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Outsourcing Regulation: How Insurance Reduces Moral Hazard

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OUTSOURCING REGULATION:
HOW INSURANCE REDUCES MORAL HAZARD

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This article explores the potential value of insurance as a substitute for government regulation of safety. Successful regulation of behavior requires information in setting standards, licensing conduct, verifying outcomes, and assessing remedies. In some areas, the private insurance sector has technological advantages in collecting and administering the information relevant to setting standards, and could outperform the government in creating incentives for optimal behavior. The paper explores several areas in which regulation and other government-oriented forms of control are replaced by private insurance schemes. The role of the law diminishes to the administration of simple rules of absolute liability or of no liability, and affected parties turn to insurers for both risk coverage and safety instructions. The paper illustrates the existing role of regulation-through-insurance in various areas of risky activity, and then explores its potential application in additional, yet unutilized, areas: (1) consumer protection; (2) food safety; and (3) financial statements.

• University of Chicago and University of Michigan, respectively. Helpful comments were provided by Kenneth Abraham, Ronen Avraham, Saul Levmore Daniel Schwarz and workshop participants at Chicago and George Washington University.

Introduction

Legal regulation of behavior requires information. Someone—a regulator or a court—has to inspect the conduct and determine the legal consequences attached to it. Acquiring the information about the conduct, setting benchmarks by which the conduct is measured, and establishing the correct scale of payoffs can be costly and requires expertise and motivation. Thus, economic theories of rule-making are often based on the relative information advantages that different regulatory bodies have and how this information can be harnessed to enhance incentives and thus improve welfare.[1]

There are plenty of reasons to worry that government regulators will make mistakes. Their incentives may be lacking: they are not disciplined by market forces and only imperfectly by career concerns or by the political process. Moreover, they commonly lack the most advanced tools for information acquisition, aggregation, and prediction. Courts, for example, do not search for information independently and receive only what parties present to them through the litigation process, which is costly and, as a result, often bypassed by crude settlements. They are also ill-equipped to recognize the distribution of characteristics from which any given case is sampled. Government agencies too have limited resources to monitor or anticipate patterns in the behavior of sophisticated industries, often inspecting only a small sample of the regulated conduct. They may be plagued by internal principal-agent problems and they are often outpaced and outsmarted by the regulated parties. This raises the question: who can perform regulation of behavior better than the government?

This article develops the claim that in a variety of areas private insurance companies can, and already do, replace or augment the standard-setting and safety-monitoring currently performed by government, and they do so in ways that increase overall social welfare. Insurance is often thought of as an institution intended only for ex post indemnification, working to reduce the costs of risky activities through risk-pooling and risk-shifting. But insurance also performs other important functions: risk reduction and risk management.[2] Insurance schemes give incentives to actors to reduce risks, for example by using deducti-

1. See, e.g., Steven Shavell, The Optimal Structure of Law Enforcement, 36 Journal of Law and Economics, 255 (1993); Steven Shavell, A Model of the Optimal Use of Liability and Safety Regulation, 15 **RAND Journal of Economics**, Volume 271(1984); Louis Kaplow, The Optimal Characteristics of Rules, Encyclopedia of Law and Economics.
2. See generally, Moss, **When All Else Fails: Government as the Ultimate Risk Manager** (2002).

bles, exclusions, and experience-rating. And, importantly, insurance is a business that specializes in risk management—assembling large actuarial databases and using them both ex ante in underwriting (that is, classifying and pricing) the risks they insure and ex post in verifying claims by separating valid from frivolous ones.

To most readers, this claim, that insurance regulates safety, would seem remarkably counterintuitive. In much of the economic literature, insurance is seen as antithetical to risk reduction. Indeed, one of the cornerstones of the economics of information, received by many as axiomatic, is the moral hazard problem—the idea that a party who is insured against risk has suboptimal incentive to reduce it. Rivers of ink have been spilled in discussing the moral hazard problem of insurance and ways to mitigate it.[3] A fundamental insight of this literature is that insurance must be partially pared down to give people incentives to prevent harms.[4] Copays and deductible are thus ways to reduce insurance coverage in order to stimulate precaution. This article develops the opposite proposition—that insurance could reduce and solve, rather than create or exacerbate, the moral hazard and related incentive problems. When people create risk to others (or selves), insurance is the mechanism that converts the concern about the loss, or the vague threat of liability into a concrete set of harm-reducing measures. It supplies both the incentive and the know-how that actors often lack, to administer a more efficient level of accidents.

To appreciate the role of insurers in reducing moral hazard, the methodology this article pursues is comparative: we line up insurers versus government as regulators of safety. We show that insurers perform tasks that are comparable to public regulation of safety. Like a regulator setting standards of conduct and monitoring behavior, insurers have to assess the distribution of harm and determine the desirability of safety measures. And like courts adjudicating liability and awarding damages, insurers have to administer claims, verify harms, and determine the comparative causation of other parties. We argue that if insurance has better information and better incentives to set efficient standards of conduct and to enforce them, it would be beneficial as a matter of comparative institutional competence to "out-

3. See, generally, **Kenneth S. Abraham, Distributing Risk** (1986). We will add more cites here.
4. Steven Shavell, On Moral Hazard and Insurance, 93 **Quar. J. Econ.** 541, 541 (1979); Kenneth J. Arrow, Insurance, Risk and Resource Allocation, in Essays in the Theory of Risk-Bearing (Chicago: Markham, 1971); and Mark Pauly, The Economics of Moral Hazard: Comment, 58 Am. Econ. Rev. 531 (1968).

source" some regulatory functions that are ordinarily performed by government to the insurance sector.[5]

Regulation through insurance is a notion that has been widely recognized in the literature. Steven Shavell's work on the relation between insurance and tort liability demonstrated the potential for insurers to create optimal incentives for care.[6] Kenneth Abraham early on coined the term "surrogate regulation" when describing the (then) new regulatory role being placed on liability insurers to regulate toxic tort and environmental risks.[7] Tom Baker has written about the various regulatory methods that insurers use to reduce the risks that they insurer.[8] Some have discussed the incidental role of insurers as regulators.[9] In addition, scholars have made proposals to increase the role of particular forms of insurance as substitutes for specific types of agency-based government regulation.[10] And others have gone so far as to assert that, since private insurance companies share some of the objectives of the state (such as the reduction of risk and the sorting of people into patterns of conduct), private insurance can be understood as an implicit form of government.[11]

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5 We use the term "outsource" to mean the "farming out" of particular government functions to third parties. The term is often used refer to a firm's choice to contract out for some production rather than generate it in house. The same principle, however, can be applied to government functions.

6. Steven Shavell, On Liability and Insurance, 13 **Bell J. Econ.** 120, 121 (1982);Steven Shavell, On the Social Function and Regulation of Liability Insurance, 25 Geneva Papers on Risk and Insurance 166 (2000); Steven Shavell, Minimum asset requirements and compulsory liability insurance as solutions to the judgment-proof problem, 36 **RAND J. Econ.** 63 (2005).

7 Kenneth S. Abraham, Distributing Risk: Insurance, Legal Theory, and Public Policy 57 (1986).

8. Tom Baker & Thomas O. Farrish, Liability Insurance and the Regulation of Firearms, in Suing the Firearms Industry (T. Lytton, Ed, 2005).

9. Carol A. Heimer, Insurance more, Ensuring Less: The Costs and Benefits of Private Regulation through Insurance, in Embracing Risk: The Changing Culture of Insurance and Responsibility (2002) (Eds. Tom Baker & Jonathon Simon); Michelle Boardman, Known Unknowns: The Illusion of Terrorism Insurance, 93 **Georgetown L.J.** 783, 841 (2005).

10. See, e.g., Jon D. Hanson & Kyle D. Logue, The First-Party Insurance Externality: An Economic Justification for Enterprise Liability, 76 **Cornell L. Rev.** 129, 145–53 (1990) (arguing for shifting regulatory function of product safety to product liability insurers through adoption of strict products liability); Tom Baker, Bonded Import Safety Warranties, in Import Safety: Regulatory Governance in the Global Economy 215 (Cary Coglianese et al., Eds., 2009)(arguing for reliance on insurers to police food safety); Joshua Ronen, Post Enron Reform: Financial Statement Insurance, and GAAPP Revisited, 8 **Stan. J.L. Bus. & Fin.** 39 (2002) (arguing for use of insurance to regulate accuracy of financial statements); Omri Ben-Shahar, One Way Contracts: Consumer Protection without Law, 6 European Review of Contract Law 221, 240 (2010). For a detailed proposal to privatize the regulation of medical care, for many of the same reasons that we argue for outsourcing safety regulation to insurers, see Ronen Avraham, Private Regulation, 34 Harv. J. Law and Pub. Pol'y 543 (2011).

11. As one sociologist has put it, "[t]he insurance industry is a key institution in this society because it serves many of the same purposes as the state, and it is uniquely placed to foster governance based on local knowledge of risk." Richard V. Ericson et al., **Governance as Insurance** 12 (2002). See also Richard V. Ericson and Aaron Doyle, **Uncertain Business: Risk, Insurance and the Limits of Knowledge** (2004); Richard V. Er-

Our claim in this article builds on that prior work, but is different. We develop the claim that private insurance companies, utilizing the methodologies of actuarialism, private contracting, and ex post claim investigation, can and already do perform some rule making and adjudication, thereby replacing or complementing government regulation.[12] We further show that, where insurance is offered, it develops templates to regulate behavior in ways that are potentially more finely tuned and information-sensitive than some forms of government control. Moreover, even where government regulation is needed to overcome insurance market failures, the private insurance industry sometimes provides the necessary information and motivation to induce government regulators to act.

We contend that insurance can outperform the government in regulating conduct because of both superior information and competition. In many areas, insurance is fiercely competitive, especially with respect to price.[13] Insurers who can offer more coverage at lower premiums will attract customers, even when they require their customers to modify their conduct in a costly way. As long as the standards imposed by the insurers are efficient, customers should be lured by the discounts. Moreover, insurers' concern with affordability—increasing the pool of its clientele—is another force pushing for increased conduct regulation. Safe behavior by insureds reduces the cost of premiums and increases the size of the insurers' market.

Part I presents the basic conceptual claim of the paper: that much of the insurance business is regulatory in nature and could be viewed as a substitute for or complement to government safety regulation. We describe the various techniques insurers use to affect the safety choices of their insureds. This is not a claim that insurers are always better regulators than the government. Rather, by showing the various ways in which safety incentives are set

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icson, Aaron Doyle, and Dean Barry, **Insurance as Governance** (2003); and Tom Baker, Insurance in Sociological Research, 6 **Annu. Rev. Law Soc. Sci.** 9.1 (2010).

12. P. O'Malley, **Risk, Uncertainty and Government** (2006).

13. It is generally believed that insurance markets tend to be highly competitive with respect to price. See, e.g., Daniel Schwarcz, Regulating Consumer Demand in Insurance Markets, 3 **Erasmus L. Rev.** 23, 43 (2010), citing Scott Harrington, Effects of Prior Approval Rate Regulation in Auto Insurance, in J. David Cummins, Deregulating Property-Liability Insurance: Restoring Competition and Increasing Market Efficiency 248 (2002). It is also the case, however, that some insurance markets—in particular, the property-casualty insurance market—tends to be characterized by pricing cycles, which is not necessarily consistent with a perfectly competitive market. For a summary of the various explanations of the cyclical behavior in property-casualty insurance markets, see Kyle D. Logue, Toward a Tax-Based Explanation of the Liability Insurance Crisis 82 **Va. L. Rev.** 895 (1996).

by insurance contracts, we are able to identify ways in which the regulatory mission can be partially outsourced to private insurers.

Our second main claim, in part II, is descriptive. In almost every sector of the economy and in numerous ways, insurance does in fact regulate the behavior of the policyholders beyond what governments do. Driving safety, for example, is a well known example where insurers play a crucial role in directly regulating the safety choices of drivers, arguably more significant than the judicial system. Likewise, workplace safety is regulated at least as much by workers' compensation liability insurers as it is by OSHA regulators; and household safety is regulated as much, if not more, by homeowners insurance than it is by municipal regulators.

Tying together the conceptual and descriptive analysis, Part III then compares regulation-by-insurance to government regulation. It identifies patterns in the division of regulatory work between insurers and government regulators, highlighting the advantages that insurers have in creating menus of safety choices, in levying Pigouvian taxes, in disseminating bright line safety rules, and in monitoring conduct. This Part also highlights where we would expect private insurers to have a comparative advantage at regulating safety over government agencies and where the reverse might be true.

Finally, in part IV we turn to a normative perspective: insurance as regulation could be imported into areas in which the government has until now regulated alone, areas such as consumer protection, food and import safety regulation, and financial markets. In these areas, parties who cause or suffer harm would have to purchase insurance, and insurers would perform the task of monitoring behavior and requiring compliance with harm-reduction standards. Depending on the liability regime in place, either first-party or liability insurers would instruct people how to reduce harms, inspect their precautions, and price their behavior accordingly.

I. Regulatory Techniques in Insurance

The typical explanation for the existence of insurance involves the concepts of risk shifting and risk spreading. Risk-averse parties are willing to pay an insurance premium that is greater than the expected value of a given risk to transfer that risk to an insurance company. The insurer is willing to accept the risk, in exchange for the premium, in part be-

cause of its ability to exploit the Law of Large Numbers (that is, reducing the variance by increasing the size of the pool) and in part because the insurer has access to reinsurance markets and other risk-spreading techniques.[14]

Information is critical to the business of insurance. Insurers use information in performing their risk spreading and risk shifting functions. Information is necessary in pricing policies, in assembling insurance pools, and in verifying claims. Actuarialism—the basic methodology in insurance—is the skill of computing premium according to information about probabilities and harms.

But insurers use information in another, subtler and less familiar way: to induce efficient risk-reducing behavior. The same data that goes into the risk spreading and risk shifting computations is relevant and informative in determining how to reduce risk. Insurers, therefore, perform the additional information-heavy function of identifying and administering a system of safety improvements. We view this function as a form of privatized safety regulation. In this section we show the various ways in which insurers use information to incentivize individuals and firms to reduce safety risks.

Before we describe these methods, a preliminary question looms over the entire project: why are insurers interested in risk reduction? Doesn't more risk mean more business for insurers? While it is true that in a world without risk, insurers would be out of business, there are several reasons why insurers want to reduce the risk their policyholders face. The first is competition. In almost every insurance sector, insurers face competitive pressures to encourage their insureds to adopt good risk-management practices. For private insurers, unlike government regulators, a failure to induce efficient care on the part of the regulated parties can result in the loss of business. Insurance purchasers naturally gravitate to insurance policies that offer the most desirable combination of price and product (both quality and quantity). Therefore, insurers that can identify cheap risk-reduction measures can mandate them and attract more business by offering lower premiums that more than offset the cost of the mandated measures. In fact, even if a particular insurance market is not fully competitive, insurers would have an incentive to reduce the risk in order to make premiums

14 For a general discussion of the basic economics of risk and insurance, see Robert Cooter & Thomas Ulen, Law & Economics 49-55 (4th ed. 2004). For an accessible explanation of history and the concept the Law of Large Numbers, see Moss, supra note 2, at 27-30

more affordable and thus increase the size of the market served. If insurance prices are too high, insureds may either opt to self-insure, reducing insurers' pool of customers, or lobby government regulators to intervene aggressively and sometimes unwisely.[15] And this drive to maximize profits applies not only in competitive insurance markets but monopolistic markets as well.

