michigan doctor who ran an MRI facility outside of Detroit, a prominent “TV lawyer,” Mike Morse, repeatedly leaned on him to exaggerate the severity of injuries detected in MRI scans of patients referred to him by Morse.⁹² The doctor explained that Morse pressured him to “alter[] MRIs or over-read to make them look more abnormal.”⁹³ I understood he wanted reads with abnormal results to increase the value of his clients’ bodily injury claims, and his own fees ... ”⁹⁴ A network of chiropractors and physical therapists was also used to overbill for treatments and make and receive referrals.⁹⁵

A similar pattern was documented in a criminal complaint against more than two dozen defendants filed by the United States Attorney for the Southern District of New York in 2015. Quoting the indictment:

In order to take advantage of the patient-friendly provisions of the [New York] No-Fault Law, numerous medical clinics were created solely to defraud insurance companies under the No-Fault Law (the "No-Fault Clinics"). While purporting to be legitimate medical care clinics specializing in treating the Patients, the No-Fault Clinics were, in fact, medical fraud mills that routinely billed automobile insurance companies under the No Fault Law for medical treatments that were either (i) never provided and/or (ii) unnecessary, because the Patients did not medically need the treatments.⁹⁶

⁹¹ For a book-length treatment of one such organized scheme, see Ken Dornstein, ACCIDENTALLY, ON PURPOSE: THE MAKING OF A PERSONAL INJURY UNDERWORLD IN AMERICA (1998) (describing the “Friends of the Friendless,” a gang in California that specialized in staging auto accidents to collect from insurers).

⁹² John Wisely and JC Reindl, *Doctor Claims Morse Demanded Kickbacks*, DETROIT FREE PRESS (July 17, 2017) <https://www.freep.com/story/news/2017/07/18/doctor-claims-mike-morse-demanded-kickbacks/485477001/>.

⁹³ Affadavit of Dr. Ram Gunabalan (2:14-cv-11700-PDB-SDD Doc # 239-2) (filed 07/10/17) available at <https://www.michiganautolaw.com/wp-content/uploads/2017/07/Affidavit-%E2%80%93-Ram-Gunabalan-MD-State-Farm-vs-Point-PT-E-Dist.pdf>

⁹⁴ *Id.* at 8.

⁹⁵ *Id.*

⁹⁶ Upwards of two dozen co-defendants, including Yuriy Zayonts, a/k/a "KGB," and Alexander Sandler, a/k/a "Sasha," a/k/a "Nose." The indictment was filed under seal and captioned SI 12 Cr. 171 (JPO) (no date), available at <https://www.justice.gov/sites/default/files/usao-sdny/legacy/2015/03/25/Zemlyansky%2C%20Mikhail%20et%20al.%20-%20Indictment.pdf>.

Although New York law requires that medical clinics be “owned, operated and controlled” by a licensed medical practitioner (a doctor), the defendants apparently hired doctors to serve as fronts for the clinics, while secretly owning and controlling the operations of the clinics themselves.⁹⁷ The indictment goes on to describe additional layers of fraud: the clinics would provide referrals for “excessive and unnecessary medical treatments” to lower-level entities called “Modality Clinics.” These clinics provided further fraudulent medical treatments and supplies (including “acupuncture, chiropractic medicine, physical therapy, neurology, psychology, magnetic resonance imagings, x-rays, range of motion, outcome assessment, functional capacity, pain management, orthopedics, audiology, manipulation under anesthesia, and durable medical equipment (“DME”))⁹⁸ for which they billed insurers and paid cash kickbacks for referrals to the originating clinics.⁹⁹

The no-fault clinics also employed “runners” (recruiters) who were paid \$2,000-\$3,000 per patient brought into the clinic (depending on the quality of the accident report filed with the patient’s injury).¹⁰⁰

This was not the only such organized scheme. A lengthy report in the New York Times explains that “countless phony companies were cropping up [in the early 2000’s] to exploit so-called no-fault auto insurance laws in New York.”¹⁰¹

Although all this sounds quite serious, estimates of the size of third party moral hazard vary substantially. A widely-cited insurance industry report put no-fault fraud

⁹⁷ *Id.* at 5.

⁹⁸ *Id.* at 6-7.

⁹⁹ *Id.* at 6-7.

¹⁰⁰ *Id.* at 7.

¹⁰¹ William K. Rashbaum, Danny Hakim, Brian M. Rosenthal, Emily Flitter and Jesse Drucker, *How Michael Cohen, Trump’s Fixer, Built a Shadowy Business Empire*, N.Y. TIMES, May 5, 2018 at A1 are worth quoting directly. The Times reporters write that

“Starting in 2000, Mr. Cohen set up a series of companies in New York City. There were two medical practices, an acupuncture office, two medical billing companies, two management companies and a transportation company.

“The ventures were noteworthy, in part, because they were created at a time when countless phony companies were cropping up to exploit so-called no-fault auto insurance laws in New York and other states. Hundreds of doctors, businesses owners and others would eventually be criminally charged or accused of fraud by insurance companies.

“There is no evidence that Mr. Cohen or the companies he created were part of such schemes. Nor is there evidence that Mr. Cohen did anything other than register the companies with state authorities.

“The no-fault insurance schemes, which were often masterminded by organized crime figures from the former Soviet Union, all followed a basic template. Staged or exaggerated car accidents were used to generate a tidal wave of “patients.” Transportation companies then took the patients – often low-level criminals – to what in many instances were sham medical clinics, diagnostic testing offices, and acupuncture and physical therapy offices. Billing companies were created to collect money from insurers, and management companies then siphoned the funds out to the scheme’s operators. Some operators were so bold that they sued insurers that had stopped paying after they realized they were being defrauded.”

losses in New York at \$230-240 million in 2009.¹⁰² But others have disputed that estimate, and the details of the calculation never seem to have been made public, so it is difficult to verify.¹⁰³ According to the NAIC, incurred losses on PIP policies in New York in 2009 amounted to \$1.6 billion.¹⁰⁴ So the insurance industry's \$240 million estimate for no-fault fraud (almost all of which is probably third party moral hazard) amounts to 15 percent of all losses; opponents have suggested that this is too high by a factor of 2, but even 7% of losses would not be trivial.

C. Health Insurance

The tangled relationships among insurers, individual policyholders, drug companies, doctors, and hospitals are rife with examples of third party moral hazard in which third parties are motivated to create or exaggerate expenses so as to take advantage of what insurance will pay for. Indeed, the malign effects of third-party moral hazard in health care are the major theme of a recent 550-page book by legal scholars Charles Silver and David Hyman.¹⁰⁵ As a former Dean of Harvard Medical school put it in the forward to their book, the "root cause[]" of waste and excessive spending in healthcare is "the . . . overreliance on insurance and other forms of third party payment" to cover medical expenses.¹⁰⁶ According to Silver and Hyman, health care is all about third party moral hazard writ large: as they put it, "health care is

¹⁰² Insurance Information Institute, *No-Fault Insurance Fraud in New York State is Ramping Up Premiums* (no date available) available at <https://www.iii.org/article/no-fault-insurance-fraud-new-york-state-ramping-premiums>.

¹⁰³ "The breadth of fraud, suggested by the industry, is simply exaggerated and untrue. . . . Indeed, even a cursory review of the industry statistics lead them to be questioned. For example, one industry-funded source claims that no-fault fraud cost \$240 million in 2009. . . . However, a simple multiplication of the total number of reported questionable claims to the Insurance Department last year by the average cost of the entire no-fault claim that is being discussed today actually equals to \$116 million, literally half of what is being asserted by the industry. And yes, while \$116 million in suspicitive [sic] fraud sounds like and is a lot, it . . . [amounts to] roughly 1 percent of [the \$9.9 billion in] premium dollars collected by NY auto insurers [in 2009]." Testimony of Stuart Israel (President, New Yorkers for FAIR Auto Reform), New York State Senate Standing Committee on Insurance, Hearing on Ways to Reduce the Incidents of No-fault Auto Insurance Fraud in New York, April 26, 2011 at 219-20. Available at <https://www.nysenate.gov/calendar/public-hearings/april-26-2011/examine-ways-reduce-incidence-no-fault-auto-insurance-fraud>

¹⁰⁴ NAIC Auto Insurance Database Report 2009/10, Table 17B, p. 108, available at https://www.naic.org/prod_serv/AUT-PB-09_2012.pdf.

¹⁰⁵ Charles Silver and David Hyman, *OVERCHARGED: WHY AMERICANS PAY TOO MUCH FOR HEALTH CARE* (2018).

¹⁰⁶ Jeffrey S. Flier, *Forward*, in Silver and Hyman at xx.

expensive because it is insured. . . . Insurance makes healthcare more expensive than it would be if people paid for it themselves.”¹⁰⁷

Economists have long recognized the potential for conventional moral hazard in health care.¹⁰⁸ It has taken the economics profession a long time, however, to get past its fixation on the idea that people with insurance go to the doctor too often,¹⁰⁹ and to start thinking about the issues that arise because third parties—doctors, hospitals, drug companies, and providers of ancillary services—have figured out how to squeeze funds from insurers in a more-sophisticated and less-blatant version of the automobile insurance scam with which we began this Article.¹¹⁰

One exception is a perceptive discussion of third party moral hazard in the provision of a “credence” good, of which medical care is a textbook example.¹¹¹ Consider a patient who can’t

¹⁰⁷ Silver and Hyman, *Id.* at 295 (emph. in original). Of course, even if it is true, that is not the end of the story—insurance clearly has substantial benefits from risk-spreading and access-to-care that can not be ignored.

¹⁰⁸ In fact, the first formal economic analysis of moral hazard was in the context of medical care. Arrow, *supra* n. 12.

¹⁰⁹ There is certainly evidence for the existence of conventional moral hazard, dating from a pioneering experiment conducted by the RAND Corporation in the early 1970’s. See W. G. Manning *et al.*, HEALTH INSURANCE AND THE DEMAND FOR MEDICAL CARE: EVIDENCE FROM A RANDOMIZED EXPERIMENT (1988). More recently, Liran Einav Amy Finkelstein, *Moral Hazard in Health Insurance: What We Know and How We Know It*, 16 J. EUROPEAN ECON. ASSOC. (2018), available at <https://academic.oup.com/jeea/article/16/4/957/4992078>, conclude that there is strong empirical evidence for moral hazard in health care: “individuals increase their healthcare utilization when the price they have to pay for it is lower.” But these effects turn out to be quite trivial compared to the other sources of waste in health care.

Moreover, as John Nyman has perceptively pointed out, some insurance-induced demand for healthcare is actually welfare-enhancing. He gives the example of a \$300,000 kidney transplant that almost no patient could afford without insurance. Insurance certainly makes it possible for the policyholder to obtain a transplant, and thus creates “additional demand.” But the surgery should not be deemed wasteful if the patient would willingly have paid for it (as is usually the case) had her insurer had given her cash instead of a “free” surgery. John A. Nyman, *Is ‘Moral Hazard’ Inefficient? The Policy Implications of a New Theory*, 21 HEALTH AFFAIRS 194, 196 (2004).

¹¹⁰ This is somewhat ironic, since it is precisely such non-market institutions and norms that Kenneth Arrow suggested—in response to Mark Pauly’s critique of his pioneering article—could serve as vital checks on conventional first-party moral hazard in health care. Arrow points out that conventional moral hazard leads patients to demand more care than is optimal. To prevent such overuse, he notes, it makes sense to ration care; and one way to accomplish that is to

rely on the professional ethics of physicians not to prescribe frivolously expensive cost of treatment, at least where the gain is primarily in comfort or luxury rather than in health proper. . . . One of the characteristics of a successful economic system is that the relations of trust and confidence between principal and agent are sufficiently strong so that the agent will not cheat even though it may be “rational economic behavior” to do so.

