Pace Law Review

Volume 34
Issue 1 *Winter 2014*

Article 5

January 2014

The Market in Unmatured Tort Claims: Twenty-Five Years Later

Stephen Marks
Boston University School of Law

The Market in Unmatured Tort Claims: Twenty-Five Years Later

Stephen Marks*

I. Introduction

In an article in 1989 in the Virginia Law Review, Professor Robert Cooter argued for changes in the law that would facilitate the development of a market in unmatured tort claims.[1] An unmatured tort claim is a potential claim that a potential victim has before any injury has occurred.[2] Cooter proposed that potential victims have the right to sell their unmatured tort claims.[3] That is, Cooter proposed that potential victims be allowed to sell their right to sue even before an accident or injury ever occurs.[4] Even *twenty-five* years later, the proposal remains both bold and imaginative, and yet it remains unadopted in any jurisdiction. There is a reason for this. In this Article, I reexamine the proposal as to its likely intended and *unintended* effects. The unintended effects were overlooked in the original article because of its static analysis. A dynamic analysis reveals these unintended effects. These effects do not invalidate the proposal. I conclude that Cooter's proposal continues to have merit, but several modifications are necessary if the proposal is to succeed. Without these modifications, the proposal will fail to accomplish its goals and will have serious adverse unintended effects. In short, this Article argues for the adoption of measures to permit the development of a *limited* market in unmatured tort claims. The primary limitation is the exclusion of potential injurers in the market for their own unmatured tort claims. Other

* Professor of Law, Boston University School of Law.

1. *See* Robert Cooter, *Towards A Market in Unmatured Tort Claims*, 75 VA. L. REV. 383 (1989).

2. *See id.* at 383.

3. *See id.*

4. *See id.*

modifications include utilizing a different measure of damages and a prohibition on liability limiting agreements.

II. Background and Organization

In this Article we will use the following terms:

Unmatured Tort Claim: As indicated above, an unmatured tort claim is a claim that is based on possible future accidents.[5]

Market for Unmatured Tort Claims: This market would permit potential victims to sell their potential right to sue to others. The buyer of the unmatured tort claim would be able to sue the tortfeasor if and when an injury occurred to the victim whose tort claim the buyer has purchased.[6] If an injury occurs, a court may award damages. The amount of damages may be measured according to one of the following:

Full-Compensation Damages: The amount of damages that will give the victim the same amount of utility whether or not the injury occurs.[7]

Optimal-Insurance Damages: The amount of damages that will give the victim the maximum expected utility over injury and no-injury states given the probability of injury.[8]

Optimal-Deterrence Damages: The amount of damages that will induce the potential injurer to adopt the optimal level of care, where the optimal level of care is that which produces the maximum amount of expected utility over injury and no-injury states. (Again, this expected utility is just the product of the probability of no accident and the utility if there is no injury plus product of the probability of an injury and the utility if there is an injury.)[9]

Optimal-insurance damages may be lower than full-compensation damages.[10] This is the primary motivating factor

5. *See id.*

6. *See id.*

7. *See id.* at 394 (defining "ideal insurance").

8. *See id.* at 396 (comparing "ideal insurance" with "ideal compensation"). This expected utility is just the product of the probability of no injury and the utility if there is no injury plus the product of the probability of an injury and the utility if there is an injury.

9. *See id.* at 398-400.

10. An early and influential article in this area is Philip J. Cook &

in Cooter's proposal for a market in unmatured tort claims. By allowing potential victims to sell their claims to full compensation, they can purchase optimal insurance.[11] Meanwhile, potential tortfeasors will be deterred since holders of the claims will be able to sue for full compensation.[12] The result, according to Cooter's analysis, would be both optimal deterrence and optimal insurance. There would be additional advantages to such a market. Since, under Cooter's proposal, potential tortfeasors could purchase the unmatured tort claims of their potential victims, transaction costs of negotiation and suit would be reduced since such potential tortfeasors would not sue themselves.[13] Also, socially optimal institutional arrangements would develop naturally through the market rather than be determined through the political process. For example, drivers could sell their rights to their insurer. The insurer could then waive these claims in an agreement with other insurers.[14] The result would be a system of no-fault insurance.[15]

Given the potential advantages of a market for unmatured tort claims, it is important to examine whether such a market will develop and the possible consequences if it does not. I show in this Article that the inclusion of potential tortfeasors in the market will effectively kill the market. Furthermore, incentives for optimal care by potential tortfeasors will disappear if potential tortfeasors are allowed to purchase the claims of their potential victims. These results are driven by moral hazard. That is, potential tortfeasors will act differently with and without the rights. Cooter suggests that the market will eliminate the moral hazard problem and thus the incentives for potential tortfeasors to adopt optimal care will remain intact.[16] I show that rather than the market eliminating the moral

Daniel A Graham, *The Demand for Insurance and Protection: The Case of Irreplaceable Commodities*, 91 Q. J. ECON. 143, 151 (1977) (showing that full compensation generally over-insures and over-deters).

11. *See* Cooter, *supra* note 1, at 384.