A second reason why insurers regulate the risk-reduction behavior of their customers is that the insurers are the ones primarily benefitting from any risk reduction that occurs after the policy is issued. Once the insured has paid the premium, any covered loss that is suffered is borne by the insurer; therefore, any loss prevented or reduced by insured care-level investments is a net benefit to the insurer. It is true, of course, that insurers anticipate this effect and build it into their cost of coverage. But since such loss-reduction measures are often employed after the premium has been collected, the incentive for insurers to induce such measures and to minimize the loss that they will have to bear remains active, no matter what premium is charged.

Insurers not only have the incentive and competitive pressure to collect and administer information about risk; they also have the tools to do so. In the remainder of this Part, we describe the types of tools used by insurers to manage risk and incentivize risk reduction.[16] While much of the literature on insurance has focused on the moral hazard problem—the idea that insurance diminishes the incentive to reduce risk—it is also widely recognized that insurers have the means to limit and overcome moral hazard.[17] Insurers collect large amounts of information at both the front end and the back end of the insurance process, and they use that information to create incentives for risk reduction. In keeping with how scholars sometimes understand and categorize government regulation, we sort the regulato-

15. Consider the example of California Proposition 103, passed in 1988 in response to perceived high auto-insurance rates, and which, among other things, required every insurer to reduce its rates by at least 20 percent. It also forbade future rate increases, all unless the insurer could prove that the rate increase would leave it insolvent. The California Supreme Court later struck down portions of the law and, in effect, rewrote it to allow insurers to increase rates as necessary to provide a "fair and reasonable" return on their investment. See generally Stephen D. Sugarman, California's Insurance Regulation Revolution: The First Two Years of Proposition 103, 27 **San Diego L. Rev.** 683 (1990); Samuel H. Szewczyk & Raj Varma, The Effect of Proposition 103 on Insurers: Evidence from the Capital Market, 57 **J. Risk & Ins.** 671 (1990).

16. Tom Baker and Thomas Farrish developed a taxonomy of types of "regulation by insurance" similar to the one we set out in this Part. Baker and Farrish,supra note __. We provide more than a taxonomy, as we highlight the advantages that insurance has relative to government regulation.

17 See sources cited supra in note 4.

ry techniques available to insurers into ex ante and ex post interventions, depending on whether they are used before or after the harm occurs and the insurance claim is filed.

A. *Ex-Ante Regulation*

1. *Underwriting Risk: Differentiated Premiums*

At the front end of the insurance transaction, insurers' most basic tool for creating incentives to reduce risk is the setting of differentiated premiums. Insurers charge lower premiums to careful policyholders, those that can prove they take effective measures to reduce the insured risks. To determine an insured's idiosyncratic level of care, insurers have to collect information, which they do in various ways.

First, during the underwriting process insurers often require their insureds to fill out lengthy insurance applications that provide the insurer with detailed information about their idiosyncratic risk characteristics.[18] The credibility of the information acquired during the underwriting is bolstered by the use of various verification methods, such as health screening tests for life insurance applicants or site surveys for environmental liability insurance. The credibility of the underwriting process is also protected by stiff sanctions on insureds who misrepresent information.

Second, insurers cooperate to pool and analyze risk-related information through various industry-owned insurance rating bureaus.[19] These shared data and services, which are especially valuable to the smaller insurance companies that do not have large quantities of data of their own, make insurance markets more stable and more competitive.

Third, while insurers often use averages in underwriting and pricing policies (that is, estimates based on average accident costs for parties that are similar to the insured), they

18. Insurers gather detailed information on individual applicants only for "individually underwritten" insurance policies. When insurance is sold through "group policies," by contrast, there is no individualized application process. Rather, premiums are based on the expected payouts of the group. Individual screening could, however, be conducted when individuals join the group. Employers, for example, may decline to hire individuals who would burden the health insurance pool.

19. The Insurance Services Office, or ISO, is the primary rating bureau for the property/casualty insurance industry. http://www.iso.com/. Every year, insurers send ISO approximately two billion detailed records of insurance premiums collected and losses paid. ISO then applies sophisticated statistical methods to turn this raw data into information that can be used by insurers both to set accurate prices for their policies, but also to engage in loss mitigation, discussed below. Id. For a general description of the role of insurance rating bureaus, see Kenneth S. Abraham, Insurance Law and Regulation 34–36 (5th ed. 2010).

are also able to tailor and adjust their premiums according to each policyholder's risk characteristics and ongoing behavior as well as their loss experience over time. When underwriting individual policies (as opposed to group policies), insurers can refine their premiums through the practice of "feature rating," in which they examine the insured's individual risk characteristics and adjust premiums accordingly.[20] In addition, insurers gather information about the insured's loss experience during the course of the policy period and uses that information, in a process known as "experience rating," either to make retroactive pricing adjustments or to make prospective pricing adjustments for future policy period.[21] Through these insured-specific premium adjustments over time, the insured is made aware of precisely what safety investments—both care-level and activity-level—correlate with particular reductions in expected accident costs.[22] As a result of experience rating in auto insurance, for example, drivers are given incentives to avoid incidents that lead to premium hikes; and experience rating in workers' compensation insurance give employers a strong incentive to keep workplace accidents to a minimum.

Differentiated insurance premiums provide explicit prices to people's choices of care in much the same way as government-set Pigouvian taxes. [23] Thus, in contrast to traditional command-and-control rulemaking, where the agency is faced with a binary choice between whether to require a particular safety measure or not (which in turn requires the regulator to compare the benefit of that safety measure with its cost), insurers need only to price the expected risk reduction associated with the safety investment.[24] The insureds themselves

20. See Kenneth S. Abraham, Distributing Risk 71–72 (1986); Baker & Farrish, supra note __, at 295.

21. Id. For a summary of the experience-rating process in Workers' Compensation insurance markets, see The ABC's of Experience Rating, at https://www.ncci.com/documents/abc_Exp_Rating.pdf. Retroactive adjustments to premiums for the current policy period based on loss experience during the period, sometimes referred to as "retrospectively rated insurance, is generally limited to large commercial insureds. Prospective experience rating, of course, is used in all types of insurance, including insurance sold to consumers.

22. Insurance premiums can serve to inform consumers of the risks they face. This can be especially useful if consumers are systematically biased in their decisions regarding risks. One study found evidence that actuarially fair insurance premiums have de-biasing benefits with respect to individual consumer risk decisions. See Susan K. Laury & Melayne Morgan McInnes, The Impact of Insurance Prices on Decision Making Biases: An Experimental Analysis, 70 **J. Risk & Ins.** 219 (2003).

23 Under a Pigouvian tax the government imposes on externalizing actors a levy that approximates the harm caused by the actors' behavior, thus forcing them to take those costs into account in choosing their actions. Harvey Rosen, Public Finance. For further discussion of how differentiated insurance premiums replicate the Pigouvian tax, see *supra* Part III.A.

24 There are counter examples, where government regulation is not binary. One example would, of course, be a Pigouvian tax, such as tax on carbon emissions. Another from the environmental context would be so-called cap-and-trade regimes, under which a government limits the amount of admissions but then allows parties to

then make the choice whether that safety investment—given its costs and benefits—makes sense in their particular circumstances. Insureds for whom the cost of the safety measure is low relative to its benefits will "buy" it; others will not. This sorting avoids the inefficiency of mandated, across-the-board safety requirements.

Differentiated premiums also affect the level of the insured's activity.[25] Insureds for whom the activity provides high utility will purchase insurance and engage in the activity. Others, for whom the activity provides only a lower utility, will be priced out altogether. For example, the cost of auto insurance can filter drivers in and out of driving activity. By contrast, government regulation of drivers' licensing is limited to a binary yes/no determination that is done once, at the entry phase, and is revised only in extreme circumstances. Arguably, the insurers' continuous scale of prices provides a more efficient activity filter than government licensing.[26]

2. *Deductibles and Copayments*

The moral hazard literature early on has recognized the tradeoff between full insurance and optimal care-level incentives. The idea was simple: if the insured enjoyed only partial insurance coverage, some incentive to take care would be preserved. Thus, the literature demonstrated that the most efficient insurance contracts require some sharing of the loss

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trade in emissions credits. The effect is similar to a Pigouvian tax, because it promotes efficiency by allowing the regulated party to choose whether or how much to engage in the activity. http://www.epa.gov/captrade/

25. For example, auto insurers are developing schemes that make premiums a function of miles driven. The most recent version of this is the GPS-enhanced insurance pricing (sometimes call "pay as you drive" auto insurance) under which auto-insurers vary premiums based on not only numbers of miles driven but also where the drivers drive, the speed at which they drive, how fast they stop and start, and so on. A heavily advertised recent example of pay-as-you-drive auto insurance plan is the "Snapshot" program offered by Progressive. With Snapshot, the insured agrees to drive with the device for 30 days and then send the recorded information to the insurer, who then uses the information to determine what discount to give the insured if any. To encourage use, the insurer promises not to use the information to raise the insured's premiums. See, e.g., http://www.progressive.com/auto/snapshot-how-it-works.aspx (video explaining how Snapshot works).

26. The government also regulates driving care levels, of course, through the enforcement of traffic safety laws. Traffic fines, however, do little to regulate activity levels. They do get incorporated into insurance pricing, as insurers adjust premiums based not mere on accident experience but the driving record more generally. Thus, this aspect of auto-safety regulation can be seen as an example of complementary interaction between government safety regulation and insurance as regulation.

between the insurer and the insured.[27] And insurers do in fact commonly share losses with insureds in various ways, including through deductibles and copayments.[28]

With respect to some types of care-level investments, deductibles and copayments are not as efficient as premium differentials in creating optimal insured incentives. Deductibles and copayments give the insured only a weakened incentive to take care because the insured enjoys only part of the social benefit of making the investment. Premium discounts, on the other hand, as noted, can internalize to the insured the full social benefit of any care-level investments. However, premium differentiation places a heavier informational burden on insurer, of observing the levels of care. To save the need to monitor the insured's level of care, deductibles can therefore be used, and would be comparatively efficient in inducing relatively cheap and effective safety measures.[29]

3. *Refusal to Insure*

Some activities will not be undertaken without insurance, either because people are highly risk averse or because insurance is mandated by law or by contract. As a result, insurers have de facto control over access to some primary activities, and can leverage this power to induce safer behavior. For example, insurers often will not issue product liability coverage to a manufacturer who does not have a system in place for maintaining quality control with respect to safety issues, or does not have a program of safety testing its product. Likewise, liability insurers that cover ski resorts require insureds to have their lifts periodically inspected by the insurer's safety experts as condition of obtaining a policy (which, itself, is usually a condition for getting a license to operate).

A common type of refusal to insure is the cancellation or rescission of, or the refusal to renew, an existing policy. For most property-casualty insurance policies, insurers under state law have 60 days to cancel a new policy for any reason not explicitly prohibited by law, and the right to cancel or rescind the policy anytime if the insured made a material misrepresentation on its application on which the insurer relied. In addition, even if there is no mis-

27. Shavell, on Moral Hazard and Insurance

28. Deductibles require insureds to pay a fixed amount "out of pocket" to cover insured losses before the insurance coverage kicks in to cover insured losses thereafter. Copayments typically require insureds to bear some fraction of each covered loss claim filed by an insured.

29 This point is illustrated in an example in Ronen Avraham, The Law and Economics of Insurance Law—A Primer 37-39 (2012) (at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1822330).

representation in the application process, insurers can cancel or decline to renew a policy if they determine that an insured has engaged in some activity (or failed to take some safety measure) that results in a material increase in the hazard insured. Finally, through the use of exclusions, insurers refuse to insure particular risks—e.g., intentional ones—for which coverage would destroy incentives for care.

4. *Coaching Safer Conduct*

A standard assumption in the insurance literature on moral hazard is that insurers have less information about policyholders' idiosyncratic care levels and risk types than the policyholders themselves have.[30] This assumption is often contradicted by another widely held assumption about the insurance industry: that insurers have expertise in acquiring and sorting sophisticated information.[31] While it is possible that insureds have some information that insurers cannot observe, insurers are likely to have significant advantages in understanding and calculating how different types of care and safety affect risk. While policyholders know which precautions they have taken, they often lack the expertise to quantify the effect of the precaution on risk reduction, and to ascertain whether the cost of the precaution is justified. Is it worthwhile to refit one's home with fire extinguishing sprinklers? To install a car anti-theft device? To take a particular medical screening test? Even commercial parties buying liability insurance may not realize how their expected cost would be reduced by taking simple precautions—until their insurer prices it.

Building on this information advantage, insurers perform a regulatory function that public regulators rarely do: they educate their insureds on how to avoid and reduce risks. All major insurance carriers, as well as many insurance brokerage firms, offer risk manage-

30 See supra sources cited in note 4. This same assumption is made in the economic literature on adverse selection in insurance markets. Adverse selection can in theory arise when insurers are not able to differentiate high-risk from low-risk insureds and thus charges the same premium to both. In such situations, relatively high-risk insureds—if they know that they are high risk—are disproportionately like to purchase insurance, because the premium for them is a bargain. This phenomenon can push up insurance premiums, which can in turn induce low-risk insureds to drop out of the pool. At the extreme, adverse selection can lead to risk pools "unraveling" entirely. See Michael Rothschild & Joseph Stiglitz, Equilibrium in Competitive Insurance Markets, 90 Q. J. Econ. 629 (1976) . Peter Siegelman has challenged the uninformed insurer assumption in the context of adverse selection. See Peter Siegelman, Adverse Selection in Insurance Markets: An Exaggerated Threat, 113 **Yale L. J.** 1223 (2004).