Kenneth J. Arrow, *The Economics of Moral Hazard: Further Comment*, 58 AMER. ECON. REV. 537, 538 (1968).

¹¹¹ Since the pioneering work of Philip Nelson, *Information and Consumer Behavior*

evaluate his own illness and must rely on an expert for advice (of course, he can't evaluate the expert, either.) This creates the possibility of what Sülzle and Wambach term "supplier-induced demand, which ... refers to situations where ... physicians can ... treat more than what is medically necessary or charge for a more expensive treatment than the one they actually provide."¹¹² Their theoretical model suggests that raising an insured's required copay will make them more willing to "contest" expensive diagnoses (by seeking a second opinion), but paradoxically, may actually *increase* the volume of misbehavior by doctors.¹¹³

Perhaps the best indicator of the magnitude of these problems is that in writing their chapter on health care fraud, Silver and Hyman decided to "ignore any [examples] that didn't involve at least \$500 million in ill gotten gains[, and] [e]ven so, . . . had more material than [they] could use."¹¹⁴

Silver and Hyman argue that the solution to third party moral hazard problems is increased reliance on so-called consumer-driven healthcare. But one needn't agree with their proposed solution to acknowledge their diagnosis of the problem.

1. Magnetic Resonance Imaging (MRIs)

Excessive use of medical imaging has been characterized as one of the largest sources of unnecessary procedures in US healthcare.¹¹⁵ As Horwitz et al. point out, imaging is painless to the patient and highly profitable for the provider; it also helps doctors avoid the possibility of litigation, all of which provide reasons for its overuse.¹¹⁶ The result is that even

78 J. POL. ECON. 311 (1970), economists have divided goods into three types: Search goods (whose important qualities can be observed in advance of purchase (e.g., food)); Experience goods (whose important qualities can only be observed after purchase (e.g., wine, music); and Credence goods (whose important qualities are largely unobservable even after purchase (e.g., medical care)).

¹¹² Kai Sülzle & Achim Wambach, *Insurance In A Market For Credence Goods*, 72 J. RISK & INS. 159, 159 (2005).

¹¹³ The logic is complicated, but turns on the fact that "physicians have to take two considerations into account when deciding whether to diagnose honestly or not. First, the reaction of patients. If patients are less willing to accept a high diagnosis, this makes fraudulent behavior less attractive." But the behavior of other physicians also matters. "If other physicians behave more dishonestly, and patients often reject their first diagnosis, the chance is high that a patient coming to a physician is already on his second visit. In this case, the patient would accept a high diagnosis as a confirmation of the first diagnosis. This in turn makes fraudulent behavior more attractive." *Id.* at 160.

¹¹⁴ Silver and Hyman, *supra*, at xvi.

¹¹⁵ Morden et al., quoted in Horwitz et al at 1.

¹¹⁶ In a recent study, Horwitz et al consider a situation where one state (e.g., Michigan) regulates MRI providers by requiring them to obtain a "certificate of need" (regulatory approval based on the existence of other providers), while a neighboring state (Ohio) does not. They find that there are many more providers of MRI services located on the Ohio side of the Ohio/Michigan border than on the Michigan side. But that's not all. Although the authors are careful to point out the limits of their findings, their evidence suggests that more unnecessary MRIs are being done in unregulated states. And since there are probably many unnecessary MRIs done in regulated states, we should be

though “all relevant specialty society guidelines support initial management *without imaging* for patients with uncomplicated low-back pain, many physicians continue to order routine imaging without a clear clinical indication.”¹¹⁷ And according to a recent survey, insurance is clearly implicated in the overuse of MRIs.¹¹⁸

Distinguishing first-party moral hazard from third party moral hazard in this context is not completely straightforward. Some overuse of MRIs, and some of the failure to obtain them from the lowest-cost provider, can be attributed to patients themselves. A recent study demonstrates, for example, that even when given a price comparison tool, “[m]any patients [go] to very expensive providers when lower-priced options with equal quality are available.”¹¹⁹ But the study also shows that patients overwhelmingly get their MRIs at the site their doctors recommend, even when the price is dramatically higher than at easily available alternatives.¹²⁰ And doctors associated with hospitals tend to recommend their own hospital’s MRI service, although on average a hospital MRI costs more than twice as much as one provided at an imaging center (with no quality differential).

2. Copay Coupons for Branded Drugs

Health insurers have an obvious interest in incentivizing patients (and their doctors) to choose lower-cost generic drugs instead of branded drugs that are medically identical. One mechanism used to create such incentives has been to set a higher copayment by the patient if the branded drug is used instead of the generic alternative. As health economist Austin Frakt explains:

Let’s say that I needed the brand drug Effexor XR, used to treat depression and anxiety disorders. It would cost me at least \$65 a month on my health insurance plan. It retails for about twice that amount, and the difference [i.e., another \$65] would be picked up by my insurer. But the generic version, Venlafaxine, would cost my insurer far less, and my co-payment would be only \$10 per month.¹²¹

quite confident that MRI providers (in combination with doctors) are driving up costs to insurers by generating unneeded imaging.

¹¹⁷ Sarah Jane Reed, MSc & Steven Pearson, MD, MSc, *Imaging for Nonspecific Low Back Pain*, INSTITUTE FOR CLINICAL AND ECONOMIC REVIEW, at 4 (May 2015). [emphasis added]

¹¹⁸ *Id.*

¹¹⁹ Austin Frakt, *Why Don’t We Shop for Health Care? Doctors*, N.Y. TIMES, July 31, 2018 at B4 (quoting Zack Cooper, a health economist at Yale).

¹²⁰ See Michael Chernew et al, *Are Health Care Services Shoppable? Evidence from the Consumption of Lower-Limb MRI Scans* (Nat’l Bur. of Econ. Res. Working Paper No. 24869, 2018), available at <http://www.nber.org/papers/w24869>, visited July 31, 2018. For example, in some markets, prices can differ by a factor of 7.5. Merely using the lowest priced MRI service that is no further away than the one they actually chose would save patients an average of 36%.

¹²¹ Austin Frakt, *When a Drug Coupon Helps You But Hurts Fellow Patients*, Upshot (N.Y. Times), September 25, 2017, available at <https://www.nytimes.com/2017/09/25/upshot/when-a-drug-coupon-helps-you-but-hurts-fellow-patients.html>.

Manufacturers of branded drugs have figured out a way to subvert this incentive, however—copay coupons. The idea is simple. The patient is given a coupon that covers \$55 of the branded copay, so that she then faces the same net cost for the branded product as for the \$10 generic drug. Subsidizing consumers to the tune of a \$55 copay can be highly profitable for the manufacturer: in the above example, the seller makes an additional sale at \$130 by diverting the consumer from a generic drug, at the cost of the \$55 copayment, for a profit of \$75.

The effects of copay coupons are large and negative, according to a recent study: “[C]oupons increase branded sales by 60+ percent, entirely by reducing the sales of bioequivalent generics.”¹²² Copay coupons do not simply divert customers from cheaper generic substitutes to branded alternatives, however. They also enable higher prices: the consumers’ “cost with the coupon holds the consumers’ prices fixed at a low level. That allows the manufacturer to raise the overall price without losing sales. This raises spending, too, but for the insurer.”¹²³ According to the best recent evidence, copay coupons cause several billion dollars in additional spending per year.¹²⁴

Copay coupons are just a particularly compelling example of drug companies’ exploitation of insurance to charge higher prices. As health care economist David Besanko and co-authors demonstrate in a recent working paper, the presence of insurance has enabled manufacturers of oral chemotherapy drugs to raise prices; and the higher prices are greater than many estimates of the additional value they create for consumers.¹²⁵

D. Life Insurance (and Murder)¹²⁶

A particularly grim form of third party moral hazard comes from the relationship between life insurance and murder. While murders motivated by the existence of life insurance are fortunately quite rare, they are by no means unheard of, and are not limited to Hollywood movies.¹²⁷ Indeed, some of the earliest objections to life insurance were based on the possibility

[coupon-helps-you-but-hurts-fellow-citizens.html](#). Frakt is reporting on the original work of health economist Leemore Dafny and co-authors. See, Leemore Dafny, Christopher Ody, and Matt Schmitt, *When Discounts Raise Costs: The Effect of Copay Coupons on Generic Utilization*, 9 *AMER. ECON. I. ECON. POLICY* 91 (2017).

¹²² Dafny, *supra* at 91.

¹²³ Frakt, *supra*.

¹²⁴ Dafny, *supra*.

¹²⁵ David Besanko, David Dranove, and Craig Garthwaite, *Insurance and the High Prices of Pharmaceuticals*, (Nat'l Bur. Of Econ. Res. Working Paper No. 22353, 2016).

¹²⁶ Thanks to Brian Galle for this suggestion.

¹²⁷ Cf, *Double Indemnity* (wife hires insurance salesman to kill her husband for the life insurance proceeds). *Death Benefit* (https://www.imdb.com/title/tt0118946/?ref_=ttfc_fc_tt, murder to collect life insurance). For a compilation of real life examples, see <https://www.jrcinsurancegroup.com/murder-for-life-insurance-scams/> (listing 21 stories of insurance-related murders in the US). See generally, Rachel Monroe, *The FBI of the National Park*

it created for beneficiaries to hasten the death of insureds so as to collect from insurers. Geoffrey Clark's cultural history of life insurance demonstrates compellingly that this was a widespread—if perhaps somewhat overblown—concern at the inception of life insurance in the early 18th century.¹²⁸

Fortunately, there are many forces that run counter to the monetary gains available from insurance-induced murder. For most people, murder is about as taboo an activity as there is. In addition, when A stands to realize significant pecuniary gains from B's demise, that fact alone will generally make A an obvious suspect should B turn up dead, which serves as an obvious deterrent to murder-for-insurance.¹²⁹ Finally, life insurance contracts are written with exclusions that disallow benefits if the beneficiary caused the death of the insured,¹³⁰ and in any case, all but one state has some version of a so-called “slayer statute” that prevents murderers from inheriting from the estate of the person they killed.¹³¹

How significant are insurance-motivated murders? One way to answer that question is to attempt a back-of-the-envelope assessment of the costs of life insurance murders relative to the benefits that such insurance provides. In turn, that requires us to know the number of such murders, the value attached to the lives lost, and the benefits created by life insurance policies. We tackle each of these issues in turn, noting in advance that the results are subject to huge uncertainties.

Service, https://www.outsideonline.com/2353856/national-park-service-investigative-services-branch?utm_medium=social&utm_source=email&utm_campaign=onsiteshare, for an account of a recent life insurance murderer.

¹²⁸ Geoffrey Clark, *BETTING ON LIVES* (1999), at 26 writes that “Continental jurists . . . objected to life insurance as an inducement to fraud and murder,” and demonstrates that such behavior was, if not common, at least not unheard of. *Id.* at 15. Life insurance was also widely used as a form of gambling, a mechanism that allowed the public to make wagers on the lives of famous persons. “Much insurance in the eighteenth century was indeed underwritten on purely speculative contingencies such as . . . the longevity of [well-known] individuals.” *Id.* at 3. Indeed, it is fear of both gambling and incentives for murder that are the origins of the venerable “insurable interest” doctrine, a fundamental precept of insurance law stating that insurance is unavailable unless the beneficiary has an insurable interest in (traditionally, some kind of financial loss resulting from) the thing being insured.