12. *See id.* at 387 (assuming that full compensation is optimal for deterrence).

13. *See id.* at 407.

14. *See id.* at 385.

15. *See id.*

16. *See id.* at 393.

hazard problem, the moral hazard problem will kill the market unless potential tortfeasors are excluded. This effect becomes apparent when one introduces a time element into the analysis.

It is true that excluding potential tortfeasors from the market may eliminate some of the transaction cost savings that could be realized if potential tortfeasors can buy the rights of their potential victims, given that in that case potential torfeasors would not sue themselves. Still, there may remain other significant transaction costs savings. For example, third-party insurers could buy the claims and then agree not to sue each other. Furthermore, other advantages remain. Primary among these is the ability to have optimal deterrence and optimal insurance.

Here is how the rest of the Article is organized:

Section III provides an example that demonstrates the relationship among full compensation, optimal insurance, and optimal deterrence. Full compensation may both over-insure and over-deter. Therefore, Cooter's proposal must be modified so that unmatured tort claims give a right to optimal-deterrence damages rather than to full-compensation damages. Because the optimal deterrence and optimal insurance measures of damages differ, the market for unmatured tort claims still may function to provide optimal deterrence and optimal insurance as Cooter suggests.

Section IV demonstrates how inclusion of potential tortfeasors in the market for unmatured tort claims will effectively kill that market and lead to suboptimal precaution. Thus, potential tortfeasors must be excluded in order for the market to develop and to accomplish its purpose.

Section V demonstrates that agreements between potential tortfeasors and the holders of unmatured claims could lead to suboptimal results. Effectively, allowing such agreements would allow potential tortfeasors to accomplish indirectly, that which they could not accomplish directly under the above modifications. Thus, the proposal must be modified to prohibit liability-limiting agreements.

III. Full Compensation, Optimal Deterrence, and Optimal Insurance

In what follows, we define and examine three measures of damages: full-compensation damages, optimal-insurance damages, and optimal-deterrence damages. Let us start by considering a product that can cause injury. Suppose for now that the potential tortfeasor, a manufacturer, will pay to the victim compensation if the product injures the victim. Both the cost of production and expected damages will be reflected in the price of the product. The product gives the victim a certain amount of utility that depends on price and on whether the victim gets injured.

A numerical example will demonstrate the principles. We begin by assuming that the potential victim (let us call this person K) is risk averse (has diminishing marginal utility of wealth)[17] and has the expected utilities of wealth given in Table 1.

Table 1

Wealth ($)	Utility with no Product (utils)	Utility with Product and no Injury (utils)	Utility with Product and Injury (utils)
850	145	165	-450
860	150	170	-440
870	154	174	-432
880	157	177	-426
890	159	179	-422`
900	160	180	-420
.	.	.	.
.	.	.	.
1000	164	184	-402
.	.	.	.
.	.	.	.
3870	.	.	-26
.	.	.	.
.	.	.	.
5850	215	235	165

17. 861-1st TAX MGMT. (BNA) ESTATES, GIFTS, & TRUSTS, at A-3 (2013).

Now suppose that K begins with a wealth of $1000 and suppose (for now) that there is a no-liability rule (the consumer bears all of the risk) and that the risk of injury is 1%. Suppose that the product costs $100 to purchase. Under these facts, K will purchase the product. Purchasing the product will decrease the consumer's wealth by $100, from $1000 to $900, but total utility will increase from 164 to 174. (See Table 2.)

Table 2
Expected Utilities with No Compensation

		Prob	Initial Wealth	*less* Amt Spent on Product	Wealth After Purchase	Utility	Total Expected Utility
Do not purchase Product	No Injury	1.0	$1000	0	$1000	164	164
Purchase Product	No Injury	.99	$1000	$100	$900	180	174[18]
	Injury	.01	$1000	$100	$900	-420	

A. *Full Compensation and Optimal Insurance*

Full compensation makes the victim whole, that is, gives the victim the same utility whether or not the accident occurs. In our example, full compensation is $5000. To see this, assume that if K is injured, then K receives $5000. As such, potential injurers (such as the manufacturers of products) must pay $5000 with a probability of 1%. This is an expected cost of $50

18. This is (180 x .99) + (-420 x .01) = 174.

that is passed on to consumers, that is, to K. Thus the price of the product will increase to $150 so that, if the product is purchased and no injury occurs, the consumers' wealth will be $850. If an accident occurs, the consumer will receive $5000 and have a total wealth of $5850. In either case, total utility will be 165, which is what is meant by full compensation. (See Table 3.)

Table 3
Utilities with Full Compensation

		Initial Wealth	***less* Amt Spent on Product**	***plus* Damages Received**	**Final Wealth**	**Total Utility**
Purchase product	No Injury	1000	150	0	850	165
	Injury	1000	150	5000	5850	165

We should note two things: (1) K's utility is still higher from purchasing the product than from not purchasing the product. (Recall that the utility from not purchasing the product is 164. See Table 2.) However, with slightly different numbers (suppose the utility of $1000 wealth without the product were 166), full compensation could lead to the product not being purchased. (2) The consumer's utility is lower than in a regime where there is no liability. (With no liability, the expected utility was 174. Again, see Table 2.)