31. See, e.g., Siegelman, supra note __, at --- (noting that insurers may in fact have superior information than insureds about some aspects of the insured's risk profile.)

ment or loss control services. They provide programs and training to identify and control risks. They audit their clients, manage their prevention efforts, analyze their loss history, identify causes of accidents and how losses occur, and teach them how to avoid premium increases (or how to secure premium reductions).[32] They offer toolkits, information, and guidance that firms can use in making decisions affecting their exposure to loss. They employ experts in all the relevant fields—engineering, medicine, law – and make available to them both the information of the individual insured and the data from the industry to craft individualized risk reduction plans.[33]

Product liability insurers, for example, offer "product protection" plans that review the safety of product designs, the quality controls in manufacturing, and the warnings attached to the product.[34] Similarly, workers Compensation insurers coach employers how to refit and organize the workplace and how to train their employees, all with an eye to avoiding costly accidents.[35] And environmental liability insurers visit on site and instruct policyholders how to avoid costly damages and how to comply (or exceed compliance standards) with environmental regulations. Pollution underwriters send engineers to the sites to examine how landfills are engineered and built, how waste is disposed, and instruct the insured on various technical issues.[36]

5. *Implementing Private Safety Codes*

In various areas, insurers implement codes of safety that policyholders have to comply with, which exceed the levels of safety that the government requires. For example, environmental liability insurers require, or offer significant premium discounts for, compliance with private environmental safety codes that are managed and audited by third parties, and which are stricter than government environmental regulation. It is argued that in some are-

32. See, e.g. http://www.thehartford.com/business/product/losscontrol and http://www.chubb.com/businesses/chubb3242.html.
33. See also Baker & Farrish, supra note __, at 298.
34. See, e.g., http://www.chartisinsurance.com/us-glp-product-protection_295_243862.html.
35. This coaching incentive is disrupted if insurers are exposed to liability as co-defendants in tort suits for their role in chaperoning the level of risk. In the workers compensation area especially, this might increase the liability exposure, which is otherwise severely limited by statutory caps. See John Dwight Ingram, Insurance Law Annual: Liability of Insurers for Negligence in Inspection of Insured Premises, 50 **Drake L. Rev.** 623 (2002
36. Corey Stein, Pollution Insurance Comes of Age, Public Management (July-August 1999), at 14.

as of international environmental law, firms comply more with private standard that their insurers adopt and require than with public international treaties.[37] In the area of residential home safety and construction standards, property insurers develop building code ratings that push for stricter standards by builders and stricter enforcement by localities.

Insurers are instrumental in disseminating efficient safety technology. Safety measures that create positive externalities—benefits to other policyholders—would be under-utilized in the absence of insurance. However, since insurance aggregates the interests of disperse policyholders, it helps to internalize such cross-insured benefits. For example, car owners can fit their cars with devices like Lojack, an anti-theft transmitter that dramatically increases the chance of recovering a stolen car. Lojack creates a deterrent effect that actually benefits others, and, owing to transaction costs, the Lojack purchaser cannot capture the value of this benefit through a market transaction. This means that car owners will purchase Lojack less often than is socially desirable.[38] Insurance contracts offer a solution to this incentive problem. That is, insurers serve to collectivize the otherwise externalized benefit of the Lojack investment. Unsurprisingly, then, insurers provide substantial premium discounts—often 20%—to auto owners who install Lojack.[39] Some states cap the discount, but insurers lobby to increase the cap. In some places, insurers purchase and install Lojack in vehicles at their own cost, or donate the detection equipment for police cruisers.[40]

6. *Research and Development of Safety M*ethods

Insurers cooperate in identifying safety technologies and disseminating new risk reduction methods. For example, the auto-insurance industry has for many years funded research designed to identify ways to reduce the losses associated with automobile accidents.

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37. Ronald Mitchell, International Oil Pollution at Sea: Environmental Policy and Treaty Compliance 451 (1994).

38. Ian Ayres and Steven Levitt, Measuring Positive Externalities from Unobservable Victim Precaution: An Empirical Analysis of Lojack, 113 **Quar. J. Econ**. 43 (1998); Omri Ben-Shahar and Alon Harel: Blaming the Victim: Optimal Incentives for Private Precautions Against Crime, 11 **J. L. Econ. & Org.** 434 (1995).

39. http://www.theautochannel.com/news/2007/03/06/039261.html (up to 20% discount on comprehensive insurance)

40. Ayres & Levitt, at 73. It should be noted that not all insurers offer this discount, as insurers too suffer from an externality problem: the benefit of a subsidized Lojack in theft deterrence is only partially captured by the insurer; the bulk of it goes to other insurers and to uninsured car owners. This problem is partially overcome by coordination. The Lojack company partners with large national insurers to offer standard discounts. Also, ironically, to help insurers overcome their collective action problem and regulate efficiently, some states have intervened and mandated premium discounts for the installation of Lojack. See __.

The industry operates an institute that tests and rates the crashworthiness of automobiles, and it organizes concerted efforts to lobby for mandatory safety devices (such as airbags).[41] Likewise, many of the standards relating to fire prevention and building fire codes were developed by the insurance industry and were subsequently accepted by builders, firefighters, courts, and lawmakers as the state of the art.[42] The homeowners' insurance industry has its own association researching and promulgating standards of safety with respect property risks.[43]

7. *Motivating Government Regulation*

Insurers not only create their own private regulatory codes, as discussed above. They also on occasion work with government regulators to enhance the public regulation of safety. This can be seen in the efforts of insurers to upgrade and enhance the content and the enforcement of state and local building codes. It can also be seen in the insurance industry's efforts to enhance automobile safety over the years, from the push in the early 1980s for compulsory airbags to the push more recently for better laws regarding driver licensing. We will document several such examples in Part II below. Just as the government in effect delegates some regulatory responsibilities to private insurers, insurers on occasion can provide public regulators with legislative blueprints to achieve society-wide improvements in risk reductions.[44]

B. *Ex Post Regulation*

In addition to regulation prior to the loss, insurers also substitute for ex post regulation—the attachment of legal consequences to behavior after it has occurred. The most common form of ex post legal regulation is a court-imposed sanction. A great body of litera-

41. See discussion below in Part __.
42. The National Fire Protection Association was established by insurance representatives to develop codes and standards relating to fire-related safety, most prominently the utilization of fire sprinklers. See www.nfpa.org.
43. The Insurance Institute for Business and Home Safety (IIBHS) was created by the insurance industry to research various ways of making commercial properties and homes safer from all sorts of hazards. www.iibhs.org.
44. See Baker & Farrish, supra note __, at 295

ture explores the informational and administrative properties of ex post regulation.[45] In this section we are interested in identifying the informational tools that insurers have that government decision makers do not.

1. *Claims Management*

Every insurer operates some type of claims-management system, a network of adjusters who are employed to investigate claimed losses, measure them, and negotiate payouts. Claims departments then review the decisions of adjusters and provide greater uniformity and predictability. Liability insurers also use standardized charts and tables to quantify non-pecuniary losses, making them more predictable and reducing the chilling effect that uncapped non-pecuniary costs might create.[46] In fact, insurance companies are sometimes retained to provide "claims only" arrangements, whereby another party (e.g., the employer) bears the actual risk, but then relies on the expertise of the insurers to verify, quantify, and administer the claims and the payments.

Claim adjusters implement in a routine, uniform way the investigation and fact-finding procedures that are designed centrally. They apply simple rules for determination of fault and causation, for quantifying losses, and for settling disputes.[47] This process reduces delay in payments, and, as we will argue later, transforms vague safety standards issued by law into clear bright line rules issued by insurers.

2. *Mitigation of Loss*

Another way in which insurers regulate losses ex post is by helping to mitigate covered losses. This can be seen clearly in contractual provisions, found in most insurance policies, that require insureds to take all reasonable post-accident steps to mitigate losses or else forfeit coverage. Insurers also help insureds mitigate losses by monitoring repair services. Environmental insurers, for example, maintain strict control on the choice of contractors that can be hired to do the remediation or clean-up costs covered under environmental poli-

45. The best summary of this literature is still Louis Kaplow, The Optimal Characteristics of Rules, Encyclopedia of Law and Economics.
46. Footnote on coverage for medmal—the findings that insured doctors don't pay as much.
47. See **H. Laurence Ross, Settled Out of Court: The Social Process of Insurance Claims Adjustments** (1970).

cies. By getting directly involved in this way, insurers both reduce the magnitude and gain an accurate estimate of the insured loss.

In addition, liability insurers help to control overall litigation costs ex post through their role as the financer of their insureds' legal defense. Liability insurance policies generally assign to insurers the contractual obligation and responsibility to provide a legal defense for their insureds. As a result, liability insurers have experience and expertise in selecting defense counsel and managing litigation expenditures, which leads to lower overall costs. Although this arrangement, where the insurer is both on the hook for loss claims (within the policy limits) and in charge of the litigation, can pose some conflicts of interests, it nevertheless leads to reasonably low-cost resolution of legal disputes. More fundamentally, the role of insurers in litigation and settlement often override the effect of substantive compensation doctrines. For example, insurance policy limits, not legal remedies, are found to dictate the settlement amount.[48]

3. *Exclusions*

Perhaps the most common way in which insurers engage in ex post regulation is when they enforce exclusions contained in their policies.[49] Insurance policies contain exclusions for losses caused by certain types of activities. Sometimes the exclusions relate to risks that are correlated, such as earthquake risks, where the spreading device is ineffective. Other times the exclusions apply to activities for which coverage would create a severe moral hazard and where non-coverage is the only effective way to create harm-prevention incentives. For example, intentionally caused harms, criminal activity, and intentional violations of statutes or regulations are generally excluded from all liability insurance policies.[50] Likewise, many fire insurance policies exclude any loss resulting from "an increase in hazard, if increased by any means within the control or knowledge" of the insured. Referred to as "the

48. Charles Silver, Kathryn Zeiler, Bernard S. Black, David A. Hyman & William M. Sage, *Physicians' Insurance Limits and Malpractice Payments: Evidence from Texas Closed Claims, 1990-2003*, 36 The Journal of Legal Studies S9 (2007).

49. Policy exclusions have both an ex ante and ex post regulatory component. They are obviously inserted into the policies ex ante, before any loss occurs or claim is filed. In that sense, they are a form of refusal to insure, which is discussed above. However, the decision to invoke the exclusion, or to interpret an exclusion as applying to a particular claim, occurs ex post, often depending on the actual conduct of the insured.

50. Indeed, even if insurance policies did not contain such an exclusion, policies covering intentionally caused harms would be considered unenforceable as against public policy.

moral hazard exclusion," this exclusion in effect levies a sanction on the insured in an amount equal to the amount of the loss and thus deters fire-risky behavior.[51] Similarly, directors and officers (or "D&O") Liability insurance policies were changed to exclude claims arising from resistance to takeovers or from targeted share repurchases ("greenmail), which would affect directors' engagement in these actions.[52]

4. *Ex post Underwriting*

Another type of ex post regulation by insurers, which has come under criticism from some commentators, consists of refusal to pay out claims based on policies that were issued after the insured materially misrepresented some information at the underwriting phase.[53] The efficient functioning of insurance markets depends on insurers' ability to gather accurate information about insurance applicants.[54] To achieve this end, insurers have two general strategies. They can spend resources at the underwriting stage to investigate and verify the information given by insureds on their applications; and some of this they do. But exhaustive ex ante information verification can be very costly. A cheaper alternative is for the insurers to accept as true the answers given by the insureds on their applications when submitted (unless there is a red flag on the application that suggests further investigation is

51. Goerge W. Goble, The Moral Hazard Clauses of the Standard Fire Insurance Policy, 37 **Colum. L. Rev.** 410 (1937). Note that fire insurance policies are one type of insurance policy that tends to be governed more by state law than by competitive insurance markets, as states have often historically required that a particularly worded policy be used. Where that is the case, the government has, in a sense, chosen to regulate fire risks through the wording of the insurance policy.

52. Clifford G. Holderness, Liability Insurers as Corporate Monitors, 10 **Int'l Rev. L. Econ.** 115, 119 (1990).

53. Although the majority rule is that even unintentional misrepresentations can give rise to rescission, some states limit ex post rescission of this sort to cases involving actual fraud on the part of the insurance applicant. See, e.g., Enserch Corp. v. Shand Morahan & Co., 952 F.2d 1485, 1496 (5th Cir. 1992) ("A misrepresentation defense under Texas law requires a showing that the misrepresentation was made willfully with the intent to deceive . . . . An applicant for insurance cannot willfully intend to deceive its potential insurer unless it actually, not constructively, knows that what it misrepresents is untrue . . . ."); Middlesex Mut. Assurance Co. v. Walsh, 590 A.2d 957, 963-964 (Conn. 1991) (holding that "in order to constitute a misrepresentation sufficient to defeat recovery on an automobile insurance policy, a material misrepresentation on an application for such a policy must be known to the insured to be false when made."); Benton Casing Serv., Inc. v. Avemco Ins. Co., 379 So. 2d 225, 232 (La. 1979) ("Whether a statement made by the insured in the negotiation of an insurance contract . . . is labeled as a representation or as a warranty, the falsity of such a statement shall not be material and shall not defeat coverage, unless it is shown that the false statement was made with the intent to deceive.").

54. Insurers' need to police the quality of the information they are given by insurance applicants is akin to a government agency's need to police the quality of the information provided to it by regulated parties. For this reason, the FDA has the power to punish drug companies who submit fraudulent studies when applying for approval of a new drug or device. Catherine M. Sharkey, The Fraud Caveat to Agency Preemption, 102 Nw. L. Rev. (2008).

warranted), but then to examine more closely only the applications of the small subset of insureds who end up submitting a loss claim. Under this approach, only a fraction of the applications need to be thoroughly investigated. If a material falsehood is then found, and if it can be shown that the insurer relied upon that falsehood in issuing or pricing the policy, the insurer can then rescind the policy and deny the insured's claim. The effect of this ex post denial of the claim is to improve the ex ante incentives of insureds to provide truthful information at the underwriting stage, and to do so at considerably lower cost than would be the case with exhaustive ex ante investigations by the insurer of every single insured. While there is a risk of insurer opportunism (for example, insurers asking intentionally vague questions on the applications to create the opportunity for a misrepresentation defense ex post), those concerns can be addressed through common law doctrines such as contra proferentem, and bad faith sanctions can be imposed on the worst-offending insurers when appropriate.[55]

II. Insurers as Safety Regulators: Examples

This Part demonstrates how the different regulatory techniques identified in the previous Part are already being used in various types of insurance. Our purpose here is to illustrate the prevalence of regulation by insurance and the advantage it could have over regulation by government. These illustrations do not prove any general claim about the superiority of insurance companies as regulators of safety. They merely highlight some of the ways in which insurance companies presently are induced by competition to exploit their informational comparative advantage to reduce risks. They are examples of insurance reducing rather than creating moral hazard.

A. Products Liability Insurance

Because consumers lack sufficient information to fully appreciate the risks of the products that they purchase, some form of product safety regulation is necessary. And regu-

55. Another concern with ex post underwriting is the problem of innocent mistakes by (especially consumer) insureds in filling out the sometimes complex and confusing applications. The innocent mistake problem too can be addressed, however, by limiting insurers in innocent-misrepresentation cases to some form of reformation remedy rather than the more draconian rescission remedy. See, e.g.,e Brian Barnes, Against Insurance Rescission, 120 **Yale L. J.** 328 (2010).

lation there is. Agencies such as the Consumer Product Safety Commission, the Food and Drug Agency, and the National Highway Traffic Safety Administration all, in one way or another, regulate the safety of products and product use. In addition to such ex ante agency-based government regulation, product safety is also regulated ex post through the application of tort law by courts. Choosing the ideal regulatory role of these two institutions—agencies versus courts—depends on how well insurance arrangements support the regulatory function of tort and agency law.