¹²⁹ “Committing a life insurance homicide rarely works because every homicide detective who is investigating the case is looking for a motive. Money is often a primary motive for murder so one of the first questions every homicide investigates [sic] is to find out about the life insurance policies on the deceased and to look closely at the beneficiaries to determine if they could be a suspect.” <https://www.jrcinsurancegroup.com/murder-for-life-insurance-scams/>, visted June 30, 2018.

¹³⁰ See Thomas Warlick, *Life Insurance – Effect of Homicide Exclusion in Double Indemnity Clause*, 37 N.C. L. REV. 92 (1958).

¹³¹ “Almost all states have laws, called ‘Slayer Rules,’ barring killers from inheriting from their victims.” Carla Spivack, *Killers Shouldn’t Inherit from Their Victims—or Should They?*, 48 GA. L. REV. 145, 145 (2013) (arguing that these laws are sometimes too broad and suggesting that some inter-familial murders are morally ambiguous, as when wives kill their abusive husbands). These statutes almost always prohibit life insurance beneficiaries from taking the proceeds of an insurance policy if they caused the death of the insured.

1. Number of Life-Insurance Motivated Murders

There were about 17,000 persons murdered in the US in 2016.¹³² Unfortunately, the available statistics do not break down murders by “motive” (nor is it even clear what such a breakdown would mean). The Federal Bureau of Investigation’s data on “Murder by Circumstances” appears to be the closest thing we have for the US, but it does not include any financial motives and concedes that the circumstances were unknown or unspecified in half of the murders on file.¹³³

A 2017 opinion piece in the Washington Post listed seven children who were killed for life insurance proceeds during years between 1999 and 2012, although it suggested that there were many other examples.¹³⁴ Probably the best assessment of the extent of insurance-related murders comes from a recent report by an industry-sponsored research group. It asserts that it “has logged more than 160 cases of murder for life insurance in recent years,”¹³⁵ with “recent years” possibly meaning 2006-2017. Taken at face value, that’s about about 15 cases per year, or roughly 0.1 percent of annual murders.¹³⁶ As a back-of-the-envelope baseline, that seems plausible.

2. Value of the Lives Lost

We then need to determine the value of a statistical life. This is obviously an extremely complex issue in its own right, but we can take the shortcut of relying on the valuation the US government uses in its own cost-benefit calculations—\$9.1 million.¹³⁷ That would imply about \$135 million in annual direct welfare losses due to life-insurance related murders.

¹³² <https://ucr.fbi.gov/crime-in-the-u-s/2016/crime-in-the-u-s-2016/tables/table-1>, visited June 29, 2018.

¹³³ https://ucr.fbi.gov/crime-in-the-u-s/2013/crime-in-the-u-s-2013/offenses-known-to-law-enforcement-expanded-homicide/expanded_homicide_data_table_12_murder_circumstances_2009-2013.xls. Australian data do break out murder by motivation, and list money/drugs as accounting for 22/201 homicides in 2003-2004. See, <https://aic.gov.au/publications/cfi/cfi110>.

¹³⁴ See, e.g., *Opinion: Too many children are killed for insurance money. Here's how states can stop it*, WASHINGTON POST, May 14, 2017.

¹³⁵ See http://www.insurancefraud.org/downloads/Coalition_life_disability_report_04-17.pdf.

¹³⁶ The anti-fraud report, *Id*, lists a number of other third party moral hazards in life insurance apart from murder. For example, insurance agents can create phantom policyholders and bill insurers for commissions on sales that never occurred. Or beneficiaries can fake the death of the insured to collect on the policy. Most of the amounts at stake here entail transfers between parties, rather than actual social losses. But such actions presumably increase auditing costs and, via higher premiums, generate some selection costs as well.

¹³⁷ <https://cms.dot.gov/sites/dot.gov/files/docs/2016%20Revised%20Value%20of%20a%20Statistical%20Life%20Guidance.pdf>

3. Benefits of Life Insurance?

Finally, we need to assess the costs of lives lost *relative* to the social benefits created by life insurance. While clearly important,¹³⁸ such benefits are extremely difficult to assess analytically, and we have found only a single study that attempts to estimate the welfare gains from life insurance as a whole.¹³⁹ Doing so requires some heroic assumptions about what motivates the purchase of life insurance as well as the extent of uncertainty about mortality and consumption patterns that life insurance can overcome, and institutional details about the structure of capital and life-insurance markets.¹⁴⁰ After making reasonable guesses about these factors, the authors find that “having access to a life insurance market that is priced actuarially-fairly yields a welfare gain of 0.2 percent of consumption” relative to living in a world with no life insurance.¹⁴¹ Since US personal consumption expenditures in 2017 were on the order of \$13 trillion,¹⁴² the direct welfare losses from insurance-related murders are obviously small relative to the value created by life insurance: specifically, direct murder-related losses constitute $(\$135 \text{ million} / (0.2\% \times \$13 \text{ trillion})) = 0.52 \text{ percent of the total gains from life insurance}$. Of course, indirect costs (beyond the lives lost) would increase this number.

The bottom line is that murder does not appear to cast a significant shadow on the market for life insurance. But that may not always have been the case,¹⁴³ and it is probably because of improved law enforcement and tighter contractual and statutory regulation that insurance-motivated murders are relatively rare.

¹³⁸ Kyle D. Logue, *The Current Life Insurance Crisis and How the Law Should Respond*, 32 CUMBERLAND L. REV. 1 (2001).

¹³⁹ See, Matthew S. Chambers, Don E. Schlagenhauf, and Eric R. Young, *Why Aren't More Families Buying Life Insurance?* (Boston College Center for Retirement Research Working Paper 2011-7, 2011), available at <http://crr.bc.edu/working-papers/why-arent-more-families-buying-life-insurance/>. The authors attempt to value the gains from survivors' smoother consumption patterns given the death of a breadwinner.

¹⁴⁰ The authors use their calibrated model to calculate “the lifetime expected welfare gains associated with a newborn person getting to live in [an] . . . economy with life insurance versus being forced to live in an economy without that market.” *Id.* at 21.

¹⁴¹ *Id.* at 22. This calculation ignores possible bequest motives for life insurance and is based solely on the use of insurance proceeds to smooth survivors' consumption over time by replacing the loss of income due to the insured's death. The authors go on to suggest that this estimate is probably too small; they also note that it conceals a great deal of heterogeneity across age and socio-demographic groups. *Id.*

On the other hand, the calculation expressly uses an actuarially-fair price for insurance as its baseline. In reality, life insurance is sold with a “load” (markup) of something like 25 percent that covers the costs of providing coverage beyond payouts to policyholders. *Id.* A higher load will reduce the amount of insurance purchased and hence lower the gains from insurance. See, e.g., Louis Eekhoudt, Christian Gollier, and Harris Schlesinger, *ECONOMIC AND FINANCIAL DECISIONS UNDER RISK* (2005) at 51. The authors do not provide an alternative welfare gain measure when insurance is sold with a load, however.

¹⁴² See <https://fred.stlouisfed.org/series/PCECA>.

¹⁴³ Clark, *supra*.

II. WELFARE IMPLICATIONS: A THEORETICAL INVESTIGATION

A. *The Costs of Third Party Moral Hazard*

In this section, we consider what happens to social welfare as a result of third party moral hazard. It is important to distinguish between three kinds of costs that such behavior may impose.

First, there are “primary” losses. Most economists would argue that payments made to kidnappers or fake accident victims do not themselves constitute *social* losses. Such payments merely transfer money between parties, without actually using up any resources in the process.¹⁴⁴ But kidnappings and other sources of third party moral hazard *do* generate real losses, including stress and hassle for kidnap victims and their families, the costs of negotiating ransoms, and so on. And even fake accidents can entail some actual harms to “victims” (for example, if the “victim” in the auto accident had actually sustained an injury in staging the accident, that would constitute a social loss attributable to insurance¹⁴⁵),

In addition, third party moral hazard generates “secondary” losses in the form of the resources used in *creating* fake losses (for example, the time and effort to stage them). These expenditures constitute true losses from society’s perspective. So too do additional expenses by insurers to audit for fraud or otherwise prevent, detect, or deter third parties from their rent-seeking behavior.

Finally, third party moral hazard may also generate another kind of loss, one that has the potential to be larger than the primary and secondary losses discussed previously. These losses occur through the creation or worsening of adverse selection problems. Notice to begin that even if payments by insurers to “victims” are not true *social* costs, they are certainly real from the perspective of the insurer paying the claim. As such, they represent monetary losses that the insurer has to cover, and in a competitive equilibrium, they will be recovered in the form of higher prices for insurance. Higher prices, in turn, mean that insurance will be less attractive; in

¹⁴⁴ Gordon Tullock, *The Welfare Costs of Tariffs, Monopolies, and Theft*, 5 WESTERN ECON. J. 224 (1967). In Tullock’s famous example, if a thief steals your stereo, that’s not a loss from society’s perspective because the total number of stereos in the world hasn’t fallen—you have one fewer, but someone else has one more. (If the thief *drops* your stereo on the way out of your house, however, that is a social loss, as is the thief’s costs of breaking in and your costs of deterring him.) There is considerable disagreement with this view on moral/philosophical grounds. See, e.g., Steven E. Rhoads, *The Economist’s View of the World* (1985).

¹⁴⁵ In some cases, “victims” may suffer real harms, even if their injuries were not real. For example, in the silicosis litigation discussed below, most of those diagnosed with the disease were not in fact suffering from it: they were “screened” by fake diagnostic firms (working in conjunction with a few law firms) who told them they had silicosis without any medical evidence. Some of the plaintiffs subsequently filed malpractice claims against their lawyers, alleging that they “suffered injuries, both financially and mentally, in that they lived their lives [wrongly] believing they had been diagnosed with the incurable disease of silicosis” while their lawyers “reaped the profits of any false diagnosis.” Sabrina Canfield, *Giant Malpractice Suit in Silicosis Litigation*, <https://www.courthousenews.com/giant-malpractice-suit-in-silicosis-litigation/>, quoting from complaint by 153 plaintiffs against their lawyers, John O’Quinn and Associates (June 5, 2013).

particular, they will make insurance less attractive to the least risky (marginal) customers. That's because the marginal customer (the one just willing to buy insurance at the going rate) is typically less risky than the average customer among all those buying. If third party moral hazard raises insurer costs and premiums, it can put additional selection pressure on the insurance market. This will often (though not invariably) worsen welfare: some people who value insurance by more than it costs to provide it to them will be priced out of the market.¹⁴⁶

Without being more specific about the mechanisms of third party moral hazard, it is difficult to be precise about how significant any of these costs are. But it is clear that changes in costs could lead to follow-on losses due to selection effects.