Thus, providing full-compensation damages lowers expected utility as compared to a no-liability rule. This is not to say that a no-liability rule is optimal. Rather, this demonstrates that full-compensation insurance does not necessarily maximize utility. It is possible that some level of insurance, short of full-compensation insurance, maximizes utility.

B. *Full Compensation and Optimal Deterrence*

That optimal deterrence and full compensation differ is well known in extreme circumstances.[19] Calculations for the value of a life from risk-taking activity (so-called hedonic damages) reflect the realization that optimal deterrence requires a payment that is below full compensation. In the case of death, full compensation implies an infinite payment. But this is true of many traumatic injuries. For example, there is probably no sum of money that would compensate most people for quadriplegia. Yet there is some finite level of damages that will induce the potential tortfeasor to adopt the optimal level of care. Hedonic damages for death and other risk-based assessments of injuries are attempts to get optimal deterrence, not full compensation (which is impossible in these cases) or even optimal insurance.[20] For example, hedonic damages for death are positive and finite even though the victim cannot be made whole and even if the victim would not have insured against death. The same is true in less extreme cases.

Let us turn back to our example. So far we have considered a product whose probability of causing injury is fixed. Suppose, however, that the producer could take more care and that more care reduces the probability of injury. Suppose, for example, that some costly technology exists for reducing the probability of an accident to zero. Suppose that this technology costs $40. Suppose again that there is a full compensation rule, which means that if an accident happens, the manufacturer must pay $5000 to the victim. A manufacturer then has the choice of paying $40 to prevent the accident or paying $5000 whenever the accident occurs. The latter option has an expected cost of $50, since the probability of an accident without care is 0.1. Thus, the manufacturer will pay $40 to prevent the accident and factor the cost into the price of products. This means that the price of the product will be $140, that K's wealth after purchase will be $860, and that the injury will not happen.

19. *See* Patricia Danzon, *Tort Reform and the Role of Government in Private Insurance Markets*, 13 J. LEGAL STUD. 517, 520-21 (1984).

20. In this sense, hedonic damages are misnamed since 'hedonic' evokes thoughts of lost pleasure. *See* Sherrod v. Berry, 629 F. Supp. 159, 163 (N.D. Ill. 1985), *rev'd*, 856 F.2d 802 (7th Cir. 1988).

Total utility will be 170. (See Table 4.)

Table 4
Utility with Full Compensation and $40 Cost of Care

	Initial Wealth	Amount Spent on Product	Final Wealth	Total Utility
Purchase product (injury does not occur)	$1000	$140	$860	170

This is worse than if there are no damages. In the case of no damages, the potential injurer does not take care, the consumer purchases the product, and the consumer has an expected utility of 174. (See Table 2.) Thus, a full compensation liability rule will cause the manufacturer to buy $40 of prevention, with a resultant expected utility for the consumer of 170, while a no liability rule will result in no care with a resultant expected utility for the consumer of 174. Clearly, a full-compensation liability rule over-deters.

The notion that full-compensation provides too great a level of deterrent effect fuels some discussions about tort reform.[21] For example, in the medical profession there is concern about excessive testing. In the small aircraft industry, excessive precaution may lead to prices that few can afford.

Even though full compensation can over-deter, this does not mean that zero compensation is optimal. Suppose that the level of compensation was set at $3000 rather than $5000. This would mean that a manufacturer would employ a means of prevention if it costs less than $30, but would not employ it if it cost more than $30. (This is because its expected liability without the means of prevention is $30, that is, a 1% chance of $3000.) Thus, the manufacturer would not employ a means of prevention that cost $40. Suppose the means of prevention cost $20. Then the manufacturer would employ it. The cost would be reflected in the price of the product and the consumer's wealth would be reduced to $880. With a wealth of $880, the

21. *See* Cook & Graham, *supra* note 10, at 155.

consumer has a utility of 177 (see Table 1) which is better than 174.

Table 5
Utility with $3000 Compensation and $20 Cost of Care

	Initial Wealth	**Amount Spent on Product**	**Final Wealth**	**Total Utility**
Purchase product (injury does not occur)	$1000	$120	$880	177

C. *Optimal Deterrence and Optimal Insurance*

So we know that full-compensation damages may over-deter and provide too much insurance.[22] It also turns out that optimal-deterrence damages may provide too much insurance.[23] To see this, let us suppose that the damages for optimal-deterrence are $3000. Suppose that the only possibility is for the manufacturer to pay $40 for care that reduces probability to zero. In such a case the manufacture will not adopt care. The price of the product will be set at $130, reflecting production costs and damages. If the consumer purchases the product then the expected utility will be, in our model, 172 utils. (See Table 6.)