To understand this point, it is first necessary to understand how the choice of a liability standard affects the type of insurance that would complement it as a regulator of risk. For example, under a tort regime of no-liability for product-caused harms (for example, the old regime under which courts enforced product-warranty disclaimers for personal injuries caused by product accidents), the primary government regulator of product safety will be command-and-control government agencies, and the primary insurer-regulator will be first-party health insurers. By contrast, under a tort regime of strict products liability, the primary government regulator would be the courts and the primary insurer-regulator would be liability insurance companies. As a result, the view of insurance as regulation suggests that the choice between no liability and strict liability turns largely on the question which type of insurance—first-party health, disability, and life insurance or third-party liability insurance—is better at reducing product-related accidents.[56]

As it turns out, the choice seems pretty clear: First-party insurers are poorly equipped, and liability insurers are relatively well equipped, to regulate consumer product risks. There is little that first-party insurers can do to regulate consumer product-injury risks.[57] Health, disability, and life insurers who would pay for harms caused to consumers by dangerous products under a no-liability regime do not ordinarily distinguish between, and charge different premiums to, consumers who purchase relatively safe products and those who purchase relatively dangerous products. They do not monitor which products their policyholders purchase or how safely they use those products (care-level concerns) or how often they use those products (activity-level concerns). Nor do first-party insurers deny claims on

56 It also turns, of course, on whether courts, acting ex post, are better product-safety regulators than agencies, acting ex ante.

57. Jon D. Hanson & Kyle D. Logue, The First-Party Insurance Externality: An Economic Justification for Enterprise Liability, 76 **Cornell L. Rev.** 129, 145–53 (1990).

the grounds that the insured was contributorily negligent or assumed the risk.[58] (One exception is life insurance monitoring of cigarette smoking.) Why is this? First-party insurance is often sold on a group basis, which means that insurers do not gather detailed information about any individual risk characteristic of their insureds, including those related to product use. And even in policies that are individually underwritten, it is usually too costly for insurers to gather product-use information. The result of this dearth of first-party regulatory intervention is moral hazard with respect to consumer care and activity levels.[59]

Can product liability insurers do better than first-party insurers at regulating product injury risk? Product liability insurance is underwritten on a company-specific basis rather than a group basis. Product liability insurers have much at stake in the actuarial experience of each of their insured manufacturers, and so they collect detailed information about how the product is designed, inspected, and manufactured; what types of quality controls and manufacturing standards the insureds have in place; whether parts used in the production process contain dangerous inputs and whether those parts are warranted by suppliers; and much more.[60] They also inquire as to whether the manufacturer is in compliance with international and domestic standards of design and production and advise them regarding how to protect against malicious tampering, how best to label products to minimize the risk of accidents, and even when and how to issue recalls.[61] Product liability insurers even collect information about the insured manufacturers' activity levels (i.e., sales volume) with respect to particular product lines and about past marketing incidents. These information inputs are then used by the insurer not only in pricing product liability policies, but also in training manufacturers how to reduce their liability exposure. Thus, because liability insurers are

58. First-party insurers do gather information on which product caused the harm and bring subrogation claims against makers of defective products.

59. This phenomenon has been called the "first-party insurance externality." Hanson & Logue, supra note __, at 166–68 (explaining the adverse deterrence implications of the first-party insurance externality). The first-party insurance externality is largely limited to health and disability insurance (and to some extent life insurance) and the context of consumer product risks other than automobiles and home purchases. That is, first-party auto and homeowners' insurers do make efforts to regulate the risky behavior of their insureds with respect to auto-related and home-related risks, respectively. See sections—below for examples of this sort of first-party insurer regulation.

60. See, e.g., the detailed online products liability applications for Stratus Insurance Services, Inc., available at http://stratusins.com/textfiles/2010ProductLiabilityApplication.pdf.

61. See, e.g., http://www.chartisinsurance.com/us-glp-product-protection_295_243862.html (listing ways that insurer helps insureds reduce product liability risks);
http://www.chubb.com/businesses/cci/chubb2492.html (same).

clearly more effective than first-party insurers at monitoring and regulating the safety of consumer products, the case for strict products liability as a form of product safety regulation, in contrast to a rule of no liability or even fault-based liability, is strengthened.[62]

B. Workers' Compensation Insurance

Workplace safety is another important area of regulation through insurance, where insurers play a major role in implementing and monitoring safety. Workers' compensation regimes, which have been adopted in all 50 states, constitute a form of no-fault strict liability.[63] States require employers to purchase insurance either from a private insurer or from a state-run workers' compensation fund. Workers who are injured on the job are covered by their employer's workers' compensation insurer. In managing claims, insurers collect information concerning the circumstances that gave rise to the injury and examine the medical records documenting the injury. As already mentioned, worker's compensation insurance is one of the areas where insurers experience-rate premiums and have done so for many years; and the process is facilitated by various industry organizations that aid in the collection and analysis of data.

Although the move from a fault-based tort liability regime to a no-fault strict liability workers' compensation regime was originally primarily about compensation rather than safety regulation,[64] it has a regulatory effect as well. Studies have shown that workers' com-

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62. Whereas no liability and strict liability tort standards represent the extreme positions with respect to the allocation of responsibility for product-safety regulation between first-party and liability insurers, fault-based liability falls somewhere in between. Under a fault-based, or negligence, regime, liability insurers are the primary insurer-regulators with respect to harms that are deemed the insured-tortfeasor's fault; and the injured victims' first-party insurers are the primary insurer-regulators with respect to harms that are deemed not to be the injurer's fault. If, as discussed in the text above, liability insurers are better product-risk regulators than first-party insurers, the case for a strict liability rule is strengthened vis-à-vis a negligence rule in product-accident contexts. For the opposite argument that, despite the existence of imperfect first-party insurance, a no liability rule is more efficient than a rule of strict products liability, see Polinsky & Shavell, The Uneasy Case for Products Liability, **Harv. L. Rev.** In the context of automobile accidents, where the question is whether the driver-injurer (and her liability insurer) should be held liable or whether the driver- or pedestrian-victim (and her first-part insurer) should be responsible for the losses, the choice is between no-liability and fault-based liability. See infra section __.

63. See generally Don Dewees, David Duff &Michael Trebilcock, **Exploring the Domain of Accident Law: Taking the Facts Seriously** 387–96 (1996).

64. See, e.g., Richard A. Epstein, The Historical Origins and Economic Structure of Workers' Compensation Law, 16 **Ga. L. Rev.** 775 (1982); Paul B. Bellamy, A History of Workmen's Compensation 1898–1915: From Courtroom to Boardroom (1997); and Price V. Fishback & Shawn Kantor, The Adoption of Workers' Compensation in the Unisted States 1900–1930, 41 **J. Law & Econ.** 305 (1998).

pensation regimes tend to have significant regulatory benefits, in terms of reducing worker-injury rates. It has also been shown that this effect is more pronounced than the deterrence benefits of the leading regulatory alternatives, including fault-based tort regimes and direct government regulation of workplace safety.[65] Indeed, there is some direct evidence that experience-rating by workers' compensation insurers has improved workplace safety, especially among larger firms, where most individual workers are employed.[66]

C. Auto Insurance

The regulation of automobile driver safety is divided between first-party and liability insurers. Some, but not all, losses are shifted from victims and their first-party insurers to drivers and their liability insurers.[67] States vary with respect to the amount of loss shifting they do through their tort systems. Most states have a tort-based auto insurance regime, in which victims can recover from negligent drivers and their liability insurers or otherwise turn to their own first-party insurers.[68] In those states, both first-party and liability auto insurers have an incentive to regulate the care levels of their insureds. In contrast, a minority of states have some type of no-fault regime (a misnomer, which really means no-liability), in which tort recovery is limited and injured parties (other than pedestrians, whose tort claims are not limited) must rely primarily on their first-party auto insurers.[69] In these states, therefore, first-party auto insurers are the primary regulators of driver care levels.

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65. Dewees, Duff & Trebilcock, supra note __, at 378–82 (summarizing various studies); see, e.g., id. at 382 ("the operation of the workers' compensation system does reduce worker injury rates and that for high-risk industries and risk-rated firms this reduction is substantial, although the absolute magnitude of the effect is subject to enormous uncertainty. We accept the evidence that this effect is greater than that created by the tort system or that created by U.S. federal occupational safety health regulation.").

66. The degree of experience rating, the extent to which premiums are adjusted based on an insured's claims experience, is a direct function of size: the bigger employers are, the more their own experience will affect their rates. Philip S. Borba & David Appel, Workers Compensation Insurance Pricing: Current Programs and Proposed Reforms 83 (1985). There is evidence that workers' compensation has greater regulatory benefits with larger firms. See John W. Ruser, Workers' Compensation Insurance, Experience-Rating, and Occupational Injuries, 16 **RAND J. Econ.** 487 (1985)

67 As discussed supra in section A on product-safety risks, some auto-safety risks are also shifted from victims and their first-party insurers to auto manufacturers and their liability insurers.

68. According to the Insurance Information Institute, currently twelve states have some form of no-fault auto insurance law, leaving the other thirty-eight states as fault-based auto states. http://www.iii.org/media/hottopics/insurance/nofault/

69. A "pure" auto no-fault regime would completely eliminate the option of bringing a tort claim against another driver, but there is no such pure no-fault regime in the U.S. Gary T. Schwartz, Auto No-Fault and First-Party Insurance: Advantages and Problems, 73 **S. Cal. L. Rev.** 611 (1999). Some states have a no-fault regime for economic losses and a fault/tort scheme for non-economic damages such as pain-and-suffering. In Michi-

There are reasons to believe that the shift to no-fault in some jurisdictions may on balance hinder the regulatory role of insurance. On the one hand, the absence of tort liability, and thus of liability insurers, does not eliminate the incentives of drivers to avoid accidents that harm others. There is, after all, a large overlap between the risks that lead to harm to others and the risks that lead to injury to oneself. Bad or excessive driving gives rise to an increased risk of both harms. Thus, when a first-party insurer takes steps to regulate driver conduct so as to reduce self-harm, for example by experience rating and adjusting premiums, the risk to third-party victims is also reduced.[70]

On the other hand, first-party auto insurers do not have an incentive to regulate driver decisions optimally. While it is true that the safety they regulate affect both the insured drivers and their victims, the insurers fail to take account of harm to others. Thus, in theory, auto first-party insurers would not have an incentive to require precautions that could be justified only by the total harm reduction to all potential injured parties. Those insurers do not make premium adjustments to account for the increase or decrease in risk to third-parties attributable to their insured driver's behavior. By contrast, under a fault-based tort regime, in which drivers also purchase liability insurance, a more complete internalization of auto-accident risks is achieved. As a result, under a fault-based regime, some unsafe drivers would be priced out of driving—a form of continually adjusting Pigouvian taxation through the liability insurance premium—that would not be priced out under a no-fault regime.[71]

In addition, under a fault-based system, drivers' choices among types of cars is likely to be more efficient. First-party insurance creates incentives to purchase large and heavy vehicles, such as outsized SUVs or trucks, in which drivers are protected and their injuries are smaller.[72] Liability insurance offsets these distorted incentives. Heavy vehicles cause

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gan, for example, victims may recover non-economic damages in tort only for "serious impairment of a body function." Id. at 617. Other states have a no-fault scheme with respect to personal injury claims, and a tort-based scheme for property damage to the automobiles. Id. at 645. A handful of states have so-called choice regimes, where drivers are allowed to choose between a no-fault option or a tort-based option.

70. See, e.g., Schwartz, supra , at 642 (noting that similar point was made in Michael J. Trebilcock, Incentive Issues in the Design of "No-Fault" Compensation Systems, 39 **U.Toronto L.J.** 19, 20–21 (1989); and Dewees, et al, supra note __, at 56).

71. A similar point was made in William M. Landes & Richard A. Posner, The Economic Structure of Tort Law 10–11 (1987).

72. Thus, the Personal Injury Protection (PIP) component of first-party auto insurance coverage for a large SUV should be relatively low, compared with smaller cars. PIP covers medical expenses and sometimes lost wages due to injury.

greater harm to others, and these costs in fault-based states are borne by liability insurers, who then price those risks accordingly. The result, in theory, should be not only a reduction in overall auto-accident risks, but also an improvement in the market signals sent to product manufacturers regarding the relative total costs (including accident costs) of small versus large vehicles.

Although the cost-internalization arguments tend to support a regulatory role for auto-liability insurers, there is not a great deal of evidence on point. There is, however, some evidence that generally supports fault-based liability regimes over the no-fault alternatives. According to an old study, no-fault laws have actually increased auto-related deaths by as much as 15 percent.[73] Thus, a tort-based regime with dual insurer-regulators balances the benefits of safety to drivers and to others.

Auto insurance is also an area where insurance companies—liability and first-party insurers—work cooperatively to gather information that enhances the market for safety. For example, the Insurance Institute for Highway Safety (IIHS), a non-profit organization that is wholly funded by the auto-insurance industry and whose stated goal is to reduce the losses from cashes on the nation's highways, has become famous for testing and rating the crashworthiness of new automobiles they come on the market, long before, and arguable still better than, the government's NHTSA ratings.[74] These ratings help consumers choose safer cars and induce manufacturers to improve the designs.[75]

Auto insurers have also played a role in encouraging safety regulation by the government. When there is a universal minimum level of care that all actors should meet, it can be efficiently mandated by government. But government regulators can be slow to act, especially if the regulated industry resists change. This was the case with frontal air bags, which are now a required part of all new automobiles. Auto insurers were the first to lobby for fed-

73. See, e.g., Elisabeth M. Landes, Insurance, Liability, and Accidents: A Theoretical and Empirical Investigation of the Effect of No-Fault Accidents, 25 **J. Law & Econ.** 49 (1982).
74. www.iihs.org.
75. http://www.iihs.org/brochures/pdf/vrc_brochure.pdf. ("Vehicles are rated for safety based on performance in front, side, rollover, and rear tests. Consumers compare the results, which often differ dramatically even among vehicles that are similar in size and price. Auto manufacturers heed the ratings, too, and improve the designs of their vehicles to earn higher marks than the competition. Then the automakers improve on the improvements. The result is that motorists now travel in safer vehicles than they used to.")

eral regulations, which were adopted despite opposition from the auto industry.[76] Insurers also fought successfully a regulatory ruling that rescinded the original mandate.[77] More recently, the auto insurance industry has successfully lobbied for "Graduated Driver Licensing" laws (a method in which driving privileges are introduced gradually, and has issued ratings of states' overall highway safety laws.[78]

D. Homeowners' Insurance

Residential property risk is another area where insurers regulate insured behavior. Most homeowners cannot ascertain the quality of the structure they are purchasing or the risks associated with inferior construction, especially under conditions of high winds, fire, or earthquake. And yet, except to the extent the Consumer Product Safety Commission regulates household products, household risk is largely unregulated by the federal government.[79] Rather, building safety standards are left to state and local governments, which typically adopt some version of the model building codes written by private organizations.[80] Political pressures by the construction industry and short-term financial interests of homeowners operate to inhibit optimal standards and rigorous enforcement.