B. Third Party Moral Hazard Losses vs Gains from Insurance

1. Framing the Question

Are there conditions under which third party moral hazard costs could actually overwhelm the risk-spreading benefits of insurance? If so, then there would be a compelling case on efficiency grounds to ban insurance altogether, as a few countries have actually done in the limited context of insurance against kidnappings.¹⁴⁷

Even if third party moral hazard costs are less than the gains from insurance, it would still be useful to have a sense of their relative magnitude: what fraction of the benefits of

¹⁴⁶ This point is well-known, but for a particularly clear and accessible graphic exposition, see Liran Einav and Amy Finkelstein, *Selection in Insurance Markets: Theory and Empirics in Pictures*, 25 J. ECON PERSP. 115 (2011). The authors are careful to note that under the right conditions, the presence of adverse selection need not necessarily reduce welfare. That is, there are instances where, even though price is above marginal cost, equilibrium entails everyone being served, with no deadweight loss from selection. As they point out, this will be most likely to happen if (a) people are homogeneous with respect to riskiness; and/or (b) people are very risk averse, so consumer risk premia (willingness to pay for insurance) are high and the demand curve lies well above average cost.

Recent theoretical developments also point to a link in the opposite direction: the existence of adverse selection can lead to additional fraud. In many models of insurance market equilibrium, insurers respond to the possibility of adverse selection by rationing buyers of low-cost insurance while allowing unlimited purchase of high-cost insurance. This induces low-risk insureds to buy the cheaper (but rationed) product while leading the high-risk insureds to pay more for full coverage. But if low-risk insureds are rationed, this will "raise[] their probability of fraud and their success rate when committing it. As a result, adverse selection increases fraud in the economy." M. Martin Boyer & Richard Peter, *Insurance Fraud in Rothschild-Stiglitz World*, J. RISK & INS. (forthcoming January 2018). The authors do not discuss any link between their results and third party moral hazard.

¹⁴⁷ See discussion *supra*. Even if the presence of third party moral hazard renders insurance welfare-reducing, it does not necessarily follow that it would be optimal to ban insurance. Consider kidnap insurance, for example, and suppose that one could show that the presence of insurance leads to a sufficiently large increase in kidnappings that the costs outweigh the risk-spreading benefits. Nevertheless, it might still make sense to allow kidnap insurance and instead devote greater public funds to reducing the incidence of kidnappings (e.g., by hiring more police officers).

insurance could plausibly be eroded by third party moral hazard? In this section, we offer a back-of-the-envelope answer to these questions.¹⁴⁸ We conclude that while third party moral hazard will rarely be large enough to overwhelm the risk-spreading gains from insurance altogether, its effects could easily be large enough, relative to the benefits of insurance, to be worth taking seriously. That is especially true if people are not very risk-averse or third party moral hazard losses are small relative to the ordinary losses that insurance covers.

We proceed by calculating the benefits of insurance to a rational (expected utility-maximizing), risk-averse consumer facing a given risk of loss, using a standard insurance demand model. Then, we compare these benefits to (guesses about) the losses imposed by third party moral hazard. This exercise requires that we provide ranges of estimates for six factors: (1) The typical consumer's risk-aversion; (2) The consumer's pre-loss wealth; (3) The size of the loss the consumer faces; (4) The probability that the loss occurs; (5) The "load" or markup over the actuarially fair premium that insurers charge (before any effects of third party moral hazard); and (6) The size of third party moral hazard losses.

We make the standard assumption that the insurance industry is competitive, which means that it will charge the zero-profit premium. We lay out and motivate our additional assumptions below, but we note for now that our model will allow us to vary these assumptions to assess the sensitivity of our bottom line results.

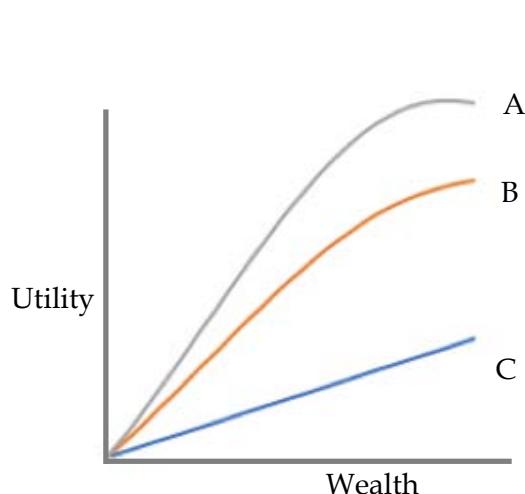


Figure 1: Degrees of Risk Aversion

a. Risk Aversion

In the classical theory of insurance demand, risk aversion arises because individuals have a decreasing marginal utility of wealth. (That is, an additional dollar is worth more if it arrives when you have \$0 than if you already have \$100 or \$1 million.) This simply means that total utility increases with each additional dollar of wealth, but at slower and slower rate as wealth rises.

¹⁴⁸ For a pioneering and vastly more elegant exercise along similar lines, see Robert E. Lucas Jr., *Macroeconomic Priorities*, 93 AMER. ECON. REV. 1 (2003) (arguing that given plausible values of risk aversion, business cycle risks are not costly to the typical individual, and therefore counter-cyclical macroeconomic policy (stabilization) has limited benefits). For a critical analysis, see Gadi Barlevy, *The Cost of Business Cycles and the Benefits of Stabilization*, available at <https://www.chicagofed.org/publications/economic-perspectives/2005/1qtr2005-part3-barlevy>, visited August 12, 2018.

Crucially, risk aversion is not an either/or phenomenon: people can be risk-averse to varying degrees, or even not at all. Figure 1 shows three hypothetical utility functions for three individuals exhibiting different degrees of risk aversion. As drawn, A is more risk-averse than B, while C is actually risk-neutral.¹⁴⁹ The *degree* of risk aversion determines an individual's gain from having insurance. A risk-neutral individual is indifferent to risk, would never pay anything to avoid it, and hence has no demand for insurance at all.¹⁵⁰ The more risk-averse one is—as measured by how fast or slowly one's utility “flattens out” as wealth increases—the more one is willing to pay to avoid risk. Put slightly differently, greater risk aversion means that the net benefits of insurance to the consumer (after paying the required premium) are larger. (Somewhat confusingly, the “risk premium” is defined in the literature as the net gain realized by the consumer who purchases at the actuarially fair price.)

Risk aversion can be quantified, and is often summarized by a single number, the so-called Arrow/Pratt coefficient. (Intuitively, this captures how quickly the slope of the utility function, $\Delta U / \Delta W$, flattens out as wealth increases.) There are many subtleties here, but we will use the coefficient of relative risk aversion as our measure, and will assume it is constant, as is common in many insurance and finance applications.¹⁵¹

A vast array of studies attempt to estimate exactly how risk averse people actually are—that is, to determine what value of the coefficient of relative risk aversion is consistent with observed investment decisions or behavior in laboratory experiments. Unfortunately, there are so many conceptual problems with measuring risk aversion that it is almost impossible to reconcile the various approaches. However, one recent and thoughtful survey concludes that:

[t]heoretical discussion, comparative static results, and the [empirical] evidence provided by [several recent studies] . . . indicates that relative risk aversion for wealth . . . is likely larger than but near one and increasing slightly or constant.¹⁵²

¹⁴⁹ Conceivably, some rational people might also be “risk-loving,” meaning that they would prefer to have uncertain wealth than to have its expected value with certainty. (In that case, their utility functions would be convex (bowl-shaped) instead of concave.)

Following Kahneman and Tversky, behavioral economists model behavior as exhibiting “loss aversion,” which typically entails a concave utility function with respect to *gains* from a reference wealth level and a convex function with respect to losses. These complexities can offer important insights, but they are not necessary for our purposes.

¹⁵⁰ Someone with wealth W is risk neutral if they are indifferent between: i. a 10% chance of wealth 0 and a 90% chance of wealth W (no loss); and ii. wealth $0.9W$ with certainty.

¹⁵¹ The Arrow/Pratt coefficient of relative risk aversion is defined $-U''(W)/U'(W)$, where $U'(W)$ is the first derivative of the utility function ($\partial U / \partial W$) and U'' is the second derivative ($\partial U' / \partial W^2$).

¹⁵² Donald J. Meyer and Jack Meyer, *Relative Risk Aversion: What do we Know?* 31 J. RISK UNCERTAIN. 243, 245 (2005).

We start with a conservative view that the coefficient of relative risk aversion is about 2, but explore several alternatives below.¹⁵³

b. Wealth

Arbitrarily, we assume a consumer who has initial wealth of \$1,000,000.

c. Size of Loss

We initially suppose that the consumer faces a loss of one-half of her wealth (\$500,000); alternatives are explored below.

d. Probability of Loss

We start with a 10 percent risk of loss, but again, we explore alternative values for this parameter.

e. Load Factor

The load factor is the markup over the expected loss (the actuarially fair premium) that an insurer demands to cover its expenses in providing the insurance. For example, suppose someone faces a known loss of \$100 that occurs with a probability of 10 percent. Then the expected loss—and the actuarially fair premium—is $0.1 \times \$100 = \10 . But if the load factor is 20 percent, then the quoted premium will be $\$10 + (0.2 \times \$10) = \$12$, with the additional \$2 representing the insurer's costs for marketing, claims-processing, and other expenses.¹⁵⁴ We assume a 20 percent load factor.

f. Third Party Moral Hazard Costs

We lack any good empirical estimates of the size of third party moral hazard costs.¹⁵⁵ It seems reasonable, however, to suppose that these costs are proportional to "ordinary" or traditional losses. We thus begin by assuming that third party moral hazard constitutes 10 percent of expected losses. As with our other assumptions, we can vary the size of these costs in assessing their impact.

¹⁵³ The Constant Relative Risk Aversion (CRRA) form of the utility function is particularly simple to work with. It implies that in models with two assets, one risky and one risk-free, the fraction of an individual's wealth invested in the risky asset does not depend on her wealth. A utility function that exhibits constant relative risk aversion, with coefficient γ , takes the form:

$$U(W) = W^{1-\gamma}/(1-\gamma) \text{ if } \gamma \neq 1 \text{ and}$$

$$U(W) = \ln(W) \text{ if } \gamma = 1.$$

¹⁵⁴ We could subtract returns on investments that provide another source of revenue apart from premiums, but that just complicates the problem while providing no additional insights.

¹⁵⁵ Indeed, a major reason for writing this Article is to make the case that such information is needed.

2. Assessing the Gains from Insurance

To review: we start with a consumer with wealth of \$1 million, facing a potential loss of \$500,000 that occurs with a 10 percent probability. The policyholder's utility function exhibits constant relative risk aversion, with a coefficient of 2. Finally, insurance is sold with a load factor of 20%. Together, these imply that the actuarially-fair premium for this risk—the premium that just covers expected payouts—is \$50,000: a 10% chance of a \$500,000 loss.

We are now in a position to calculate the consumer's risk premium, which again is defined as the consumer's net welfare gain from surrendering this loss (by buying insurance) at the actuarially fair price. (The details of this calculation are summarized in the Appendix; we will not rehearse them here.) Given our assumptions, the risk premium works out to be \$40,909. In other words, the consumer facing the loss described above should be willing to pay up to \$90,909 (the fair premium of \$50,000 plus a risk-supplement of \$40,909) to avoid a 10 percent chance of losing half her wealth (\$500,000). Put slightly differently, if the insurer were to charge the actuarially-fair premium, the consumer captures a \$40,909 gain from being able to buy (full) insurance relative to no insurance.

In a competitive environment, however, the consumer must cover not only the insurer's expected losses, but also the costs of running the insurance company (marketing, claims-handling, etc.) in the form of the load factor. The required premium for covering this risk is thus not \$50,000—the expected loss—but \$60,000 ($\$50,000 + 20\%$). Having to buy at a higher price reduces the consumer's gain from insurance from \$40,909 to \$30,909.

We are now in a position to compare the consumer's net gain from insurance with the possible costs imposed by third party moral hazard.