22. *See* Cooter, *supra* note 1, at 396.
23. *See id.*

Table 6
Expected Utility with $3000 Damages

		Prob	Initial Wealth	*less* Amt Spent on Product	Damages	Wealth After Purchase Price and Damages	Utility	Total Expected Utility
Purchase Product	No Injury	.99	$1000	$130	0	$870	174	172
	Injury	.01	$1000	$130	3000	$3870	-26	

One hundred seventy-two utils. is still a worse result than if there were no damages. The damages in this case do not optimally insure. (In terms of insurance, no damages is better than this level of damages.) Yet we want to give the manufacturer the incentive to adopt care when it is efficient to do so, because if the cost of care drops, say to $20, then the consumer is better off with the producer adopting care. (Recall that with a cost of care at $20, the utility that the consumer gets is 177.) In general, full-compensation damages will be greater than or equal to optimal-deterrence damages, and optimal-deterrence damages will be greater than or equal to optimal-insurance damages.[24]

D. *The Market for Unmatured Tort Claims*

How do we get both optimal deterrence and optimal insurance? Cooter's model suggests that the courts grant full-compensation damages, but that the potential victim be permitted to sell the right to collect these damages to others.[25] These others can then sue the tortfeasor.[26] The potential victims can then buy optimal insurance.[27] As we have

24. *See* Cook & Graham, *supra* note 10, at 144.
25. *See* Cooter, *supra* note 1, at 385.
26. *See id.*
27. *See id.* at 387.

demonstrated above, full-compensation damages can lead to over-deterrence. Still, Cooter's point is well-taken. We can modify Cooter's proposal as follows:

> *Modification 1:* Courts should award optimal-deterrence damages (rather than full-compensation damages).

Potential victims would be allowed to sell the right to these damages to others, and they could afford to buy optimal insurance. This will result in optimal-deterrence and optimal insurance. However, as will be shown in the following sections, additional modifications are necessary.

IV. Why the Market Must Exclude Potential Tortfeasors

In Cooter's proposal, potential tortfeasors would be allowed to purchase unmatured tort claims from their potential victims.[28] This would give additional advantages by eliminating significant transaction costs involved in negotiation and litigation, since tortfeasors would never sue themselves.

In this section, I show that a market for unmatured tort claims will develop only if potential tortfeasors are prohibited from purchasing the claims of their potential victims. Potential tortfeasors who hold unmatured tort claims related to their own torts, will engage in socially suboptimal behavior due to moral hazard. Cooter argued that moral hazard will be corrected by the market.[29] I make the opposite argument; Moral hazard will not be corrected by the market. Rather, moral hazard will destroy the market.[30] If tortfeasors are not prohibited from buying unmatured tort claims from their victims, there will be insufficient incentives for optimal precaution even if courts award optimal-deterrence damages.

The reason to suspect that a secondary market will never develop is that potential tortfeasors are always in a better position than other secondary buyers to purchase unmatured

28. *See id*. at 385.
29. *See id*. at 393.
30. *See* Patricia Danzon, *supra* note 19, at 522-25.

tort claims due to moral hazard and transaction costs. Unmatured tort claims are always more valuable to the tortfeasor than to anyone else. The problem is exacerbated by other types strategic behavior as well.[31] The problem may be mitigated through compulsory insurance, but it is not solved.[32] This is demonstrated below.

A. *The Contingency of Behavior*

What level of care will a potential tortfeasor adopt? The answer is: it depends. This answer is so important to the following discussion that it is useful to take a few moments and ponder what it means.

An unmatured tort claim represents a right to sue the tortfeasor for any accident that occurs within a specified time period.[33] Suppose that such a tort claim is sold on January 1, 2015 and that it has a duration of one year. How much care will be adopted during the 2015 year? It depends on whether the potential injurer owns the unmatured tort claim or if someone else does. We can call this the contingent behavior principle:

> *Contingent Behavior Principle.* The behavior of the potential injurer is flexible. In particular, the behavior of the potential injurer can differ depending on who owns the unmatured tort claim.

The importance of the contingent behavior assumption is its interaction with value. The value of the above unmatured tort claim on January 1, 2015, depends on the expected behavior of the potential injurer in 2015. We can call this the contingent value principle.

> *Contingent Value Principle.* The value of the unmatured tort claim depends on the expected behavior of the potential injurer during the actual period of the unmatured tort claim.

The two principles together imply that value is contingent on who owns the tort claim.

---

31. *See* Cooter, *surpa* note 1, at 404
32. *See* Danzon, *supra* note 19, at 518-22.
33. *See* Cooter, *supra* note 1, at 383.

B. *An Example*

Let us consider a very simple situation. Suppose that there are four possible levels of care (including zero) that a potential injurer can adopt. The injury is one in which the victim suffers some loss. The probabilities of injury and the costs of care are given in Table 7.

Table 7

Units of Care	Cost of Care	Probability of Injury
0	0	.06
1	15	.03
2	30	.01
3	45	0

Let us suppose that the level of care that is socially optimal is 2 units and that the optimal-deterrence damages are $1000. These two assumptions are consistent since $1000 damages will induce the potential injurer to adopt 2 units of care. This can be seen in Table 8.[34]

34. Anything between $750 and $1500, noninclusive, would do. However, I chose $1000 because it is also optimal if we allow fractional levels of care.