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76. See generally Robert Kneuper & Bruce Yandle, Auto Insurers and the Air Bag, 61 **J. Risk & Ins.** 104 (1994). There was evidence at the time that air bags would prevent as many as 9000 fatalities and 65,000 injuries annually. Id. at n.2. More recent evidence puts the reduction in fatality risk at around 11 percent. Charles J. Kahane, Fatality Reduction by Air Bags: Analysis of Accident Data Through Early 1996, NHTSA Report No. DOT HS 808470 (Aug. 1996), available at http://www.nhtsa.gov/cars/rules/regrev/evaluate/808470.html.

77. Motor Vehicle Manufacturers Association of the U.S., et al v. State Farm Mutual Automobile Insurance Co, et al, 463 U.S. 29 (1982) (reinstating the original airbag requirement).

78. Insurance Institute for Highway Safety, Graduated Driver Licensing: Questions and Answers (noting that some form of graduated driver licensing rule has been adopted in almost all 50 states), available online at http://www.iihs.org/brochures/pdf/gdl_brochure.pdf; Advocates for Highway and Auto Safety, The 2012 Roadmap to Highway Safety Laws, available online at http://www.saferoads.org/files/file/FINAL%20ROADMAP%20REPORT-%201_6_2012.pdf. The group "Advocates for Highway and Auto Safety" is an alliance of consumer, health and safety groups, insurance companies, and insurance agents.

79. With relatively large home-health risks (such as radon gas), the EPA relies primarily on public education (through public service ads), required disclosure (at the point of sale), and loan programs for remediation. www.epa.gov/radon/. Also, the Consumer Product Safety Commission has been involved in regulating the quality of smoke detectors as consumer products.

80. A prominent example is the International Building Code published by the International Code Council. See www.iccsafe.org. The ICC is composed of state, county, and local code officials as well as fire officials, architects, engineers, builders, contractors, manufacturers, and others in the construction industry. Conspicuously absent from the list of members is anyone from the insurance industry. The problem with such code-writing organizations is that, unless insurers are included in the decision making processes, they will have a tendency to externalize some of the costs of their decisions—the costs that are borne by first-party property insurers.

Insurance helps to remedy this regulatory inefficiency. First, homeowners' insurers engage in direct ex ante regulation through the use of premium discounts for homes equipped with safety measures, such as smoke detectors or sprinkler systems, which have been found to dramatically reduce the risk fire-related deaths and property damage. Similarly, insurers in Florida and in other parts of the country subject to windstorms offer substantial premium discounts to homeowners who make special investments in wind mitigation, such as installing hurricane clips to secure the roof, anchoring the base of the home to the foundation, and using special storm shutters on the windows.[81]

In addition to such direct regulation, insurers encourage more efficient government regulation of home building standards. The insurance industry collects information regarding the building codes in different communities and how well those codes are being enforced. It then uses that information to generate building code effectiveness ratings, which individual insurers may use to price their coverage.[82] The indirect effect of these ratings, then, is to put pressure on state and local governments to tighten, and tighten the enforcement of, their building codes. In the absence of such ratings, there is relatively little political pressure on state and local governments to improve building codes and building-code enforcement, except perhaps following disasters (such has hurricanes, earthquakes, or wildfires.) However, the publishing of these ratings, which clearly indicate how various jurisdictions are doing relative to each other, and the publication of the effect of these ratings on insurance premiums, can produce pressure on local regulators to improve both codes and enforcement.

Homeowners' insurers also do something that government regulators do not: they generate large amounts of risk-related information through large-scale hazard simulations. The industry funds a massive research facility for simulating hurricanes and other perils and studying how different construction techniques withstand wind, fire, water, and hailstorm damage.[83] Research conducted at this facility is intended to do for home-construction stand-

81. These steps can reduce insurance premiums significantly. To take one example, the addition of storm shutters can reduce the windstorm portion of the homeowners' premium by 30 percent. The windstorm premium in Florida constitutes 15 to 70 percent of the overall premium, depending on where in the state the home is located. http://www.mysafefloridahome.com/insurance.asp.

82. This function, performed by ISO (the property/casualty insurance industry's main ratemaking bureau and research arm) is called the "Building Code Effectiveness Grading Schedule." http://www.isogov.com/services/infrastructure/building-code-evaluations.html

83. The Insurance Institute for Business and Home Safety http://www.prweb.com/releases/IBHS/research-center-opening/prweb4678514.htm

ards, and for reducing the losses associated with various natural hazards, what the crash-testing conducted by the Insurance Institute for Auto Safety has done for crashworthiness in automobiles. Not only would this enable the industry to improve its rating of building codes, it will also refine the premium discounts for various safety investments.

E. Environmental Liability Insurance

A striking example of how insurance minimizes rather than exacerbates moral hazard problems can be found in the context of environmental liability insurance. Under various federal and state laws, firms face enormous potential liability for the environmental harms they cause, including substantial cleanup costs.[84] Because firms are often insufficiently capitalized to pay for these environmental costs, and because many of the environmental harms have become manifest only after long latency periods, environmental liability or other ex post fines may not provide optimal regulation of care levels or activity levels. However, because environmental liability insurance is prevalent—in some areas, mandatory—insurance companies assumed the role of private (ex ante and ex post) environmental regulators. In fact, specialized environmental insurers have taken over the role of insuring and regulating many environmental risks. That is, environmental coverage is no longer sold as part of the insurance offered under standard commercial liability policies, but rather as a special line of coverage—Environmental Impairment Liability Insurance (EIL)—that is offered by specialized insurance companies who often write specific EIL policies for particular sectors.[85] These EIL policies are underwritten and issued on a site-specific basis. They generally exclude

84. See generally Kenneth S. Abraham, Environmental Liability Insurance Law: An Analysis of Toxic Tort and Hazard Waste Insurance Coverage Issues (1991) (surveying the many ways in which liability insurers act as regulators in the environmental insurance context). The Comprehensive Environmental Response Compensation and Liability Act ("CERCLA"), sometimes referred to as "Superfund," created the modern federal environmental liability regime. In response to this law, enacted in 1980 and revised and reaffirmed by Congress in 1986, the liability insurance industry became a major regulator of environmental risks. CERCLA creates retroactive, strict liability for the costs of cleaning up environmental waste and imposes those costs, jointly and severally, on all "responsible parties, which includes the party who caused the pollution as well as the present owners and past owners of the property. Id.

85. Cite source for EIL. Beside the general EIL policy, other niche policies are available for different sectors (e.g., construction, transportation). See, e.g., Susan Neuman, Tailored to Fit: Sophisticated Insurance Tools Make Property Protection Easier, **Envtl. Compliance & Litig. Strategy**, (May 2000), at 3–5. [CHECK]. Note, however, that insureds initially sought, and sometimes still seek, to have environmental/pollution costs covered by old CGL policies; whereas, insurers seek to deny coverage, invoking (and among other provisions) some version of the pollution exclusion.

coverage for gradual pollution which is more likely to be known or predicted by the insured (and thus more likely to be a source of moral hazard) than sudden, abrupt discharges of pollution.[86]

Insurance in this area reinforces existing government regulations by inspecting that policyholders comply with licensing conditions and with other environmental regulations. It also goes beyond these minimal compliance checks by promoting higher safety standards. For example, insurers offer premium incentives (up to 30% discount) for participation in private Environmental Management Systems that provide stricter codes of environmental compliance, perform on-site auditing, and evaluate performance.[87] Insurers know better than firms how to assess environmental risks and the feasibility of alternative solutions and offer this expertise to help their clients comply with environmental standards.[88]

F. Tax Liability Insurance

Like environmental insurance, tax liability insurance responds to costs firms face as result of government regulations. Here it is the cost of uncertain tax laws. The insurance covers liability for violations of the law, and thus tax insurers naturally inspect and monitor the tax compliance of their insureds.[89] Imagine a taxpayer who wishes to engage in a transaction that has highly uncertain tax consequences that depend on how the IRS, and ultimately the courts, will interpret a very complex combination of law and facts. For example, large tax payments can turn on whether a transaction is considered a tax-free reorganization or not, a determination that cannot be made with certainty prior to the transaction. Uncertainty can be removed by requesting a private ruling from the IRS in advance, but the IRS often declines to do a thorough ex ante analysis of the proposed transactions, imposing on taxpayers the risk of an adverse determination on audit.

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86. Kenneth S. Abraham, Environmental Liability and the Limits of Insurance, 88 **Colum. L. Rev.** 942, 953 (1988).
87. See How to Open Pollution Coverage Market—Make Policy Contingent on Obeying Environmental Code, **Ins. Advocate**, Apr. 5, 1997, at 10; Richardson, at 316.
88. See Steven A. Kunzman, The Insurer as Surrogate Regulator of the Hazardous Waste Industry: Solution or Perversion?, 20 FORUM 469, 477 (1985)
89. See generally, Kyle D. Logue, Tax Law Uncertainty and the Role of Tax Insurance, 25 **Va. Tax Rev.** 339 (2005).

Given the legal uncertainty, private insurance offers coverage against the possibility that the intended tax treatment will be denied ex post by the taxing authorities.[90] These policies cover excess taxes that are ultimately assessed against the insured, including grossed up amounts (such as interest and non-criminal fines), as well as the cost of hiring outside tax experts to help resolve the disputes with the taxing authorities.[91] These policies are not offered on a standard form basis, but are instead individually negotiated for each transaction that is being insured, based on ad-hoc risks as determined by the insurer after an elaborate fact-gathering process.[92] As part of the underwriting process, the insurer enlists the help of outside tax counsel, often among the very best in the field, to offer an assessment of the likelihood of success of the desired tax treatment.[93]

Effectively, the insurers become private tax law enforcers. The insurers are able to do what the government cannot afford to do: hire top lawyers to assess the tax validity of complex, fact-intensive commercial transactions before they are actually undertaken, and issue what amounts to a ruling on the question. The policy concern with this type of coverage, of course, is that, in extreme cases, parties will seek coverage for transactions that are clearly contrary to the tax laws, where the only significant uncertainty is the uncertainty as to detection. This would be the case if insurers were offering to cover abusive tax shelters, for exam-

90. See, e.g., the tax liability insurance offered by Chartis, see http://www.chartisinsurance.com/us-tax-liability-insurance_295_182188.html.

91. See, e.g., http://www.chartisinsurance.com/ncglobalweb/internet/US/en/files/Tax%20Liability%20Highlight%20Sheet_4_2010_tcm295-202209.pdf (explaining the "coverage highlights" of tax liability insurance offered by Chartis).

92. Among the pieces of information required to be submitted are these: a detailed description of the transaction and tax exposure, a list of all parties to the transaction, all available tax opinions and supporting documentation, all relevant private rulings from the IRS or any other taxing authority, all correspondence with the taxing authority, the taxpayer's audit history, the taxpayer's tax returns, and anything else that might be relevant. See, e.g., http://www.aig.com/aigweb/internet/en/files/Tax%20Liability%20Insurance_%20Questions%20and%20Answers1_tcm20-74108.pdf.

93. Id.; Logue, supra __, at 414.

ple.[94] As it turns out, however, insurers have thus far steered clear of offering tax shelter coverage.[95]

In each of these areas -- products liability insurance, workers' compensation insurance, automobile insurance, homeowners' insurance, environmental liability insurance, and tax liability insurance –- insurers already serve as quasi-private regulators of risk.[96] Because of their superior access to information and their commercial sophistication, and because of the competitive pressure to find new ways to lower their costs and hence their prices, insurance companies employ a variety of strategies to improve the safety conduct of their policyholders. In many of these examples, the presence of insurance reduces, rather than creates, a moral hazard problem. It is still the case, of course, that some forms of insurance also occasionally create moral hazard and disregard for safety. The purpose of this survey is to highlight a few of the many examples where insurance has the opposite, often underappreciated, effect.

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94. See, in general, Kaplow and Shavell's work on the social value of legal advice. Louis Kaplow and Steven Shavell, Legal Advice About Information to Present in Litigation: Its Effects and Social Desirability, 102 **Harvard Law Review** 565 (1989); Louis Kaplow and Steven Shavell, Legal Advice About Acts Already Committed, 10 **Int'l Rev. L. Econ.** 149(1990); Louis Kaplow and Steven Shavell, Private versus Socially Optimal Provision of Ex Ante Legal Advice, 8 **J. L. Econ.**, and Org. 306 (1992).

95. Moreover, if tax insurers were to become more aggressive in the types of tax risks they were willing to insure, there are a number of regulatory responses that the government might take to minimize the moral-hazard-creating effects of such insurance, such as compulsory disclosure when tax liability insurance is purchased. Logue, supra __, at 400-06 (explaining why insurers have declined to offer tax shelter coverage and noting ways that the Treasury can help to prevent insurance of that sort if it arises).

96 A type of insurance for which insurers do surprisingly little regulation is directors and officers (D&O) liability insurance. D&O policies are purchased by corporations to cover liability risks arising out of the official conduct of corporate directors and officers. In the context of public corporations, the primary risks covered under D&O policies are the risks lawsuits brought by shareholders against the corporation or against directors and officers themselves, either for violation of common law fiduciary duties or for violation of federal securities laws. In a study of the extent to which D&O insurance facilitates or undermines the deterrence or regulatory function of shareholder litigation, Tom Baker and Sean Griffith found that D&O insurers do surprisingly little to monitor the behavior of their insureds. Tom Baker & Sean Griffith, Ensuring Corporate Misconduct: How Liability Insurance Undermines Shareholder Litigation. 109 (2010). Baker and Griffith offer a number of possible reasons for this anomaly that are peculiar to D&O coverage. Id. at 118-19 (discussing factors such as the nature of shareholder litigation risks and the particular structure of D&O excess insurance programs). Interestingly, Baker and Griffith also find that D&O liability insurers do make extraordinary efforts to price their insurance policies accurately, thereby engaging in the sort of ex ante Pigouvian regulation that can affect both care levels and activity levels. Id. at 97-98.

III. Insurance as Regulation versus Government Regulation

The preceding part demonstrated that insurance is a pervasive form of regulation in the modern economy. The fact that private insurance companies serve as private regulators of safety, however, does not diminish the significance of government regulation. The universe of government regulation is vast. In every sector of the economy and in every industry there is some degree of government regulation. The Consumer Product Safety Commission, the National Highway Traffic and Safety Administration, the Food and Drug Administration, and the Environmental Protection Agency – to name a few prominent examples – are government agencies that have broad authority to regulate risks at all levels; and they frequently exercise that authority. This Part addresses how such government regulation compares with, and how it coordinates with, insurance as regulation.