3. Third Party Moral Hazard and the Net Welfare Gains from Insurance

From the consumer's perspective, third party moral hazard is really just an additional component of the load factor. Since the insurer must break-even in a competitive industry, it will pass on third party moral hazard costs to the consumer. And if insurance is too expensive relative to the benefits it provides, consumers will choose not to buy it.

Of course, we lack good data on the extent of third party moral hazard costs. But suppose we start with a crude estimate of 10 percent, meaning that third party moral hazard generates \$5,000 in additional losses for each \$50,000 in legitimate (expected) losses. That would in turn mean that the insurer's break-even premium would rise from \$60,000 ($\$50,000$ in losses + \$10,000 in load) to \$65,000. The additional \$5,000 in third party moral hazard losses thus represents 16.2% ($\$5,000 / \$30,909$) of the consumer's gain from insurance.

Naturally, all these results are sensitive to the initial assumptions made about risk aversion and the size and probability of loss. If consumers are more risk averse, the gains from insurance are larger; the same is true if losses are larger or more likely to occur. Conversely, if third party moral hazard is larger, it will eat up a greater share of the gains from

insurance. How do all these factors interact? Panels A and B of Table 1 provide a sensitivity analysis that reveals how third party moral hazard losses stack up against the gains from insurance as we change the underlying assumptions about risk aversion, probability of loss, and the size of third party moral hazard effects.

One obvious conclusion is that the effects of third party moral hazard on consumer surplus vary dramatically depending on how risk averse consumers are. All risk-averse consumers will want full insurance *if it is provided at the actuarially-fair premium*. But when consumers are close to risk-neutral (as in Column 1), insurance with a 20 percent load factor is actually a losing proposition even without any third party moral hazard. The gains from risk-transfer are so small that they are outweighed by the additional premium needed to compensate the insurer for its costs of operation. (Consumers will therefore not want to purchase any insurance in this scenario.) More generally, in both panels A and B, greater risk aversion (moving to the right across the columns) means consumers place a higher value on insurance. In turn, any given amount of third party moral hazard will constitute a smaller fraction of consumer gains.

Since we model third party moral hazard as increasing in proportion to expected losses, a higher *probability* of loss increases third party moral hazard costs and erodes some or all of the consumer's gains from risk spreading as we move down the rows of Table 1.A. The bottom line is that if consumers are very risk averse, even a high probability of loss does not generate significant third party moral hazard costs relative to the gains from insurance. But for reasonable values of risk aversion, third party moral hazard is certainly large enough to be worth taking seriously.

Panel B examines what happens to third party moral hazard costs as we increase the "inflation factor" (ratio of third party moral hazard to ordinary expected costs), holding variables other than risk aversion constant. The pattern is quite similar to that in Panel A: higher risk-aversion (as we move across columns to the right) again diminishes third party moral hazard effects relative to consumer surplus from insurance. But unless consumers are hardly risk averse at all, low levels of third party moral hazard (e.g., in the first two rows) are insignificant relative to consumer surplus.

Table 1.A: Third Party Moral Hazard Losses as a Share of Consumer Surplus,
as a Function of Risk Aversion and Probability of Loss
Coefficient of Relative Risk Aversion

Probability of Loss	0.5	1	2	3	4	5
10%	-219%	72%	16%	8%	5%	3%
20%	-159%	106%	21%	11%	8%	6%
30%	-125%	194%	30%	16%	11%	9%
50%	-88%	-352%	75%	37%	27%	22%

Assumptions:

1. Load Factor = 20%
2. Loss as % of Wealth = 50%
3. 3PMH as % of Expected Loss = 10%

Assumptions:

1. Load Factor = 20%
2. Loss as % of Wealth = 50%
3. Probability of Loss = 10%

III. POLICY IMPLICATIONS

Note: In both Panels A and B, negative numbers indicate cases where insurance is optimally not purchased because the load factor is too large, even without any third party moral hazard. Values greater than 100% indicate that third party moral hazard costs are larger than the consumer's gain from insurance.

In this Part, we explore the efficacy and efficiency of private sector attempts to limit third party moral hazard. Our bottom line is simple: controlling the loss-causing behavior of

Table 1.B: Third Party Moral Hazard Losses as a Share of
Consumer Surplus, as a Function of Risk Aversion and Third Party Moral Hazard Inflation Factor
Coefficient of Relative Risk Aversion

3PMH as % Expected	0.5	1	2	3	4	5
Loss:	0.5	1	2	3	4	5
1%	-21.9%	7.2%	1.6%	0.8%	0.5%	0.3%
5%	-109.7%	35.9%	8.1%	4.0%	2.4%	1.7%
10%	-219.4%	71.8%	16.2%	7.9%	4.9%	3.5%
20%	-438.7%	143.5%	32.4%	15.9%	9.8%	6.9%

third parties is difficult for insurers, and even when it is possible, it will often have counterproductive effects on welfare. We conclude that extra-contractual measures are needed to efficiently limit third party moral hazard, and we suggest several possibilities in this regard.

A. *Self-Help by Insurers*

Insurers have developed a well-known arsenal of weapons to combat first party moral hazard. A short list¹⁵⁶ would include:

- i. Deductibles, copays and other forms of co-insurance: Contractual provisions that leave some portion of a loss with the policyholder, thereby limiting his or her incentives to engage in risky behavior.
- ii. Exclusions: provisions in the insurance contract that disallow coverage for pre-specified behavior that is unusually risky or difficult to monitor.
- iii. Underwriting: Screening of insureds to assess risk, set prices, and determine if the policyholder has "good character" (an unwillingness to take risks) before they are allowed to purchase insurance.¹⁵⁷

¹⁵⁶ See Tom Baker, *On The Genealogy of Moral Hazard*, 35 TEX. L. REV. 237, 282 (1996).

¹⁵⁷ See Baker and Griffith *supra* note 63, at 489.

- iv. Experience Rating: Basing future premiums on prior claims filed, so that the policyholder is motivated to control risk today to avoid higher premiums going forward.
- v. Loss Control: Expert advice to policyholders about how to avoid risk, packaged as part of the insurance contract.¹⁵⁸

vi. Ex post claims auditing: examining claims to detect fraudulent behavior, and refusing to pay those in which evidence of such behavior is found.¹⁵⁹

viii. Monitoring: tracking the behavior of insureds, so that riskier conduct results in higher premiums or the loss of coverage.¹⁶⁰

There is a broad consensus among scholars of insurance law and insurance economics that, in combination, these measures are reasonably effective at controlling (first party) moral hazard in most contexts.¹⁶¹ Why, then, shouldn't insurers have good reason to control third party moral hazard in an efficient (cost-effective) manner?

The answer is that many of these devices are inoperative, or work differently, in the context of third party moral hazard, and efforts to control deliberate loss-causing behavior have different welfare consequences from attempts to control ordinary moral hazard.

The first four techniques (deductibles, exclusions, underwriting and experience rating) govern risk via the contract between the insurer and the policyholder; they are of little use in constraining the loss-causing behavior of third parties. True, an insured with a substantial deductible will have *some* reason to prevent loss-causing by third parties, since she or he bears some share of any loss that occurs. But this effect is likely fairly small, and in some cases, may even *worsen* the problem of third party moral hazard.¹⁶² Experience rating also offers an insured a modest reason to limit losses caused by third parties, since even if she is covered for a current loss, her future premiums will increase as a consequence of any claim she makes.¹⁶³ Underwriting is presumptively irrelevant to third party moral hazard, since the insured's

¹⁵⁸ See Shaheen A. Talesh, *Legal Intermediaries: How Insurance Companies Construct the Meaning of Compliance with Antidiscrimination Laws*, 37 Law & Policy 209 (2015) (discussing instances where employment practice liability insurers offer clients information hotline services)

¹⁵⁹ See Marie-Cécile Fagart and Pierre Picard, *Optimal Insurance Under Random Auditing*, The Geneva Papers on Risk and Insurance Theory 29 (The Geneva Association, 1999); Sharon Tennyson and Pau Salas-Forn, *Claims Auditing in Automobile Insurance: Fraud Detection and Deterrence Objectives*, 69 J. RISK & INS. 289 (2002).

¹⁶⁰ E.g., Progressive Insurance's Snapshot device, which is installed in an insured's car (or on an app on their phone) and adjusts premiums based on the driver's behavior (maximum speed, acceleration, braking patterns, etc.). See

<https://www.progressive.com/auto/discounts/snapshot/>. Note that this may be as much about adverse selection as moral hazard, although its description tends to suggest that the moral hazard aspects are primary.

¹⁶¹ Baker *supra* note 154; Ben Shahar and Logue *supra* note 15; Shavell *supra* note 59; see also Baker & Siegelman, *Behavioral Economics and Insurance Law: The Importance of Equilibrium Analysis*, in THE OXFORD HANDBOOK OF BEHAVIORAL ECONOMICS AND THE LAW 488 (Teichman and Zamir eds., 2014).

¹⁶² See Süzle & Wambach, *supra* n. 108 for a theoretical model supporting such results in the context of medical care.

¹⁶³ Presumably, these forces were what motivated the driver in the fake car accident video, *supra* n. 1, to install a dashboard camera in her car.

character or riskiness is not really at issue in the occurrence of the loss. Similarly, exclusions are of limited value in deterring third party behavior, since the conduct that is excluded is that of the insured, while the loss is caused by someone else.

That leaves the last three techniques – loss control, ex post auditing, and monitoring – as the primary methods available to insurers to limit third party moral hazard. These may be effective in some contexts, but they pose significant problems for public policy.

1. Loss Control

In some settings, insurers can and do provide instruction to policyholders on how to avoid or mitigate risks posed by third parties. Loss control services are frequently bundled with the provision of kidnap insurance, for example.¹⁶⁴ In that context, loss control consists of advice on security – how big a wall to build around one's house, which areas of the city to avoid, and so on.

Third-party generated losses are more difficult to control than those caused by first parties, however. Third parties are *active* loss-causers, who have agency and strategic capability. Steam boilers do not take countermeasures to increase their ability to explode if they are inspected more frequently. Kidnappers and pirates, however, *do* respond to efforts to limit their effectiveness.¹⁶⁵ Moreover, some third party activities are simply not amenable to loss control directed at first parties. Drug copays, excessive MRI use, and insurance-related murders cannot easily be mitigated by training policyholders about how to avoid such losses.¹⁶⁶ Third party loss controls also work poorly or not at all in some types of liability insurance, especially where insureds and injurers are strangers, as in the Friends of the Friendless auto fraud gang or the silicosis over-diagnosis discussed earlier.¹⁶⁷

Some kinds of liability insurance – for example, Directors and Officers policies – might seem to be amenable to loss control activities directed against third parties. Insurers could provide companies with advice on implementing best practices for corporate governance so as to reduce the risk of being sued for a violation of corporate law, for example. But in practice, D&O insurers do not seem to make widespread use of loss control, for reasons that are not well understood.¹⁶⁸

¹⁶⁴ Shortland *supra* note 7.

¹⁶⁵ De Groot et al. *supra* note 9.

¹⁶⁶ Indeed, even when consumers are coached to use cheaper MRIs, they don't do so. See Jeff Lagasse, *Why do Patients Often Opt for Pricier MRI Tests? They Don't Shop Around*, HEALTHCARE FINANCE NEWS (Aug. 1, 2018) <https://www.healthcarefinancenews.com/news/why-do-patients-often-opt-pricier-mri-tests-they-dont-shop-around>.