Table 8

Units of Care	Cost of Care	Probability of Injury	Expected Liability	Expected Private Cost
0	0	.06	60	60
1	15	.03	30	45
2	30	.01	10	40
3	45	0	0	45

Let us also assume that the level of optimal damages from an insurance standpoint is $600. Thus, the ideal outcome would be for the potential injurer to adopt 2 units of care and for the potential victim to receive $600 every time an injury occurs. Unfortunately, a simple damage rule of $600 will not provide the proper deterrence. With damages of $600 the private payoffs are given in Table 9.

Table 9

Units of Care	Cost of Care	Probability of Injury	Expected Liability	Expected Private Cost
0	0	.06	36	36
1	15	.03	18	33
2	30	.01	6	36
3	45	0	0	45

Thus, with damages of $600 the potential injurer will adopt 1 unit of care. The probability of an accident will be 3 times higher than the optimal level (that is, .03 rather than .01).

A market for unmatured tort claims allows potential victims to sell their claims. For example, a potential injurer could sell an unmatured claim to a third party for $10. Such a claim would give the holder a right to bring an action for

optimal-deterrence damages against the tortfeasor. That is, the third party would bring an action against the potential injurer for $1000 whenever there was an injury. This would give the potential tortfeasor the incentive to adopt 2 units of care; the optimum and the resultant probability of an accident would be .01. The potential victim could then buy $600 worth of insurance for $6 and would pocket the remaining $4. Both the third party and the insurer break-even since the probability of an accident will be .01 under these conditions, resulting in both optimal deterrence and optimal insurance.

In Cooter's proposal, however, the potential injurer will also be able to bid for the unmatured tort claim.[35] In this case, there would be the additional advantage of transaction costs savings since the potential injurer would not sue himself or herself. Unfortunately, the entry of the potential injurer into the market for unmatured tort claims will destroy the market and also destroy the incentives for optimal care. To see why this result comes about we must look at pricing.

C. *Parties to the Transaction*

There are three different types of parties: the potential victims, the potential injurer, and the potential third party purchasers.[36] The potential victim sells the tort claim.[37] Potential buyers include the potential injurer and potential third party purchasers.[38]

D. *Pricing*

We begin our discussion by inquiring how much a potential third party purchaser would be willing to pay for an unmatured tort claim. The potential third-party purchaser realizes that if the claim is purchased and enforced, the potential injurer will have an incentive to adopt two units of

35. *See* Cooter, *supra* note 1, at 383-84.
36. *See id.* at 384-85.
37. *See id.*
38. *See id.*

care.[39] The probability of injury will then be .01 yielding an expected liability of $10. Thus, the most a potential third party purchaser will be willing to pay is $10.

How much will the potential injurer be willing to pay? The potential injurer would think of the calculation in the following terms, "If I purchase the claim and adopt zero units of care, then my costs are just the price of the claim, since I will not sue myself. If I do not purchase the claim, then I have private costs of $40." (See Table 8.) Thus, the potential injurer is willing to pay up to $40 for the claim.[40]

Suppose that the potential injurer makes a bid of $11, wins, and adopts zero units of care in 2015. Now, assume that potential third party purchasers observe that in 2015 the accident rate is 6%, and they reason that if they had the claim it would be worth $60, that is $1000 times .06. Based on this reasoning, on January 1, 2016, a potential third party purchaser bids $50 and wins the claim. The potential injurer immediately adjusts for this liability exposure and adopts two units of care. In 2016, the third party purchaser collects only $10. Of course, it is unlikely that a sophisticated third party purchaser would make such a mistake, but surely it would not do so twice. The following year the potential injurer again bids $11 and is uncontested.

The results are that (1) only potential tortfeasors will be in the market for their own unmatured tort claims and (2) the potential injurer will adopt a suboptimal level of care.

E. *Insurance*

Under some arrangements, the presence of insurance can mitigate the incentive problem, but cannot solve it. Let us look at pricing in this case.

In order to see the effects of insurance, let us start with a simple example. Suppose that the purchaser of the unmatured tort claim is required to provide the optimal level of insurance, in this case $600, to the potential victim. Let us call this a *bundled* claim. In this case, the third party purchaser would

39. *See id.* at 385.
40. See *supra* Table 9, for the referenced calculation.

have the right to collect $1000 from the potential injurer whenever there was an accident but it would have to pay $600 to the victim. Thus, the third party purchaser would collect $400 for every accident. Under such circumstances, the third party purchaser knows that the potential injurer will have the incentive to adopt two units of care. Thus, the probability of an accident would be .01 and the claim would be worth $4 to the purchaser.

Suppose that the potential injurer also offers to buy a bundled claim. With the bundled claim, the potential injurer must pay $600 whenever there is an accident. The potential injurer will thus adopt one unit of care. (See Table 9.) The cost to the potential injurer will be $33. Without the tort claim, the potential injurer will face $1000 in liability per accident and will adopt two units of care. The cost will be $40. Thus, the potential injurer will be willing to pay up to $7 for the bundled claim.