A. When Government Action Alone Is Required

Let us consider at the outset circumstances in which government regulates without much involvement by insurers. First, some regulatory tools are available only to the government. Agencies can back their mandates with the threat of criminal sanctions; private insurance companies cannot make such threats. This is crucial to improve safety when the risky conduct cannot be deterred or stopped other than by criminal sanctions. Even without criminal sanctions, the government can physically stop risky activities like dumping of polluted chemicals into a river; private insurers cannot.

Second, there are various risks that insurers do not regulate because they do not insure such risks, and thus the government is the only regulator of such conduct, and sometimes also the only the insurer. Insurers, for example, do not offer coverage for correlated risks, such as nuclear wars or economic decline in home values. Insurers likewise do not cover "known unknowns"—contingencies that we know exist but to which either a probability or a magnitude cannot be actuarially assigned. An example of this might be terrorism insurance coverage: insurers know that the risk of terrorist attack exists, but they have difficulty predicting the probability or likely magnitude.[97] Moreover, insurers generally do not

97. Boardman, supra note __, at 786 ("The terrorism risk is a known unknown; we are aware of the risk but are still too ignorant to calculate and distribute the risk in an insurance pool."). Ironically, some so-called "unknown unknowns," to use Donald Rumsfeld's famous phrasing, may be more easily insured, at least to the extent insurers provide coverage in the form of all risk policies—that is, policies that cover all losses except

cover losses that are intentionally caused by insureds. And insurers do not cover loses for which the affected parties cannot afford to purchase coverage. Thus, in those areas insurers do not regulate; the government either works alone (to regulate civic preparedness for nuclear events) or in conjunction with other intermediaries (for example, with large banks to affect regional home prices.)

Moreover, the government is likely to regulate alone in situations in which insurers are trapped in a coordination problem. Insurers, as we have described, have an incentive to invest in safety regulation when their investment lowers the cost of the "product" that they sell. Hence, competition forces insurers to be risk regulators. But what if an individual insurer cannot reap the value of improved safety standards through lower insurance costs? There are several externalities that might occur among insurers and which create a market failure in the form of under-provision of regulation.

One type of externality involves the production of knowledge. An insurer that innovates by developing new safety standards (say, testing and calibrating the premium reduction for home installation of hurricane-resistant roofing tiles) cannot exclude other insurers, who did not share the cost of the investment, from imitating this innovation and reaping its benefits. There is no patent protection for innovations by insurers in improved safety methods. Other safety measures also have public good characteristics. For example, we discussed above how installing a Lojack anti-theft device in cars has a substantial deterrence effect, but because auto thieves cannot distinguish cars with from cars without the device, it is a benefit that accrues to other car owners, insured by other insurers. Again, the result might be underinvestment in such devices. However, to the extent that the insurance industry can explicitly coordinate, these public goods can be supplied. The "knowledge" public good problem is indeed resolved by collectively funding research facilities (for example, the Insurance Institute for Highway Safety).[98]

Another type of externality that insurers must overcome to provide optimal regulation involves future and latent harms. Some of the risks that insurers regulate materialize into harms far into the future, which means that insurers' efforts to reduce such risks will

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those that are expressly excluded. In the case of unknown unknowns, insurers would not even know enough to be able to draft an effective exclusion. It is in part because of unknown unknowns that insurers insist on policy limits.

98 See *www.iihs.org/brochures/pdf/vrc_brochure.pdf*

largely benefit future insurers. It has been argued, for example, that health insurers under-provide treatments that have long term impact, like bariatric surgeries for obese patients, even when the surgery is cost justified, because the benefit in terms of reduced health costs will be reaped over the patients' lifetime by the patients' future health insurers.[99] Similarly, latent harms such as climate change can put insurers in a poor regulatory position. The costs of climate change will build up far into the future, to a large set of diffuse "victims," many of whome will not be covered by the present insurers. Thus, even if the insurance industry as a whole will eventually bear much of the cost of climate change, it may be ill-positioned to overcome the coordination-across-time problem, and will be a poor regulator of climate damage. To be sure, latent harms are a general problem of government regulation as well. In fact, we will argue below that in areas like climate change, political coordination across countries and across generations could lead governments to fail to act. Thus, despite its own coordination problems, insurance might be at a relative advantage. As long as individuals expect to bear some costs—either to their property or due to tort liability—there will be demand for insurance, and as long as climate change is known to affecting property-related perils (e.g., severe weather), people will have to pay higher premiums to insure their assets.

Notwithstanding these no-insurance situations, for many risks insurance is available. And in those situations, insurers generally work alongside the government to regulate safety. In the remainder of this Part, we identify patterns in how the regulatory work is divided between the insurers and government regulators. Along the way, we emphasize the added value of insurance as regulation—incremental improvements in safety that go beyond what the government requires or encourages. This Part also specifically compares insurance as regulation with the government regulatory alternatives and finds in many cases that insurance provides the better approach.

B. Safety Standards: Mandates versus Menus

Government regulation of safety often takes the form of mandatory safety standards. Cars must have passive restraints, factories must abide by environmental standards, drug companies must demonstrate the safety and efficacy of a drug, and commercial buildings

99 Ronen Avraham and K.A.D. Camara, *Tragedy of the Human Commons*, 29 Cardozo Law Review 15 (2008).

must have fire sprinkler systems. Unless the regulatory safety threshold is met, the actor cannot engage in the regulated conduct. Regulated parties have no choice concerning how much of the safety measure to apply, whether it is worth the cost, or if other methods work better for them.

Insurers, on the other hand, often regulate the same conduct while offering a menu of safety choices and corresponding prices. Drivers who fail to wear seatbelts will have their first-party insurance premiums adjusted through experience rating. Factories that maintain higher environmental standards than the government-mandated level will have their liability insurance premiums reduced. Manufacturers that follow guidelines for producing safer products will pay lower product liability insurance premiums. And homes that present higher fire hazards pay significantly higher property insurance. Largely through ex ante premium adjustments, by offering policyholders clear pecuniary tradeoffs, insurers induce actors to self select safety. Unlike government regulation, which institutes uniform safety levels, insurers' regulation results in a spectrum of decentralized choices, whereby people choose greater precautions when their costs are lower or when the risks they reduce are greater.

In some areas, the government outsources the safety regulation to insurers altogether. For example, California requires property insurers to offer homeowners earthquake coverage, which unregulated policies commonly exclude.[100] Insurers satisfy this mandate by offering special bare-bones "mini policies," which are actuarially priced and thus are very expensive in earthquake prone areas.[101] And insurers regulate earthquake safety standards by providing a menu of discounts for various precautions and investments in reinforced foundations, frames, wall braces, shut-off valves, and more.[102]

C. Pigouvian Taxes: Pricing the Externality

Unsafe behavior causes an externality—harm to others. A basic regulatory tool for dealing with the failure of markets to solve this problem is the Pigouvian tax. This tax impos-

100. http://www.earthquakeauthority.com/index.aspx?id=13 ("The law requires insurers that sell residential property insurance in California to offer earthquake coverage to their policyholders").
101 http://www.iinc.org/articles/347/1/The-Evolution-of-Earthquake-Insurance/Page1.html ("In 1995, the state Legislature passed Assembly Bill 1366, which authorized insurers to offer a "mini" earthquake policy with substantially reduced policy limits to comply with the mandatory offer of earthquake insurance.").
102. See http://www.insurance.ca.gov/0100-consumers/0060-information-guides/0040-residential/earthquake-insurance.cfm#special.

es on the externalizing party the external cost of its activity, thus reducing activity levels closer to the social optimum. The Pigouvian tax is often regarded in theory as an effective form regulation, because, unlike the command-and-control alternative, the Pigouvian tax allows the regulated party to choose whether, how much, and how to engage in the regulated activity.

Pigouvian taxes, however, are surprisingly rarely employed by the government as a method of ex ante regulation. Even in an area like carbon emissions, in which the externality problem is acute, it is uncommon for regulators in the U.S. to use ex ante taxes.[103] At the same time, most regulatory fines and liability laws operate like Pigouvian taxes. Tort law in general, products liability in particular, and any number of government fines (from traffic fines to environmental sanctions) all are internalization schemes that tax unsafe behavior at the level of the harm caused, whether the tax is collected by the government or by the victims. Like Pigouvian taxes, these ex post sanctions internalize a cost to the harmful activity, thus encouraging optimal activity levels.

In the presence of government imposed strict liability, insurance converts the ex-post liability cost into an ex ante fee—the insurance premium—much resembling a pure Pigouvian tax, paid upfront and roughly equal to the externality. Risk-differentiated premiums cause parties to pay the expected external cost of their activity when choosing its scope. Insurers thus play an important role in shaping levels of activity. By converting the expected cost of liability into a certain cost of the insurance premium, insurance premiums enable insureds to make more informed choices regarding activity levels. Since most regulated parties do not have the information necessary to accurately convert expected ex post liability awards and fines into an exact equivalent Pigouvian tax, and since the government

103. Although the United States government imposes an excise tax on gasoline sales, it has never adopted a carbon tax. Janet E. Miln, Carbon Taxes in the United States: The Context for the Future, in The Reality of Carbon Taxes in the 21st Century 18 (2008), available online at http://www.vermontlaw.edu/Documents/020309-carbonTaxPaper(0).pdf ("The United States has a number of laws that address greenhouse gas emissions, but it does not have a comprehensive, integrated, nationwide legal regime for reducing its contribution to global carbon dioxide or other greenhouse gases."_). Every state within the U.S. has a fuel tax of some sort, but only a few jurisdictions have adopted taxes that purport to be carbon taxes. Id. A number of other countries have adopted carbon taxes, including Denmark, Sweden, Finland, and, most recently, Australia. Mikaek Skou Andersen, Environmental and Economic Implications of Taxing and Trading Carbon: Some European Experiences, in The Reality of Carbon Taxes in the 21st Century 65; see also Robert Stavins, Experience with Market-Based Environmental Policy Instruments, 1 Handbook of Environmental Economics 355 (2005).

does not provide such estimates to help people plan, insurers are the only regulators that offer a detailed blue print for efficient activity-level incentives.

Why does insurance succeed in pricing externalities in the Pigouvian manner, whereas the government does not? Besides the political opposition that exists to any type of reform that includes more taxation,[104] insurers also have informational and administrative advantages. The data necessary for setting an accurate Pigouvian tax are not only the aggregate costs, which some regulators in some sectors have access to, but the fine-grained, individually-adjusted, feature- and experience-rated, and continuously updated costs that insurers uniquely collect. Thus, if the government attempts to price externalities ex ante, it must rely on thinner data, compared with the data available to insurers. And Pigouvian taxes based on such rough aggregations would tend to overtax some parties and undertax others, thus diminishing the accuracy of the incentives to reduce harm and to engage in efficient activity levels. To be sure, government agencies can also engage in information-gathering. But unlike with insurers, the information practices of government agencies do not have to be accurate for the agencies to perform their primary tasks, since the agencies are not themselves insuring the externality, and thus they do not have to bear the costs of the harm.[105] By contrast, insurers who set inaccurate premiums (inaccurate Pigouvian taxes, as it were) would suffer a loss of profit and, at the limit, would be competed out of business entirely.

D. Converting Standards into Rules

Insurance arrangements transform the standards enacted through government regulation into bright-line rules, thereby providing regulated parties (insureds) with concrete instruction regarding the choice of appropriate care levels. Negligence regimes in tort law, for example, set general "due care" standards; however, the determination of which particular safety measures are required by such standards is often left unclear to the regulated parties until a court resolves that question in particular cases ex post. Under such negligence re-

104. Political opposition can sometimes impede insurance premium setting, if it has to be approved by state regulators. For example, California experimented with rate-setting by referendum in Proposition 103. However, even proponents of premium caps understand that insurers must cover their costs. By contrast, proponents of a new government-imposed Pigouvian tax do not benefit from this understanding because the government is not acting as an insurer.

105. Sometimes, of course, the government does act as an insurer. For example, __. However, such public insurance schemes are not constrained by actuarial fairness because they are often meant to be redistributive, or achieve other non-actuarial goals (such as subsidized conduct, or a social security blanket).

gimes, liability insurers are often the agents that translate the vague legal standards into a set of concrete, sometimes very specific rules.[106] A similar mechanism also operates under strict liability regimes, which do not mandate particular safety standards, but leave the regulated parties to determine the privately desirable risk-reduction measures. Under those regimes as well, it is often the liability insurer who instructs the regulated party regarding specific safety choices.

Under either type of tort regime, the origin of the incentive to take care is government-imposed liability and the judicially (in some cases legislatively) created standards of due care. In the absence of insurance arrangements, these standards would be put into practice and individualized over time through litigation, which eventually produces a body of precedent. But even that decentralized process of litigation and precedent production may not produce clear and administrable rules, rules that can actually be followed by the regulated parties. Different courts generate inconsistent holdings, and the emerging body of commands, even when clear to legal experts, can be highly obscure to the general public. Insurance markets bolster this process of transforming vague standards into bright-line rules by employing a centralized network of agents. For example, insurance claim adjusters are taught to follow uniform guidelines developed by the insurers in consultation with their legal and cost-containment experts.

A prominent example of this collaboration between the standard-setting public regulators and standard-deciphering insurers is traffic safety. Tort law and highway safety regulations establish a framework for determining reasonable care and accident liability. But it is the insurance process that often establishes which actor is responsible for the accident, based on "mechanical and superficial formulas."[107] Because insurers have to follow routines, because they have to constrain the discretion that low-level adjusters exercise, and because basic principles of fault and negligence are difficult to apply, insurers turn to "mechanical presumptions" such as presumed liability for the rear drivers in rear-end collisions or for drivers turning left in front of oncoming traffic.[108] The pressure to run an efficient claims bu-

106. **H. Laurence Ross, Settled Out of Court: The Social Process of Insurance Claims** (1970). See also Tom Baker, Liability Insurance as Tort Regulation: Six Ways that Liability Insurance Shapes Tort Law in Action, 12 **Conn. Ins. L.J.** 1, 11 (2006).
107. Ross, id., at 99.
108. Id., at 100–101.

reaucracy and to "close cases" generates greater reliance on simple rules than the background legal system provides.

E. Stricter Codes of Safety

Another function that insurers perform is the design of safety mandates that exceed the government-regulated "floor." Take building codes, for example. Although municipalities vary in the level of safety investments that they require in residential and commercial buildings, they are often quite lenient. While it is true that electrical wiring is inspected for safety and commercial buildings must meet fire safety and emergency standards, many of the safety-related elements of the design and construction process are left unregulated. Property insurers step in and incentivize, and sometimes even require, adherence to stricter safety standards. Similarly, environmental regulations set various standards relating to environmental exposures and harms. Environmental liability insurers complement this regulatory floor by requiring their insureds to comply with stricter codes written by private groups. They go beyond minimal compliance checks by promoting, through discounts and mandates, participation in private Environmental Management Systems that follow strict codes of environmental compliance.[109]

In performing this standard-setting and code-setting role, and going beyond government mandates, insurers are subject to a pressure that governments rarely experience: competition. Agency-based regulation faces no competitive pressures. Regulatory agencies receive their funding from the central government through an annual budgeting process; and they typically receive their marching orders from elected officials and attend to interest groups. Thus, for example, in regulating building safety, municipalities are pressured by the interests of builders who prefer less expensive building codes.