¹⁶⁷ Is this true? What about installing cameras to prevent auto fraud? Why aren't they required? What fraction of drivers in UK have dashcams??

¹⁶⁸ Baker & Griffith *supra* note 63. *But see* discussion TAN 180 of use of the duty to defend/right to control to deter litigation in this context.

By contrast, Employment Practices Liability (EPL) insurers widely tout their loss-control services as part of their marketing efforts.¹⁶⁹ But even when loss control can be used effectively, limiting third party-caused losses has different welfare implications than preventing first party losses. There are at least two important differences between first- and third-party loss control to consider in the liability insurance context.

a. Harm Reduction vs Liability Reduction

The first is the distinction between loss prevention and *harm* prevention. In first party moral hazard, preventing losses is straightforward: the insurer tells the policyholder how to inspect his boiler to minimize the chance it will explode, or how to store chemicals to prevent a leak. But there are actually two kinds of “prevention” at work in the context of liability insurance: forestalling legal liability (conditional on harm) and preventing the occurrence of the harm itself. For example, many EPL insurers advertise their ability to help employers “bullet-proof” their employment policies by establishing proper training procedures, refining language in employee handbooks, and so on.¹⁷⁰ Following best practices for Human Resources management may indeed reduce the likelihood that a plaintiff is successful in a lawsuit against the insured. But preventing liability ex post is not the same as preventing the actual occurrence of losses ex ante, and most employer training probably has little or no effect on actual behavior—that is, on losses resulting from employee misconduct, such as harassment.¹⁷¹ Rather, loss control in the context of EPL insurance has become a kind of “bureaucratic vaccine against lawsuits for harassment.”¹⁷²

Loss controls that actually reduce the *incidence of harms* ex ante are different from those that simply forestall *liability* ex post. Cost-effective harm reduction benefits both the insured and potential victims (who are not injured), with clear positive welfare effects. Forestalling liability (without reducing harm) will presumably deter some third parties from loss-causing behavior: fake victims are less likely to file lawsuits if such suits are less likely to succeed. But if insureds can defeat liability without actually reducing harms, then even victims with legitimate claims are less likely to succeed. Reducing the success rate of plaintiffs (without reducing the incidence of harms) deters deliberate loss-causers, but at a cost of leaving *all* losses where they fall, even for innocent victims who did nothing to cause their loss.

¹⁶⁹ Talesh *supra* note 156, at 239.

¹⁷⁰ *Id.*

¹⁷¹ Joanna L. Grossman, *The Culture of Compliance: The Final Triumph of Form Over Substance in Sexual Harassment Law*, 26 HARV. WOMEN'S L. J. 3, 3 concludes that “[s]exual harassment policies and procedures do not seem to have any reliably negative effect on the incidence of sexual harassment.” Other scholars who have looked at the issue agree. See, e.g., Frank Dobbin and Alexandra Kalev, *Why Diversity Programs Fail*, HARV. BUS. REV., July-Aug. 2016, at 52 (discussing how policies fall victim to over-control and poor structure).

¹⁷² Frank Dobbin and Erin Kelly, *How to Stop Harassment: The Professional Construction of Legal Compliance in Organizations*, 112 AM. J. SOC. 1203, 1234 (2007) (emphasis added).

b. Diversion

A second problem with efforts to control losses from third parties is that they may lead to the strategic diversion of harm-causing activity. For example, suppose a kidnap insurer advises a policyholder to build a larger wall around his house to deter kidnappers. If the wall does its job, it will reduce the likelihood of third party moral hazard directed at the policyholder (and his insurer). But it will likely do so, in large measure, by deflecting potential kidnappers towards some other victim, with little or no gain to society as a whole. Indeed, shifting the incidence of misdeeds from one party to another will typically produce net social losses—building the wall uses up resources without reducing kidnapping at all, and may even create negative externalities in the form of too many walls.¹⁷³

A further wrinkle is that precautions that are *unobservable* to potential wrong-doers may yield social gains. For example, if kidnappers can't tell who has an alarm system and who doesn't, then when A installs a new alarm, she raises the average level of precautions among *all* victims, and hence lowers the expected return to kidnapping generally.¹⁷⁴

Our bottom line is that loss controls can sometimes reduce some kinds of moral hazard caused by third parties. Unlike efforts to limit first-party losses, however, loss control activities directed against third parties are unlikely to be socially optimal: insurers will choose the wrong scope and type of loss controls because they do not take sufficient account of the externalities that third-party loss controls engender.

2. Monitoring

Another approach to limiting ordinary moral hazard is through monitoring of the insured's conduct. (In a way, this is really just *ex ante* auditing.) The conventional wisdom is that if an insured's actions can be perfectly observed, it becomes possible to write a contract that specifies the degree of riskiness the insured is able to undertake, essentially eliminating the problem of moral hazard altogether.¹⁷⁵ Of course, third parties are by definition not in privity with the insurer; and they can be difficult to monitor, since they operate "in the wild" and their identities are not known to the insurer in advance of any loss they cause. But first-party monitoring can be used to deter some kinds of third-party moral hazard, since loss-causers must usually interact with insureds in some fashion in order to create a compensable injury.

Consider the case of automobile dashboard cameras, for example. As noted in the introduction, dashboard cameras might seem to have a dramatic impact on the possibilities for third party moral hazard in automobile insurance. By providing a video record of exactly who

¹⁷³ For a contrarian view, see Robert A. Mikos, '*Eggshell* Victims, Private Precautions, and the Societal Benefits of Shifting Crime, 105 MICH. L. REV. 307 (2006) (arguing that there are social gains to shifting crime from more- to less-sensitive victims).

¹⁷⁴ See Ian Ayres and Steven D. Levitt, *Measuring Positive Externalities from Unobservable Victim Precaution: An Empirical Analysis of Lojack*, 108 Q. J. ECON. 43 (1998).

¹⁷⁵ Technically, behavior must be both observable and objectively verifiable to third parties. Cf, Holmstrom. Hart.

caused a given loss, cameras can greatly reduce the ability of loss-causers to profit from such activity. It is therefore surprising that the technology has not been widely adopted in the US (although it is increasingly used in other countries).¹⁷⁶

American auto insurers do not promote dash cams,¹⁷⁷ as their British counterparts assuredly do.¹⁷⁸ One explanation is that the volume of fraudulent third-party-caused losses in US auto liability insurance may not be high enough to justify subsidizing this kind of monitoring.¹⁷⁹ To see why, consider a simple back-of-the-envelope calculation laid out in Table 2. There were roughly 216 million insured drivers in the US (as of 2015), and they paid about \$116 billion in annual liability insurance premiums (\$539 per insured).¹⁸⁰ In total, US auto insurers paid out roughly \$60 billion in liability insurance claims (bodily injury plus property) in that year, including loss adjustment expenses, the direct costs of paying these claims. Suppose, generously, that 10 percent of these were induced by third party moral hazard—so-called “crash for cash” schemes. That would mean roughly \$6 billion in unjustified costs paid by insurers each year due to third party moral hazard.¹⁸¹

Table 2: Summary Statistics on US Auto Liability Insurance (2015)¹⁸²

¹⁷⁶ British insurer Aviva recently reported, based on a nationally representative sample of 2,438 UK motorists, that an estimated 27 percent of UK motorists (roughly 11 million) use dash cams; in the same survey, nearly half of all drivers (47%) said that dash cams make accountability for accidents more clear-cut. <https://www.aviva.com/newsroom/news-releases/2018/07/dash-for-dash-cam/>. Dash cams are very widely used in Russia. See, <https://www.wired.com/2013/02/russian-dash-cams/>.

¹⁷⁷ According to a pro-dash cam marketing site: “Currently, there are no auto insurance companies in the US that give drivers a discount for installing a dashcam in their vehicle.” <https://dashcameras.net/dashcam-insurance-discount/>.

¹⁷⁸ For a survey of UK insurers’ dash cam discounts, which range from 10-30%, see <https://www.driving.co.uk/car-clinic/best-car-insurance-discounts-dash-cam-users/>.

¹⁷⁹ Of course, that raises the question of why UK insurers do think it is worthwhile to subsidize cameras?

On Americans’ lack of interest in dashboard cameras, see <https://www.sfchronicle.com/business/article/Why-Americans-don-t-use-dash-cams-6067560.php>, which offers a pastiche of cultural and psychological explanations, unsupported by any hard data, for the low takeup rate for dash cams.

¹⁸⁰ Paid claims for bodily injury liability (including adjustment costs) averaged just under \$17,000 per claim; but less than one percent of insureds filed such a claim. Claims for property losses imposed on others were about four times more likely, but were only about one-fifth as expensive. An upper bound rough estimate (assuming independence of bodily injury and property claims) suggests that insurers’ expected annual payouts per liability insurance customer were about \$282 per year (just over 50 percent of premiums collected).

¹⁸¹ Some of the loss adjustment costs are, of course, fixed, and couldn’t be reduced even if all third party moral hazard were eliminated, but we ignore that factor.

¹⁸² Data taken or calculated from the Insurance Information Institute’s website. See, <https://www.iii.org/fact-statistic/facts-statistics-auto-insurance>.

Notes: [†]Includes loss-adjustment costs. [‡]Author's estimate, assumes BI and property claims are independent.

Equipping every insured driver with a \$400 dash camera would cost on the order of \$80-90 billion dollars.¹⁸³ Supposing that doing so would completely eliminate the possibility of a crash for cash scheme, what could we save by installing a camera on every car? Given a useful life of ten years, putting a camera in every car would save roughly \$50 billion in present value (at a discount rate of 5 percent). So the discounted net benefit is roughly negative \$30 to \$40 billion: dash cams do not seem to pass the cost-benefit test.¹⁸⁴

On the other hand, perhaps it is not necessary to install dash cameras on every car in order to significantly reduce third party moral hazard. Cameras deter “crash for cash” perpetrators in two ways. First, they lower the expected returns from staging an accident, since the insurer will not pay when the camera documents a staged incident. Moreover, given

¹⁸³ An impressionistic survey on Amazon.com revealed a variety of dashboard cameras for sale, with prices ranging from less than \$100 to over \$700. The cheaper models apparently had problems recording at night, and tracked only a front view. \$400 seemed like a reasonable guess as to the cost of an adequate camera.

It is actually cars, rather than drivers, that need to be equipped with cameras, and some cars have more than one driver. So instead of 215 million drivers, we could use 199 million insured vehicles (7.5 percent less).

¹⁸⁴ This figure could be adjusted in various ways. For example, dash cams might also reduce first party moral hazard in collision and comprehensive coverage, although that seems unlikely. Tennyson suggests most first party fraud, especially in the automobile bodily injury context, occurs by overstating the severity of injuries, not in inventing claims out of whole cloth. So it is difficult to see how a dashboard camera could provide useful information in determining whether the insured's post-crash neck pain was real or not.

existing penalties for insurance fraud, cameras can significantly raise the likelihood of being apprehended. So it might be possible to greatly reduce third party moral hazard without installing a camera in every car. If it were possible to eliminate all crash-for-cash incidents by installing a dash camera in only one-half of all cars, the social surplus from doing so would be positive. Of course if the cost of a camera declines substantially (or if we overstated it to begin with), that could reverse the negative cost benefit analysis as well.

4. Pre-Committing to (first party) Moral Hazard?

Most liability insurance policies give the insurer the duty of covering both the underlying loss (the duty to indemnify) and any legal defense mounted by the insured (the duty to defend).¹⁸⁵ The logic for doing so is clear: if policyholders paid for their own defense, but insurers covered any damages for which the policyholder was ultimately found liable, the insured would want to spend almost nothing on defending the claim, since all damages would be paid by the insurer.