The third-party purchaser is willing to pay up to $4 for this bundled claim. The potential injurer is willing to pay up to $7. Suppose that the potential injurer makes a bid of $5, wins, and adopts one unit of care in 2015. Now suppose that potential third-party purchasers observe that in 2015 the accident rate is 3%. Suppose they reason that if they had the claim they would have collected $12, that is $400 times .03. Based on this reasoning, on January 1, 2016, a potential third-party purchaser bids $8 and wins the claim. The potential injurer immediately adjusts for this liability exposure and adopts two units of care. In 2016, the third-party purchaser collects only $4. Again, it is unlikely that a sophisticated third-party purchaser would make the mistake of bidding over $4, but surely it would not do so twice. The next year the potential injurer again bids $5 and is uncontested. The potential injurer adopts one unit of care. This is suboptimal.

F. *Exacerbating Considerations*

In addition to the above advantages (due to moral hazard), the tortfeasor has additional advantages in terms of transaction costs and information. That is, the tortfeasor saves on considerable transaction costs of post-accident bargaining,

settlement and trial.[41] Furthermore, the potential tortfeasor has information on precautionary technology and accident rates that are unavailable to others in the secondary market. In some senses, avoiding transaction costs is socially good, so long as doing so does not have other adverse consequences. In the case of unmatured tort claims, these advantages help to drive non-potential tortfeasors from the market and result in poor incentives for care. One additional effect of the possible asymmetry of information is that outside bidders would suffer from winner's curse problems[42]. This makes it even less likely that a secondary market will develop.

Finally, if we add strategic behavior to our model, the possibility exists for extremely low pricing and no secondary market. That is, the potential tortfeasor may offer to buy the unmatured tort claim at an extremely low price with an additional conditional offer to beat any competitors offer by, say, 10 percent. Given the transaction costs that are entailed in valuing an unmatured tort claim, the incentives of any secondary buyer to conduct such a valuation disappear in the face of such an offer. Thus, the price that a potential tortfeasor will be able to set will be limited only by the information and bargaining power of the sellers. Neither information nor bargaining power of sellers (for example, of employees) are likely to be great. The result is that potential tortfeasors would be seriously underdeterred.

G. *Excluding Potential Tortfeasors*

The above discussion indicates that the unmatured tort claim will end up in the hands of the potential injurer and that the potential injurer will adopt a suboptimal level of care. It also indicates that no active market will ever develop.

41. *See* Cooter, *supra* note 1, at 407.

42. The winner's curse refers to the phenomenon in which bidders are uncertain about the true value of the "item" put up for bid. In such a case, the winner of the auction is likely to be a bidder that has overestimated. Thus, by winning, the winner loses. Experienced bidders compensate for the winner's curse by lowering their bids. See WILLIAM SAMUELSON & STEPHEN MARKS, MANAGERIAL ECONOMICS, SEVENTH EDITION (John Wiley & Sons, Inc., 2011), for a discussion of the winner's curse.

Nevertheless, a market for unmatured tort claims can accomplish its goal of optimal insurance and optimal deterrence if potential injurers are excluded from the market:

> *Modification 2:* Potential tortfeasors should not be able to purchase unmatured tort claims from their potential victims.

In such a case, the tort claim will end up in the hands of third-party purchasers who will enforce the claims against potential injurers.[43] Accordingly, potential injurers will adopt the optimal level of care and potential victims will be able to obtain optimal insurance.[44] In short, in order for a market in unmatured tort claims to accomplish its twin goals of optimal insurance and optimal deterrence, potential tortfeasors must not be allowed to purchase the claims of their potential victims.[45]

V. Liability-Limiting Agreements

The next issue involves liability-limiting agreements between the holders of the claims and the potential tortfeasors. Consider the case of an insurance company that provides insurance to the employees and that has purchased the claims (as part of an insurance package) from employees. It should be clear from the above discussion that the employer could afford to pay the insurer a fee not to enforce the full extent of the claims. For example, the employer could offer the insurance company a fee in exchange for limiting the damages to $600. In this case, the employer could reduce caution to one unit. The maximum fee that the employer could offer for this is $7 since this is the amount it would save. Such an agreement would cost the insurer $4. This is calculated as follows. The insurance

43. *See* Cooter, *supra* note 1, at 395.

44. *See id.* at 399.

45. Those who believe that the tort law has developed along efficient lines will be encouraged by the consistency of the above reasoning with developments in the early nineteenth century when courts invalidated waivers of liability as against public policy. See Cooter, *supra* note 1, at 386 n.7, for examples of such cases.

company would collect more damages since it would be collecting $18 (3% of $600) rather than $10 (1% of $1000) for a gain of $8. However, it would also be paying out $18 (3% of $600) rather than $6 (1% of $600) for a loss of $12. On net, it loses $4 so it will require a fee of at least $4. Thus, a mutually advantageous deal could be struck. The fee would be greater than $4 and lower than $7. The potential injurer would adopt one unit of care.