Insurers, therefore, can fill a regulatory gap that results from political failure. Populist politics, for example, can lead the government to over- or under-regulate some areas. While there is little that insurance can do to correct for overregulation, it can eliminate distortions resulting from under-regulation of safety. For example, flooding is a major and rapidly grow-

109. See How to Open Pollution Coverage Market—Make Policy Contingent on Obeying Environmental Code, **Ins. Advocate**, Apr. 5, 1997, at 10; Steven A. Kunzman, The Insurer as Surrogate Regulator of the Hazardous Waste Industry: Solution or Perversion?, 20 **Forum** 469, 477 (1985).

ing source of losses in coastal areas, and yet coastal population continues to grow. In Florida the population in coastal counties grew from 5.5 million in 1980 to 9.7 million in 2003. The government's disaster policies subsidize coastal residents by paying for some of the losses and destruction from floods, thus distorting private decisions to populate coastal areas and leading to excessive coastal investment. Private insurance, on the other hand, sets policy premiums that—if not capped by law—closely reflect the risk to which individual properties are exposed, thus providing optimal incentives to populate (or depopulate) coastal areas.

Climate change policy is a major area in which insurance can help correct the political failure. On both national and international fronts, the political will to address climate change is weak, in part due to discounting of future generations and in part due to present day collective-action problems. But to the extent that climate change is affecting insurable perils like floods, droughts, and severe weather, people will have to pay higher premiums to insure their assets. And unlike government regulators, private insurers do not have the luxury of allowing themselves to be stymied by political debates over the science that underlies climate-change policy. Indeed, in anticipation of actuarial shifts in damages and liability costs, insurance premiums should rise. And when premiums rise reflecting the growing risks, the pressure from insureds to enact carbon emission standards and other abatement measures will increase.

F. Outsourced Monitoring

Implementing safety standards requires monitoring of the regulated activity. Much regulatory monitoring is done ex ante, for example, to confirm the installation of safety devices and inspect the conduct of regulated parties. But monitoring can also be conducted ex post, after harm occurs, to determine liability or coverage. Government agencies regularly inspect compliance with government safety standards ex ante, and courts verify compliance ex post.

Monitoring is often done more effectively by insurers, who develop regulatory practices and technologies that the government lacks. Take, for example, a new technology being gradually adopted by auto insurers: A small data-recorder is installed in cars and allows the insurer to measure and monitor patterns of usage, including time and duration of operation,

speed and brake patterns, distance travelled, and much more.[110] The improved monitoring allows insurers to price policies to reflect individual risk more accurately. This new device, however, also reduces risk. Monitored drivers, recognizing that every step on the accelerator is recorded, or that night driving affects their premiums, will drive more carefully and in safer hours. Of course, privacy concerns may limit the implementation of such advanced tracking and monitoring devices. However, as long as such concerns impose a stricter constraint on the government than on private insurers, insurance companies will be at the forefront of individualized monitoring technology.

Another example of combined ex ante and ex post monitoring is workplace safety. The Occupational Safety and Health Administration (OSHA) is the federal agency that adopts and, through inspection and fines, enforces various workplace safety and health regulations. The number and scope of federal workplace regulations are vast, but enforcement and monitoring are relatively thin. Although there is always the threat of an OSHA inspection, for most employers such on-site visits are rare.[111] By contrast, most employers throughout the country are required to purchase workers' compensation insurance to cover any work-related harms that can befall their employees; and virtually all workers' compensation insurers, in order to accurately price their policies, engage in a significant degree of either ex ante underwriting or ex post experience-rating or both. As a result, many employers regularly receive visits from insurance representatives seeking to monitor employers' compliance with the various government-imposed (and insurer-imposed) safety codes and recommendations.[112]

Monitoring is similarly outsourced to liability insurers in the area of product safety. Some inspection of product safety is conducted by courts in product liability suits and by the CPSC, but a large amount of product safety monitoring is done by product liability insurers.[113]

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110. Drivers may lower insurance premiums by getting monitored, USA TODAY, March 14, 20011.
111. There are over 7 million workplaces in the U.S., but OSHA inspects only roughly 40,000 worksites per year and the state equivalents of OSHA inspect another roughly 60,000.
112. See supra ___.
113. See supra __.

G. Disseminating information

Like the insurance industry, government agencies gather and use information as a basic tool in regulating safety. For example, NHTSA collects accident reports from traffic law enforcers around the country, as do insurers.[114] The FDA collects information about drugs; the CPSC collects information about risky products; the EPA collects information about the release of hazardous substances; and municipalities collect information about restaurants' hygiene.

Like insurers, the government disseminates this information about risk to help people make informed decisions. Thus, NHTSA publishes SUV rollover ratings, as well as many other auto-safety facts. But safety ratings were prominently available long before the NHTSA began publishing SUV rollover ratings. For over 50 years, the auto insurance industry has been publishing well-known car safety ratings, often more stringent and covering more safety factors than NHTSA's. For example, the insurance industry's four-grade scale includes many safety attributes that go beyond rollover risk. It takes into account a car's roof strength and how much protection it provides in the event of a rollover. Experts can debate whether the insurance ratings capture a more or less important set of factors than the government's ratings, but it is likely that the more robust the ratings that insurers produce, the less necessary is the government's scheme. Given the comprehensive data insurers have and their incentive to rate cars credibly, this particular safety-related exercise can probably be largely outsourced to the insurance industry.

IV. Expanding the Role of Regulation through Insurance

This Part examines three areas in which insurance is currently not offered and where regulation is achieved largely through legal controls. The question we explore is how private insurance markets might profitably be used to supplement or even replace those legal controls in some settings. The first section takes the example of the newly burgeoning market for first-party insurance coverage for consumer losses arising out of unperformed

114. The NHTSA had a vehicle safety research budget in 2011 of roughly $30 million. http://www.dot.gov/budget/2011/budgetestimates/nhtsa.pdf at page 30. The NHTSA's collection of traffic-accident data are available on line as well. http://www.nhtsa.gov/Data/State+Data+Program+&+CODES/SDS+Overview.

consumer contracts and argues that this type of insurance might provide deterrence functions better than traditional contractual remedies. The next two sections then review new ways in which liability insurance (even mandatory liability insurance) can be combined with new, relatively simple liability rules to deploy liability insurers as risk regulators in areas where government regulation has been notoriously lax.

A. Consumer Contracts

Consumer economic protection is advanced through two primary regulatory devices: liability in private law (mostly contract law, but occasionally tort) and public regulation (mostly against unfair and deceptive practices). This section explores the question whether first-party insurance markets might supplement or substitute for these regulatory techniques.

Consumers require protection because they sometimes agree to bad terms in their contracts, not understanding in advance what they have agreed to. Consumers also require protection because the promises that are made to them are sometimes broken: for example, products are not as described, merchandise is not delivered, money is excessively charged. When these breaches occur, contract law provides remedies, but enforcement is costly and largely impractical. Individual consumers cannot credibly threaten to sue; as a result, businesses are undeterred. Class actions are one way to deal with this under-enforcement problem, but impediments to such actions abound. Some claims are not aggregable into representative classes; some contracts waive class-action rights; and attorney-fee arrangements sometimes produce an imperfect selection of cases. The universe of contract claims that are too small or too complex to pursue individually in litigation is vast. Often obscured by lengthy standard forms, consumers cannot distinguish their rights, cannot adequately seek redress, and have to rely on non-legal mechanisms (e.g., sellers' ratings, retailers return policies) to steer clear of the risk of loss.

The question we wish to explore here is whether first-party insurance arrangements might relieve some of the insecurity that consumers, deprived of de facto contractual remedies, experience in these contexts. And could such insurance, further, actually provide businesses with incentives to perform their promises?

Pockets of explicit first-party consumer-protection insurance already exist, and it is not difficult to see why. Consider, for example, individuals who purchase cars on eBay Motors. In that market, consumers send money up front to sellers who often do not have a brick-and-mortar location, have undeveloped reputations and limited assets, and who, for all of these reasons, might easily take the money and run.[115] Yes, buyers have legal remedies when eBay sellers breach their agreements, but the enforcement of such remedies is unlikely. Perhaps in response to this legal-remedial void, eBay Motors itself provides a number of options for insuring car buyers against the risk of non- or under-performance by car sellers. For example, eBay Motors provides disappointed buyers a fund from which they can recover the lost payment when the seller defrauded them, up to $50,000.[116] Similarly, online purchasers of consumer electronics can use a service like SquareTrade to buy what amounts to first-party insurance against the types of risks that contractual seller-provided warranties would usually cover.[117] Credit card issuers provide similar "purchase protection" to buyers of consumer products who use the issuer's credit card as the form of payment.[118] PayPal likewise offers a "Buyer Protection Plan" that reimburses buyers for the full price and shipping costs in the event that their complaint against the seller is found to be meritorious.[119] And PayPal, like eBay or Visa, set up simple dispute resolution templates to verify that consumers' complaints are not frivolous.[120] In all of these cases, where there is a risk of the seller taking the money and running, the market makers, retailers, and payment intermediaries sometimes step in to offer bonds (or guarantee programs or recovery funds) to induce buyers to enter their network.[121]

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115. www.motors.ebay.com.
116. See http://pages.motors.ebay.com/buy/purchase-protection/index.html.
117. See www.squaretrade.com/pages/learn-more-warranty-buyer.
118. For example, Chase offers a purchase protection program for purchases made on Chase credit or debit cards. https://www.chase.com/online/Credit-Cards/preferred-services.htm.
119. See https://www.paypal.com/us/cgi-bin/webscr?cmd=xpt/UserAgreement/ua/USUA-outside#pbp-policy, Section 13
120. https://www.paypal.com/us/cgi-bin/webscr?cmd=xpt/UserAgreement/ua/USUA-outside#pbp-policy, Section 12; For eBay's policy, see http://pages.ebay.com/help/policies/user-agreement.html?rt=nc
121. Other examples abound. For individuals who are booking a vacation rental property and are worried that the property will be foreclosed on before their vacation or double-booked or will turn out to be less desirable than was represented by the owner (or maybe that the owner will unjustifiably withhold the deposit), special first-party insurance products—or "guarantees"—can be purchased. See, for example, http://guarantee.homeaway.com/vrbo/. Similarly, when a taxpayer fills out her tax return on Turbotax, if she is worried about the risk that the IRS will audit, she can purchase what amounts to insurance for that risk from a separate company. http://turbotax.intuit.com/corp/auditdefense.jsp.

The question is whether such pockets of consumer protection insurance might be expanded and consolidated into a more general first-party consumer insurance product, and whether that form of insurance might have some of the beneficial regulatory effects—care-level and activity-level effects—that we have been discussing. Imagine, for example, a hypothetical first-party insurance policy, sold by private insurance companies, that covered the cost to repair or replace (or simply to refund the price of) various types of non-performing or under-performing consumer products.[122] Unlike most existing warranty plans, this hypothetical insurance would be sold per-consumer rather than per-transaction. It could be sold, for example, as part of a homeowner's insurance policy, as yet another type of "property coverage." Indeed, standard homeowner's policies already provide limited coverage for some consumer-related perils, such as the risk of damage to or theft of the insured's "personal property," while that property "is anywhere in the world," and such as losses arising if someone makes unauthorized use of the insured's credit card, forges one her checks, or pays her in counterfeit money.[123]

Insurers selling such consumer-transaction insurance would of course have to develop procedures for receiving claims and investigating their validity. Consumers could choose to have the policies cover only certain types of transactions (e.g., only transactions over $250), thus eliminating the administrative costs of numerous small claims. Or they could choose coverage only for certain classes of transactions or for purchases from certain sellers.

If such a product were to emerge, it is our prediction that insurers would, as they do in other contexts, have a role that goes beyond indemnity; that is, they would also engage in some degree of ex ante and ex post regulation. For example, one obvious ex post regulatory role for the insurer in this setting would be to manage claims, separating the valid from the invalid. One advantage that insurers' post-claim investigation have over court-administered

122. The policy might even include coverage for certain types of consumer-service transactions as well, although insurers may find it more difficult to define the circumstances when a triggering coverage event has occurred.

123. See, e.g.e, Insurance Services Office, HO-3 Policy, Section I, Property Coverages, Coverage C (Personal Property) and Additional Coverages 6 (credit card, forgery, and counterfeit money). Note that existing homeowner's policies clearly do not provide any coverage for under- or non-performing consumer products, as those policies explicitly exclude all losses that arise out of "inherent vice," "latent defect," or "mechanical breakdown." Id., at Section 1—Perils Insured Against, C.7.b. Thus, as homeowners' policies are currently written, insurers have declined to substitute their coverage for consumer product warranties. Our argument is that this might change over time if consumer-product warranties for a wide range of products continue to provide ineffectual remedies.

post-claim fact-finding is the use of simplified procedures (similar to ones already implemented by, say, eBay). We discussed above how auto-insurance claim adjuster use simple rules to assess coverage, and similar practices can develop in the consumer loss area.

Consumer transactions insurance might also offer efficiencies in regulating the risk ex ante. In underwriting the policies, insurers would have more information about the likelihood of potential claims—the insured's "propensity" to file claims—than do existing guarantee and warranty programs, because insurers can keep records of the insured's rate of past claims. Also, whereas the SquareTrade-type warranty can at most aggregate information about a particular seller or product, an insurer can compare the same information with each insured's claim record in other areas. This richness of information creates a richness of possible plans and prices available for the insurer. Some consumers might prefer special endorsements to cover particular type of transactions, while others might prefer a pricier "all-transaction" risk coverage. The choice can be made at the time of policy purchase, or augmented at the time of product purchase; and it could even be further refined by co-arrangements with credit card issuers or retailer loyalty plans.

Perhaps less obvious, this new type of first-party consumer transaction insurance could also deter opportunism on the part of businesses that sell to consumers. First, if the insurers are subrogated to their insureds' claims against the breaching sellers, the insurers can more effectively recover from the defendants than can individual consumers bringing their own lawsuits. In a sense, subrogation claims brought by first-party insurers can substitute for class-action lawsuits as a means of regulating bad behavior in circumstances in which individualized lawsuits are not cost effective.[124] And even if subrogation is ineffective—if, for example, the insurers pay claims that are not recoverable under contract or consumer law—insurers might nevertheless help to deter seller wrongdoing. For example, through various information aggregation techniques, insurers might be able to identify sellers who engage systematically in opportunistic or otherwise wrongful behavior and, in effect, "blacklist" them. Sellers that are repeat offenders (that produce unusually high numbers of claims brought by insureds under their policies) could be singled out by insurers and

124. First-party insurers sometimes bring subrogation claims on behalf of large groups of insureds against a single defendant. Any judgment or settlement is then allocated among the first-party insureds according to the size of their claims.

classified as bad risks. Insurers could in turn warn insured-consumers not to purchase from these high-risk sellers and could in extreme cases exclude coverage for claims arising out of sales involving the worst-offending sellers. Exclusions that say things such "this policy does not cover purchases from X" would serve the ex ante regulatory role of increasing the salience of those companies' non-performance risk, and deterring misconduct.