Usually, therefore, the duty to defend is bundled with the right to control the defense: the party that has to pay (here, the insurer) gets to choose how to organize the defense and how much to spend. Again, this makes sense. If the policyholder decides what kind of defense to mount and how much to spend, but the defense costs are borne by the insurer, the insured would want to mount a very expensive defense: why spare any costs when they are being borne by someone else? This is the familiar story of (first party) moral hazard.

In Directors and Officers Liability Insurance, however, the duty to defend and the right to control the defense are often separated.¹⁸⁶ Technically, this is known as a duty to reimburse, rather than a duty to defend, and given the logic above, its existence seems puzzling. Why would insurers cede control over the defense and agree to let policyholders freely spend the insurance company's money to defend against liability?

One explanation is that insurers with reimbursement duties do retain some control over defense costs through co-control language, which allows them to forestall some moral hazard problems.¹⁸⁷ But here, first party moral hazard may be a feature, not a bug, because it can be used to control third party moral hazard.

¹⁸⁵ For an excellent analytic and institutional overview, see Charles Silver, *The Basic Economics of the Duty to Defend*, in D. Schwarcz and P. Siegelman, eds., RESEARCH HANDBOOK IN THE LAW & ECONOMICS OF INSURANCE 438 (2015). We owe the key insight in this section to a conversation with Steve Thel.

¹⁸⁶ Silver, *Id.*; Nick Nierengarten, *The Duty to Advance or Reimburse Defense Costs v. the Duty to Defend*, AMERICAN BAR ASSOCIATION, December 12, 2012, available at http://apps.americanbar.org/litigation/committees/insurance/articles/novdec2012-reimburse-defense-costs.html#_ednref5.

¹⁸⁷ *Id.*

Suppose insureds face the possibility of many strike suits that are brought purely for their settlement value. (That is, the suits would lose if they were litigated, but the costs of mounting a defense are high relative to the costs of filing a complaint.) By pre-paying for an insurance policy that covers generous spending to defend against litigation, insureds are able to make a credible commitment that they will not settle if sued.¹⁸⁸ In turn, that should mean that plaintiffs will be deterred from filing strike suits in the first instance, knowing that policyholders will want to freely spend their insurer's money to hire the best lawyers and use them extensively in defending against any claims. In equilibrium, therefore, defense reimbursement will not actually be necessary, and premiums can be quite low as a result.

At least in some kinds of liability insurance, the possibility of first party moral hazard can be used as a kind of *ju-jitsu* to forestall third party moral hazard.

B. Governmental Assistance

Insurers are constrained by the scope of contract law in their ability cope with third party moral hazard. These constraints, we believe, create an important role for governmental actors, whose powers are much broader. We note at the outset that we fully agree with Dan Davies, who writes that "fraud is an equilibrium quantity":¹⁸⁹ even if it were possible, it would not be sensible to eliminate all of it.

1. Law Enforcement

Not all third party moral hazard—at least as we have defined it—is illegal.¹⁹⁰ But law enforcement actions by the state provide an important tool in the portfolio of methods for combating the phenomenon. Kidnapping and murder, for example, are obviously criminal offenses. And insurance-motivated kidnapping or murder are best treated as crimes, rather than as an attempt to extract money from insurers.

¹⁸⁸ A public promise by the policyholder to vigorously litigate all claims would not be credible if the insured had to spend its own money: when the time came to do so, the insured would find it in its interests to settle and avoid having to incur the defense costs. But having already sunk the costs of insurance coverage, the policyholder will want to spend lavishly on defense if it is sued.

Leaving the duty to pay for defense costs with the insurer runs into the same credible commitment problem: now the insurer (rather than the policyholder) would want to settle cheaply rather than litigate. It is only by separating the decision about how much to spend on litigation from the duty to pay for these costs that the parties can sustain a credible commitment not to settle, and thereby deter litigation.

¹⁸⁹ Dan Davies, *Lying for Money* (2018) at 16. As Davies explains, "one of the key decisions that an economy has to make is how much effort to spend on checking [for illegal activities]. This choice will determine the amount of fraud. And since checking costs money and trust is really productive, the optimal level of fraud is unlikely to be zero." *Id.* at 16-17.

¹⁹⁰ For example, consider drug copay schemes discussed earlier, which are legal in most (but not all) US states.

Various forms of fraud are also criminal offenses, and schemes of the type engineered by Michael Cohen (*supra* n. 20) are also handled by licensure and criminal law regimes,¹⁹¹ in addition to whatever policing insurers choose to do. We are far from the first to recognize that enhanced criminal enforcement is likely to be the best way of deterring large-scale third party moral hazard.¹⁹² And the state has a potential role to play by barring certain kinds of third party moral hazard, as Massachusetts and a few other states have chosen to do in the case of drug copay coupons.

An important risk with state intervention is that it may crowd-out or substitute for private enforcement efforts. On the other hand, state actors do not have the same kind of financial relationship to third party moral hazard as insurers do. Insurers obviously understand that the more claims they turn down, the higher their short run profits. So at the margin, insurers have a built-in incentive to deny claims of ambiguous validity.¹⁹³ Shifting some of the job of nabbing third party loss-causers to the state therefore eases pressure on insurers to deny claims, and benefits innocent claimants.

2. Technology Standardization, Reporting, etc.

An obvious role for collective action in combating third party moral hazard is to regulate the collection and transmission of data that can be used to detect it. For example, US Life Insurers have apparently established a system of record-keeping for “police departments to check if a homicide victim is named on a life insurance policy. Several perpetrators have been arrested and convicted thanks to this system.”¹⁹⁴ In 2018, English police and dash-camera manufacturers collaborated on a national dash cam safety portal, which

allows owners of any brand of dash cam to submit footage quickly and easily to the relevant authorities. The website presents you with a map of England and Wales divided

¹⁹¹ As described *supra* TAN 92, for example, the U.S. Attorney for the Southern District of New York indicted Mikhail Zemlyansky and others on a large-scale conspiracy to defraud automobile insurers. See SI 12 Cr. 171 (JPO) (no date), available at <https://www.justice.gov/sites/default/files/usao-sdny/legacy/2015/03/25/Zemlyansky%2C%20Mikhail%20et%20al.%20-%20Indictment.pdf>.

¹⁹² “[T]he easiest and the most direct way to [reduce no-fault auto insurance fraud] is better law enforcement efforts.” Testimony of Nicholas I. Timko (President, New York State Trial Lawyers Association), NEW YORK STATE SENATE, STANDING COMMITTEE ON INSURANCE, NO-FAULT AUTO INSURANCE FRAUD, April 26, 2011 at 205.

¹⁹³ Indeed, there is an elaborate set of rules, accompanied by significant penalties, governing what constitutes “bad faith denial of an insurance claim.” For a recent empirical analysis, see Daniel P. Asmat & Sharon Tennyson, *Does the Threat of Insurer Liability for “Bad Faith” Affect Insurance Settlements?* 81 J. Risk & Ins. 1 (2014).

¹⁹⁴ Research Reports, Coalition Against Insurance Fraud, Fraud in Life and Disability Insurance 7 (April 2017) *supra* n. 117 at 7.

by county. If you click on the county where the incident you wish to report occurred it will redirect you to a dedicated report page for the region.¹⁹⁵

Equally important, it will be necessary for governments to regulate the permissible uses of information derived from monitoring so as to protect privacy concerns. The social value of dash cameras as deterrents to third party moral hazard appears from our crude calculations to be smaller than one might think. If they expose users to significant privacy losses, they are even less attractive. Society thus faces the challenge of designing rules for the use of dash camera data that take appropriate account of drivers' legitimate privacy interests.

3. Cartelization or Regulation of Industry Structure

As Anya Shortland persuasively demonstrated in the case of kidnap insurance,¹⁹⁶ some types of third party moral hazard can be handled through the structural design ("governance") of insurance market contracting. If insurance is provided by a small group ("club") of sellers, with close social ties and the ability and incentives to share information, it may be possible to overcome certain kinds of dynamic coordination problems that would occur when individual victims make separate payments out of their own pockets.

4. Legal Measures/Interventions

In addition to the possibilities just discussed, we propose the recognition of a new private cause of action termed "malicious interference in an insurance relationship." The proposed cause of action would allow insurance companies to seek monetary damages from third parties who tortiously brought about the insured-against risk or event. If our proposal is implemented, insurance companies would be able to sue third parties who *via* their intentional actions cause insureds to make or over-state claims against their insurance companies. Importantly, the cause of action we propose would only avail against third parties who act maliciously; good faith, negligent or even intentional behavior would not suffice. The reason is two-fold: first, we do not want to over-deter third parties from engaging in private enforcement, and second, we do not want to give insurance companies *carte blanche* to sue third parties.

It is important not to create a broad cause of action to ensure that insurance companies do not take advantage and deter socially valuable claiming: some of the behavioral changes wrought by insurance should not be deterred. Consider D&O insurance: Such insurance apparently increases the motivation of shareholders to bring derivative suits against corporate managers and directors who breached their duty of care

¹⁹⁵ See, <https://www.which.co.uk/reviews/dash-cams/article/dash-cams-and-the-law-what-you-need-to-know>.

¹⁹⁶ *Supra*, Part I.A.3.c.

to the corporation.¹⁹⁷ Without it, these suits would be unlikely to be brought, especially if the corporation became insolvent. And in principle, there is nothing wrong with such derivative suits; in many cases, they may be socially desirable. Any increase in litigation caused by the presence of insurance is only a problem if the additional lawsuits are not meritorious.

Similarly, in the case of automobile insurance, it is reasonable to surmise that when everyone is insured, some drivers may not be as diligent as they would otherwise be. The knowledge that potential victims will not be left to their own devices may lead certain drivers to let their guard down and drive less carefully than they otherwise would. Nonetheless, we do not think that a driver who got into an accident and injured another person should be subject to a suit by the victim's insurer.

It should also be borne in mind that there is a risk in giving too much power to an insurance company to pursue legal action against individuals. Insurance companies are strong litigants who enjoy significant economies of scale and scope in litigation. As a result, they can overpower weaker third parties and force them into settlements even when the suit has little or no merit.¹⁹⁸ Equipping insurance companies with a very broad cause of action could lead insurers to abuse that power by bringing meritless suits against individuals, knowing full well that they would not be able to bear the cost of prolonged litigation.

At this point, one may wonder why existing causes of action in contract and tort wouldn't suffice to address third party moral hazard. Contract already plays a significant role in governing the relationship of insurance companies and insureds. By using contractual stipulations, insurance companies can force insureds to engage in certain behaviors and avoid others. They can introduce exclusions and other targeted forms of risk-sharing into the insurance contract to ameliorate the risk of standard moral hazard; and they can require insureds to take precautions to minimize the occurrence of the relevant risk. Failure to comply with the terms of the insurance policy may result in loss of coverage.

While contracts may be effective in regulating the behavior of insureds, however, they are largely ineffective, indeed irrelevant, in affecting the behavior of third parties, who, by definition, have no privity of contract with insurers.

Another cause of action that may seem helpful to insurers is the tort of intentional interference with contractual relations. After all, the third parties whose actions we

¹⁹⁷ Intentional breaches are typically excluded.