In short, if we allow liability-limiting agreements between holders of claims and the potential tortfeasor, we would get similar results to those that we would get by letting potential tortfeasors in the market. In particular, we would get insufficient incentives for care. Hence, our last modification:

> *Modification 3:* Potential tortfeasors should not be able to enter into liability-limiting agreements with the holders of unmatured tort claims.

With these three modifications, the market for unmatured tort claims could produce optimal deterrence and optimal insurance.

VI. Conclusions

The above discussion in no way strikes at the heart of the argument for a market in unmatured tort claims. Rather, it suggests that, in order to accomplish its goals, three modifications are necessary. First, the claims must be based on optimal-deterrence damages rather than full-compensation damages. Second, potential tortfeasors must not be allowed to purchase the claims of their potential victims. Third, agreements between potential tortfeasors and the holders of unmatured tort claims must be prohibited.

Of course, this will not end debate on this issue. The market for unmatured tort claims, as modified, will accomplish the goal of optimal deterrence and optimal insurance only if we determine the size of optimal deterrence awards. There have

been some attempts to do this[46], but the discussion must continue. Furthermore, while the modified market for unmatured tort claims can produce both optimal deterrence and optimal insurance, it does not eliminate transaction costs of the tort system. Thus, it must be compared to, or considered in conjunction with, proposals that might mitigate transaction costs. Nevertheless, it is time to give the market for unmatured tort claims another look.

46. *See* Danzon, *supra* note 19, at 517.

Technical Appendix

Over-deterrence

In this section, Cooter's model of a wealth-neutral accident is used to demonstrate mathematically the problem of over-deterrence.[47] The problem of over-deterrence can be seen using the model that Cooter provided. Suppose that a consumer purchases a good for a price of s and that the good produces a utility of U(w-s), where w means wealth, if it causes no injury and V(w-s) if it injures the consumer. The probability of injury is p. The consumer has an expected utility equal to:

$$(1-p)U(w-s) + pV(w-s).$$

First, as an aside, let us replicate Cooter's argument that full compensation overcompensates.[48] To do this, we allow the consumer to purchase perfectly fair insurance.

$$(1-p)U(w-s-pA) + pV(w-s-pA+A).$$

A is the amount of insurance purchased and pA is the premium. Now suppose that V = U-k. That is, the accident shifts the utility function downward. This is Cooter's wealth-neutral accident. The above expression becomes:

$$(1-p)U(w-s-pA) + pU(w-s-pA+A) - pk \qquad (1)$$

If we maximize this expression over A, to determine the amount of insurance that the consumer will choose, and if we simplify, we get the following first order expression:

$$U'(w-s-pA) = U'(w-s-pA+A)$$

which is fulfilled only if A is zero. That is, the consumer will choose not to insure. As Cooter points out, in this case, the potential victim will not want to insure since marginal utility is

47. *See* Cooter, *supra* note 1, at 388-91.
48. *See id.* at 384.

unaffected by the accident even though total utility falls.[49] In this case, any compensation is overcompensation.[50]

I will show that in this type of wealth-neutral accident, full compensation also produces over-deterrence. First note that if A=0 then expression (1) becomes:

U(w-s) - pk.

The producer produces the good. For simplicity, suppose that the only expense in producing the good is care, c. The probability of an accident is a function of the level of care, c. The probability decreases as c increases, but at a decreasing rate. (We say that p' is negative and p" is positive.) Suppose that the producer is in perfect competition and that there is Coasian[51] bargaining. In this case, profits will be bid to zero, that is, c=s. Furthermore, utility will be maximized. That is, we maximize the following expression:

U(w-c) - p(c)k.

Notice that in perfect competition the consumer will pay a price of s=c. Thus, the consumer balances price and safety. The optimal c is chosen so that the first order condition is zero:

U'(w-c*) + p'(c*)k = 0.

Now let us remove the assumption of Coasian[52] bargaining and replace it with a damage rule that requires the producer to pay damages of d whenever there is an accident. Let us make this a full compensation rule[53] so that

U(w-c*+d) - k = U(w-c*)

49. *See id*. at 392.

50. See Cooter, *supra* note 1, for an especially clear explanation of this.

51. *See* Nancy A. Weston, *The Metaphysics of Modern Tort Theory*, 28 VAL. U. L. REV. 919, 926 (1994).

52. *See id*.

53. *See supra* Section II (defining full-compensation damages).

which is to say that utilities in the accident state and non-accident state are equated. Dividing through by d and rearranging a bit we get the equality in the following expression:

$$\{U(w-c^*+d) - U(w-c^*)\}/d = k/d < U'(w-c^*).$$

The inequality comes from the fact that the expression to the left of the equality is the slope of a line connecting w-c* and w-c*+d on the utility function and U'(w-c*) is the slope of the tangent at w-c*. Because of risk aversion, the utility function is concave and the tangent has a greater slope. If we substitute k/d into expression (1) above we get:

$$k/d + p'(c^*)k < 0 \text{ or, equivalently}$$
$$1 + p'(c^*)d < 0.$$

Note that the producer will want to maximize profit s-c-p(c)d. (Remember that s is fixed by market since the firm is a price-taker.) The producer will choose a c** so that the first order condition is satisfied:

$$1 + p'(c^{**})d = 0.$$

Finally, recall that p' is negative but becomes less negative as c increases due to diminishing marginal returns. (That is, p" is positive.) This implies that the expression 1+p'(c)d is increasing in c and that c** is greater than c*. Thus, the producer is over-deterred.