Insurers can even charge business directly to be covered. For example, eBay Motors provides an insurance-like buyer protection program without charging buyers any premium. Instead, it charges sellers for the cost of the buyer protection program, and it can differentiate the price according to seller's record or it can expel sellers who breach their obligations.

Because insurers can aggregate and share actuarial data on the non-performance risk that businesses pose, these blacklists of "out-of-network" businesses could reliably reflect the incidence of harm. Or, if the creation of blacklists are distasteful, a different practice can be to offer a menu of premiums. Rather than exclude products sold by company X altogether, the insurance premium can be increased to cover this company's products. For example, a premium of $400 would be charged to secure coverage for all purchases, whereas a premium of $100 would be charged for a more restrictive policy that excludes coverage for products by a list of worst offenders. The threat of being on the list of businesses whose products are either not insured or cost more to be insured could provide more discipline than the threat of private lawsuits by aggrieved consumers. The accuracy of such a regime, in reflecting actual loss distributions, would be greater than that achieved through litigation.

Moreover, businesses could compete to have their products and transactions covered by reputable insurers. An entrant, for example, trying to break into a market in which established businesses have long-standing clientele, could pay insurers to be included in the coverage package they offer their insureds, and advertise this feature. Insurance, that is, can operate as an implicit certification scheme, a private seal of quality, a rating service, generating much of the incentive effect usually attributed to these devices.[125] This is bonding, not corruption: So long as the coverage offered by the insurer covers losses arising from the sale of the "bribing" seller's product, the system works like a pre-funded warranty scheme. It

125. Notice that in this setting, if the product seller pays the insurer for a good rating, it is not an example of the system being corrupted through bribery..

would be superior to a seller-run warranty because insurers-intermediaries administer the actuarial soundness and claim management aspects of the fund. In short, the insurer would operate as the agent for consumers, by aggregating data about the business, classifying the risk that the business poses, pricing this risk, and covering it.

Why is such an insurance product not already offered? We noted that miscellaneous first-party consumer insurance pockets exist through the efforts of market makers, payment systems, and warranty programs—all in areas in which the liability system is ineffective in shifting the costs to the wrongdoers. But the full-blown information tools of the insurance industry have not been harnessed to this end, perhaps because the demand for such coverage is already filled by the niche assurance products. What seems more likely, however, is that, until recently, it was assumed by insurers that the demand coverage against the risks of consumer product under- or non-performance was met by the product sellers themselves through the sale of product warranties. It is also possible, then, that the trend in American law, of businesses immunizing against court-imposed liability for breach of consumer product contracts, through their effective use of mandatory arbitration clauses, may dramatically increase the demand for first-party insurance coverage as a substitute for legal control of consumer product quality.

B. Food Safety

Regulating food safety is a daunting task for the government. Milk containing traces of melamine, peanuts contaminated with salmonella, seafood containing mercury or other dangerous toxins, all pose risks that are hard to monitor. These products often pass through many hands in the chain of distribution, with risks in every step of the way, often outside the regulatory jurisdiction of local government regulators. Food products are vulnerable to a wide variety of contaminants and toxins, which require specialized testing to detect. As a result, ex ante food safety monitoring must be done by sampling—there is simply too much food to test it all—and major hazards could go under the radar even if sampling is frequent.

Tort and products liability law provide additional venues of enforcement. Individuals who eat a contaminated meal at a restaurant or who consume tainted food that they purchased from a retail grocer have tort remedies. To the extent the sellers in each case are

large, fully solvent businesses (the McDonalds and Krogers of the world), the tort system provides an effective regulatory supplement to agency-based ex ante quality control.

As discussed previously, product manufacturers and sellers purchase liability coverage from insurers who develop special expertise in regulating the risks in question. There are specialized "food product liability insurance" that help sellers manage the risk of tainted foods.[126] These policies may also provide food-safety regulatory insurance—coverage of the costs of complying with government enforcement actions, including food recalls.[127]

This system of products liability law administered (or operationalized) through specialized liability insurers, however, cannot alone deal with the problem of small manufacturers, retailers, and importers of tainted food. Many of them are judgment proof and may sell imported products from wholesalers who are likewise small or difficult to identify (such as foreign suppliers). They do not have brand names to post as reputation bonds. An obvious solution would be compulsory liability insurance: require small sellers of food products to purchase enough liability insurance to cover them against the risk of food-borne illness. Such a mandate would effectively place liability insurers in the role of small-business licensers as well as food-safety regulators.

A somewhat less comprehensive approach would be not to apply the mandate to sellers of domestically grown and produced food, but to limit the compulsory insurance regime to importers of food products. This more limited approach might be preferred if it were determined that domestically produced food tended to be relatively safe, either because of the effect of ex ante regulation or reputational effects. Under such a regime, importers would be strictly liable for harms arising from the use of an imported product, as they are under current law; however, to guarantee the importers' ability to pay, they would be required by law either to put up a bond or to purchase a liability insurance policy with policy limits sufficient to satisfy any potential tort judgments. [128]

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126. For a discussion of food product liability insurance, see Rob Holland, "Food Liability Insurance," Center For Profitable Agriculture, CPA #128, available on line at http://cpa.utk.edu/pdffiles/cpa128.pdf.

127. Jean C. Buzby, Paul D. Frenzen, Barbara Rasco, Product Liability and Microbial Foodborne Illness, Economic Research Service, Agricultural Economic Report No. 799, p.9 (U.S. Dept. Agriculture, Apr. 2001), available online at http://www.ers.usda.gov/publications/aer799/aer799.pdf.

128. Tom Baker has recently proposed one such innovative scheme. Tom Baker, Bonded Import Safety Warranties, in Import Safety: Regulatory Governance in the Global Economy 215 (Cary Coglianese et al., Eds., 2009). While Baker envisions insurance policies with limits equal to the retail value of the goods sold, a fully

The role of government in setting up such a mandatory insurance scheme would be relatively limited. Although the government would need to monitor compliance with the mandatory insurance requirement, it would not have to monitor food production, sample products, send inspectors to the retail establishments, or intercept imports. The government's primary role would be to maintain the existing tort regime of strict products liability for harms caused by tainted food products, to mandate minimal policy limits, and presumably to continue some system for monitoring the solvency of participating insurance companies. To be allowed to import food products, importers would be required to show the government regulator proof of insurance from a licensed and regulated insurer. In setting policy limits, the government would need to come up with tables of projected risks, which would depend on the type of food in question and the risks it normally poses.

This insurance solution would rely on the contractual agreement between the insurers and the food distributors or importers to generate incentives for optimal safety. For while the policy limits are mandated by the government, it is up to each insurer to price the coverage according to the idiosyncratic risk that each insured poses. It is here that the information advantage of insurers could provide a unique advantage. To qualify for discounted premiums, importers of food would have to provide proof that they satisfy threshold standards of hygiene and food safety (as when product liability insurers insist on evidence of safety testing and quality control programs). The process of underwriting policies would harness information intermediaries—local inspectors and certifiers, trade associations, distribution networks—that are otherwise not used when it is the government that inspects imports at the border or other products at the factory.[129]

C. Financial Statements Insurance

In the aftermath of corporate reporting fraud scandals and the conflict of interests that auditors and other gatekeepers (e.g., underwriters and lawyers) were revealed to have

cost-internalizing plan would require policy limits that reflect the consequential harms from products. Unsafe food, for example, sells for a negligible retail price, but if contaminated could cause great harm.

129. As Baker explains in his proposal for warranty bonds, insurers "would demand that importers maintain detailed records of the sources of all of the ingredients and components of the goods being imported, facilitating the accountability process." Id. at 220. Baker also points out that the insurance industry is experienced in underwriting similar kinds of health and safety risks related to global food supply. Many existing importers voluntarily purchase liability insurance that covers product liability risk and product recall costs, as well as the costs of business interruption.

had, the Sarbanes-Oxley Act sought to regulate the role and the liability of gatekeepers. The Act addresses problems of auditors' and accountants' conflicts of interest through a set of regulations, penalties, allocation of authority to audit committees, and stricter standards relating to the involvement between auditors and clients. Much debate and critique has been leveled against the Act, the incentives it creates, and the growing involvement and supervision of the law in the governance of firms. But the problem it addresses is important: if auditors are hired and paid for by management, their conflict of interest is endemic to the relationship. Investors who rely on the statements do not have the incentive to hire private auditors. Thus, the problem seems to require government regulation in the form of fiduciary duties, agency monitoring, ex post penalties, disclosures, and various other mandated procedures.

One of the main objectives of Sarbanes-Oxley was to regulate what amounts to a conflict of interests by auditors. The concern is that auditors, who are hired by the same clients whom they need to scrutinize, experience a conflict of interests and distort their audits to the detriment of the relying investors. But the Act has been criticized for imposing costly burdens on the parties involved, for the thicket of bureaucratic mandates, and for little empirical success.[130]

Can government regulation of auditors' conduct be outsourced to insurers? Joshua Ronen has proposed such an insurance scheme as a regulatory alternative.[131] Under Ronen's proposal, the law will not have to determine when a conflict of interests arise, and how to divide the blame between the auditors and the audited firms. Instead, the law needs to set clear rules of strict liability (of firms, not auditors) for misrepresentation, and it has to mandate that firms purchase liability insurance.

This insurance—which Ronen calls "Financial Statement Insurance"—would resemble any type of business liability insurance, like D&O insurance. Many such policies already exist and cover a variety of other forms of financial liability. Insurers selling such misrepresentation liability insurance would be the ones to hire external auditors to assess the risk of

130. Cite **Mich L. Rev**. conference.

131. Joshua Ronen, Post Enron Reform: Financial Statement Insurance, and GAAPP Revisited, 8 **Stan. J.L. Bus. & Fin.** 39 (2002); Alex Dontoh, Joshua Ronen, and Bharat Sarath, Financial Statement Insurance (NYU Working Paper No. 2451/27449, 2008, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1280670). See also Lawrence A. Cunningham, Choosing Gatekeepers: The Financial Statement Insurance Alternative to Auditor Liability, 52 **UCLA L. Rev.** 413 (2004).

misrepresentation. And the insurers would vary the premiums, the policy limits, and other policy terms (e.g., deductibles) that are charged to each insured company, based on the risks presented by each company. Thus, the auditors would be working for the insurers, not for the audited firms.

Each firm's insurance coverage would be publicized, in the same way that many other sellers publicize the warranty or limits of liability they offer. These publicized parameters would be visible to investors, would provide information about the reliability of financial statements, and thus would affect the price of the firm's securities. If the firm has to pay a high premium for its coverage, the market would infer that the insurer regards the firm as high risk. By contrast, if the firm has a high policy limit, or maintains a substantial deductible, this would be viewed by the market as a good signal of low risk to investors. (Of course, the presence of insurance for misrepresentation would make the risk signal less crucial, since the losses are insured).

Importantly, it would be up to the insurers to audit the firm's statements and to hire reliable monitors who are not conflicted. It is the standard business of insurance to rely on experts in underwriting risks, and insurers have no clear interest to hide or overstate potential risks. Because the risk would be assessed by outsiders, and because high risk factors would become visible to the market through the price and limits of the insurance coverage, firms will have an incentive to improve the quality of their financial statements. Insurance would eliminate the need for regulatory oversight of auditors' independence. It would also harness the reputation and claim-paying capabilities of the insurer to the benefit of investors, who will be able to assess the misrepresentation risk more accurately. It would therefore serve quite well the objectives of securities laws. Even the settlement of claims could be simplified. Rather than relying on courts to resolve securities fraud suits, insurers could investigate claims or prescribe a claim-resolution procedure in the policy.

Conclusion

The goal of this Article is to bridge two conflicting truths about insurance. The first is the moral hazard concept—that insurance can destroy incentives to minimize risk. The second is the risk-management concept—that insurance can improve incentives to reduce risk. We started by noting that regulation of risk is not an obvious goal of the insurance in-

dustry, which thrives on the presence of irreducible risks. It is the pressure of competition, and the selfish incentive to contain costs once premiums have been paid, that motivates insurers to seek risk mitigation. Insurers regulate risk in various ways. From mandating specific investments in risk reduction, to offering premium discounts for favorable claims experience, to selling cost-containment expertise to policyholders, insurers perform many of the same regulatory functions that government regulators and courts perform. However, in many (though obviously not all) situations, private insurers, because of their inherent informational comparative advantage, should be expected to do the job of regulation better than public regulators and courts.

There are many aspects to the insurance-as-regulation paradigm that were not explored in this article. For example, the regulatory paradigm suggests that the choice of primary liability rules should ideally be affected by a determination of which type of insurer is better at regulating its insureds' behavior. Thus, whereas one party might be the least cost avoider of a particular risk (and thus the prima facie target of an optimal liability rule), if that party is covered for this risk by a type of insurance that is ill-suited to regulate incentives, shifting the liability to the other party whose behavior is more readily regulated by insurance could be superior. For example, if first-party insurers are the better regulators of a particular risk than liability insurers, then a no-liability rule could be desirable, even if injurers are the more efficient risk avoiders. Alternatively, if liability insurers are the better regulators, then a rule that shifts costs to injurers could produce the most efficient risk reduction, even in situations in which victims might be the cheapest cost avoiders. Products liability might well fit this scenario.[132]

Another way in which the insurance-as-regulation paradigm affects the design of primary legal rules is in the rules directly applying to insurance. First, the law should at times mandate insurance coverage, in order to harness the regulatory capacity of insurers. We argued that mandatory environmental liability insurance was necessary in enticing the insurance industry to develop its regulatory skills, and that mandatory liability insurance could substitute for much of food safety regulation. Such mandatory insurance would be equivalent to making insurers the licensing agents for certain types of risky activities. Se-

132. See generally Hanson & Logue, supra note __).

cond, the law should monitor the integrity of insurers' decisions as regulators, anytime competition does not provide sufficient discipline. For example, insurers ex post underwriting could be a desirable regulatory tool, but could also quickly digress to an opportunistic and even fraudulent strategy that justifies stiff deterrence.

Indeed, regulation-by-insurance often walks a delicate path between a socially desirable information-rich incentive mechanism and an opportunistic set of self-serving rent-seeking tactics. Insurers can require specific forms of conduct from their clients in order to improve safety, but they can also do this as a pretense for unjustified denial of paid-for coverage. We don't know which pattern dominates. The insurance law literature is saturated with studies of insurance opportunism. This paper's goal was to illuminate the flip side, often under-appreciated, of improved safety.

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