¹⁹⁸ On this general point, see Parchomovsky & Stein, *Relational Contingency of Rights*, 98 VA. L. REV. 1313 (2012). There is a significant literature in insurance law addressing such power imbalances in the relationship between insurers and insureds, and this tension is the justification for much of the regulation of insurance, both administratively and judicially. See, e.g., Daniel Schwarcz and Peter Siegelman, *Law & Economics of Insurance*, Ch. 19 in Franco Parisi, ed. *The Oxford Handbook of Law and Economics: Volume 2: Private and Commercial Law* (2017) at 486, who write that "[m]uch state insurance regulation consists of consumer protection rules . . . grounded in two potential failures in insurance markets," policyholders' limited information and their behavioral biases.

describe in this Article clearly interfere in the contractual relationship between insurers and insureds, and they are fully aware of that contract. Upon closer examination, however, it is apparent that the underlying problem addressed by tortious interference with contract is very different from ours. Intentional interference with contractual relations targets cases in which a third party causes a contractual party to breach an existing contract.¹⁹⁹ The cause of action allows the party harmed by the breach to sue the interfering party for the losses she suffered from that breach. But the interferences we are dealing with are not intended to bring about a contract breach; on the contrary, they proceed on the assumption that insurers will honor the contract they have with insureds and pay them for their losses. Thus, a key requisite for tortious interference liability is unlikely to be present in cases of third party moral hazard.

The tort of insurance fraud also appears to be relevant to the case at hand. Yet liability for insurance fraud does not constitute an effective antidote to third party moral hazard. The doctrine of insurance fraud plays a pivotal role in the relationship between insurance companies and insureds. It allows insurance companies to seek remedies against insureds who file false insurance claims, demanding that insurers pay for losses resulting from acts or omissions not covered by the policy. It is the filing of fraudulent demands to pay that triggers insurance fraud.

Typically, not to say exclusively, suits for insurance fraud are brought against insureds. For third parties to commit insurance fraud, they must be the ones who demand payment from an insurance company. However, in many of the cases we discussed earlier, no such demand is made by third parties. The claims are brought by insureds, following an interaction they have had with a third party, but the real culprit—the third party who occasioned the loss—does not request money from an insurer.

Another obstacle that stands in the way of tort suits is that the actors who eye the insurance money and try to capture it do not owe a duty of care to insurers. As one court stated, "[a] man is entitled to be as negligent as he pleases towards the whole world if he owes no duty to them."²⁰⁰ In the absence of a duty of care, insurers cannot even sue the aforementioned parties in negligence. Even if one adopts a universal view the duty of care according to which even complete strangers must not negligently injure one another, it will not necessarily help insurance companies. In the instances we discuss in this Article, the injury or loss, when there is one, is inflicted upon the insured party, not the insurance company. The problem is even more acute in the context of unnecessary medical treatments. Here, it is difficult to argue that a referring physician injured a patient by

¹⁹⁹ RESTatement (SECOND) OF TORTS § 766. Intentional Interference With Performance Of Contract By Third Person.

One who intentionally and improperly interferes with the performance of a contract between another and a third person by inducing or otherwise causing the third person not to perform the contract, is subject to liability to the other for the pecuniary loss resulting to the other from the failure of the third person to perform the contract.

²⁰⁰ *Le Lievre v. Gould*, (1893) 1 Q.B. 491, 49.

referring her to an expensive diagnostic examination or legal treatment. True, the choice made by the physician was inefficient and wasteful; an equally effective yet cheaper option should have been chosen instead. Nonetheless, it would be a stretch to argue that the referring physician harmed the patient. (Indeed, some over-referral and excessive testing should be understood as beneficial to patients, even if it is socially wasteful.) Hence, negligence is ill-suited to address the challenge of third party moral hazard.

The upshot of our analysis is that existing causes of action do not provide an adequate response to the risk of third party moral hazard and therefore the enactment of a new cause of action for “malicious interference with an insurance relationship” is warranted. We believe that the limitations we suggested would ensure that parties who elicited payment by an insurance company in good faith would not be subject to lawsuits even when they were fully aware of, and even intended, the results of their actions as long as they did not do so maliciously.

CONCLUSION

In this Article, we shed light on an unintended and under-studied effect of insurance arrangements, which we term “third party moral hazard.” The phrase refers to the influence of insurance on the proclivity of third parties to extract payments from insureds. Third party moral hazard is ubiquitous. Furthermore, it arises in a myriad of insurance contexts. In certain instances, such as kidnap insurance, the presence of insurance can induce extreme antisocial behavior in the form of kidnaps. In others, such as automobile insurances, it can motivate third parties to feign injuries and file spurious claims against insureds. In other instances, still, such as medical insurance, it may elicit referrals of patients to unnecessary tests and treatments.

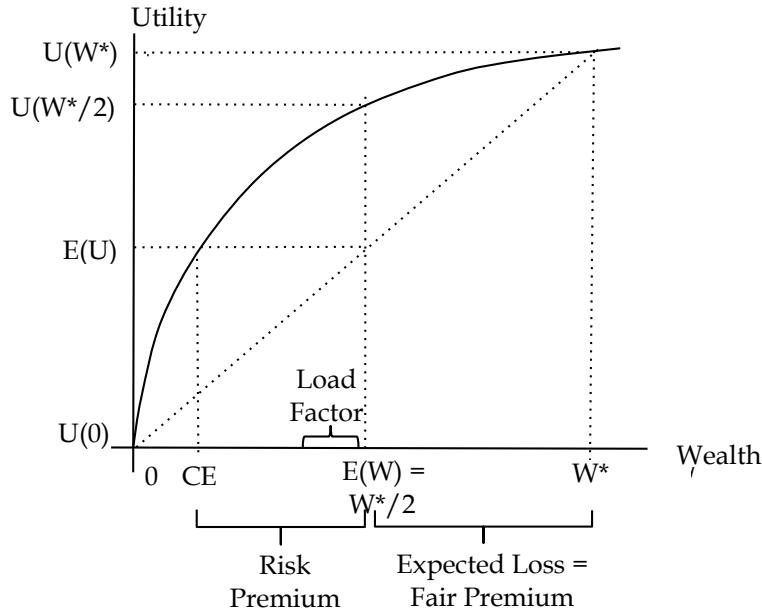
We have also established that the aggregate social cost of third-party moral hazard is considerable. Although, given the current state of knowledge, it is impossible to approximate the aggregate social cost of third party moral hazard with any degree of precision, it is not unrealistic to surmise that it makes certain kinds of insurance socially undesirable. Indeed, to combat extreme cases of third party moral hazard, countries like Italy, Colombia, and Venezuela have issued outright bans on insurance against kidnapping. And while we stop well short of advocating a prophylactic ban on insurance in the presence of third party moral hazard, we do argue that this is a serious problem that deserves more attention.

Unlike standard first party moral hazard that can be largely addressed contractually, third party moral hazard does not lend itself to contractual solutions. Insurers have no contractual interface with the third party loss-creator, and the individuals whose actions it will influence cannot be identified in advance. Hence, third party moral hazard presents a formidable challenge to insurance companies and policymakers. Yet, as we demonstrated, third party moral hazard can be significantly ameliorated via a combination of self-help measures, monitoring mechanisms and legal intervention. To this end, we called for the recognition of a new private cause of action: “malicious interference with an insurance relationship.” The new

cause of action would allow insurance companies and insureds to seek recompense from third parties who act in bad faith to appropriate insurance payments undeservedly.

Our goal in this Article was to draw attention to what we consider an important aspect of the ever-increasing world of insurance that has received only scant and sporadic scholarly attention, if at all—the effect of the presence of insurance on the behavior of the *uninsured*. We hope that our analysis will inspire others to investigate this issue further, both theoretically and empirically. The phenomenon of third-party moral hazard is a fertile ground for scholarly investigations. Gaining better purchase on third party moral hazard would enable us to engage in a more accurate assessment of the virtues and vices of insurance and devise better policy responses to cases of insurance abuse.

APPENDIX: GRAPHICAL EXPOSITION OF THE GAINS FROM INSURANCE



Insurance generates gains for a risk averse consumer because it removes risk, and risk is costly. The figure above makes this intuition more precise. The consumer has a concave (risk averse) utility function, $U(W)$: it has the property that as wealth increases, the gains from an additional (marginal) dollar of wealth get smaller, so the slope of the function flattens out.

Suppose the consumer starts with Wealth W^* , and faces a 50% chance of losing all of it and a 50% chance of losing nothing. The consumer's expected or average wealth, is $E(W)$, defined as $\frac{1}{2} \times 0 + \frac{1}{2} \times W^* = W^*/2$. (That means that in this example, the consumer's expected loss is also $W^*/2$, which is thus also the actuarially fair premium that an insurer would charge, absent any other costs of running the insurance company.)

While the uninsured consumer's *expected* or average wealth is $W^*/2$, this reflects two extreme possibilities: half the time she loses nothing, while the other half the time, she loses everything. So the consumer's average or expected *utility*, $E(U)$, is the weighted average of the utility she gets when she loses nothing (shown in the figure as $U(W^*)$) and when she loses everything ($U(0)$), with each utility level weighted by its probability of occurrence, here $\frac{1}{2}$. That is, Expected Utility is

$$\Pr(\text{No Loss}) \times \text{Utility if No Loss} + \Pr(\text{Loss}) \times \text{Utility if Loss} = \frac{1}{2} \times U(0) + \frac{1}{2} \times U(W^*) = E(U) \text{ in the Figure.}$$

Now ask the following question: What level of wealth, if held with certainty, would provide the same level of utility as does the "gamble" represented by an (uninsured) consumer who faces a 50% chance of losing nothing and a 50% chance of losing W^* ? To find this value, simply "reverse" the utility function to find the level of *wealth* that is associated with $E(U)$. In the figure, that wealth level is designated CE , for Certainty Equivalent. A consumer would be indifferent between holding with CE for sure, or a gamble that loses nothing half the time and

her entire wealth (W) the other half the time. (Of course, this is much less than the consumer's expected *wealth* when she faces this gamble—and the reason is that the consumer dislikes risk.)

Suppose that the consumer can choose between no insurance at all and full insurance at the fair premium of $W^*/2$. If she starts with wealth W^* and buys no insurance, her expected utility will be $E(U)$, given that her wealth is risky. To achieve an equivalent level of utility *without* any risk, she would only need a wealth level of CE . But fortunately for her, she can purchase full insurance for only $(W^* - W^*/2) = W^*/2$. The difference between $W^*/2$ and CE is thus the consumer's gain from having full insurance at its actuarially fair value. This is the risk premium.

Finally, consider the possibility that the consumer cannot buy full insurance at the fair premium because there are costs to running an insurance company that must be covered out of its premium income. The "Load Factor" depicted in the figure represents the markup over the fair premium. That is, the consumer must pay the fair premium plus the load factor. Of course, the presence of a load factor reduces the consumer's gain from insurance, and does so dollar for dollar. For example, if the fair premium is 500, the Certainty Equivalent is 300, and the load factor is 20% (of the premium), then the consumer's gain from insurance is only $(500 - 300 - 0.2 \times 500) = 100$. If the load factor were high enough (say, 50% of the fair premium), then it would swamp the consumer's gain from insurance altogether, and buying insurance would then not be in the consumer's interest.

Of course, all of this analysis depends implicitly on the magnitude of the consumer's aversion to risk. If the consumer is almost risk neutral, the Certainty Equivalent is not very different from expected wealth, and the gains from insurance (the risk premium) are correspondingly small. If she dislikes risk intensely, then the gains from insurance are much larger.