The Market for Unmatured Tort Claims[54]

Consider an employer who must pay for safety. Cost of safety is c. The probability of an accident p(c) where p falls with c, but at a decreasing rate due to diminishing marginal returns to safety. If an accident happens D is paid, where D is the optimal deterrence level of damages. (I am assuming that we

54. *See generally* Cooter, *supra* note 1.

have made the modification suggested in the previous section.) The optimal level of care is, by definition, the amount that minimizes:

$$c + p(c)D.$$

The value that minimizes the above expression, that is, the optimal level of care, is c_d. In the following examples we assume that the secondary market for unmatured tort claims is unrestricted. That is, potential tortfeasors can buy the claims of their potential victims.

First, for simplicity, consider the case where there is no insurance. There are two possibilities. Either the employer purchases the unmatured tort claims and the employers costs are c + t, where t is purchase price of the claims, or, others purchase the claims and enforce them in court. In this case, the expected costs to the potential injurer are c + p(c)D. In the first case, the employer has no liability and no incentive to adopt care and sets c to zero. In the second case, c is set to c_d. In other words, the action of the employer is conditional whether the employer wins the bid. This is true even if the rights must be purchased yearly.

How much will the employer be willing to pay for the rights? To find the answer we subtract the cost with the rights, t, from the cost without the rights $c_d + p(c_d)D$. The difference is $c_d + p(c_d)D - t$.

The employer is willing to pay up to $c_d + p(c_d)D$ for the rights. Suppose that the employer has a standing offer to purchase the rights for $[0.5c_d + p(c_d)D]$. Since the rights are only worth $p(c_d)D$ to an outsider, the employer will always win the bid. The employer will also adopt zero level of care. Again, note that the rights will not be worth p(0)D to an outsider because as soon as an outsider wins the bid, the employer will optimize by adopting c_d. This dramatic example shows that not only will a secondary market not develop, but also that the effects on care level could be drastic in terms of deterrence.

Does insurance fix this? Suppose the employer provides insurance to all employees. In the case of an accident the insurance pays I. I is less than D reflecting the notion that optimal insurance is less than optimal deterrence damages.

Now we have the following costs:

$c_i + p(c_i)I + t$ if the employer buys the rights, and
$c_x + p(c_x)I + p(c_x)D$ if someone else buys the rights.

We have chosen c_i to minimize $c + p(c)I$ and c_x to minimize $c + p(c)I + p(c)D$. In neither case does the employer adopt c_d. Furthermore, we can again show that a secondary market will not develop. The difference between the two expressions is:

$$\{[c_x + p(c_x)I] - [c_i + p(c_i)I]\} + p(c_x)D - t.$$

The expression in the brackets {} is positive since c_i minimizes $c + p(c)I$. Again, we can imagine a standing offer by the employer of, say,

$$0.5\{[c_x + p(c_x)I] - [c_i + p(c_i)I]\} + p(c_x)D.$$

Given this offer, the employer would always win the bid, since it is worth at most $p(c_x)D$ to an outsider. Furthermore, the employer would end up adopting a level of care equal to c_i, which is less than the optimal level of care, c_d. (Once the employer has the rights, the cost of buying the rights is a fixed cost. That is true even if annual purchase is required.) Thus, again, the optimal deterrence level of care c_d would not be adopted. Furthermore, no secondary market would ever develop.

Other arrangements also lead to similar results. Suppose that potential victims have no insurance and buyers compete by promising insurance plus a lump sum. Persons in the secondary market could afford to bid a lump sum up to:

$$L_s = p(c_d)D - p(c_d)I.$$

The employer could bid a lump sum representing the differences in costs between obtaining the rights and not,

$L_t = [c_d + p(c_d)D] - [c_i + p(c_i)I]$.

Note that

$Lt - Ls = [c_d + p(c_d)D] - [c_i + p(c_i)I] - [p(c_d)D - p(c_d)I]$
$= [c_d + p(c_d)I] - [c_i + p(c_i)I]$.

The above expression is positive since c_i minimizes $c + p(c)I$. Thus, the employer could adopt a standing offer of:

$L_s + 0.5\{[c_d + p(c_d)I] - [c_i + p(c_i)I]\}$.

Given this offer, the employer would always win the bid. Furthermore, the employer would end up adopting a level of care equal to c_i, which is less than c_d. (Again, once the employer has the rights, the cost of buying the rights is a fixed cost, which is true even if annual purchase is required.) Thus, the optimal deterrence level of care c_d would not be adopted. Furthermore, no secondary market would ever develop.

It is not necessary that the same outside entity both buys the claims and provides the insurance although there are reasons not included in the model to believe that this will happen. For example, if we consider the optimal level of resources spent in enforcing the claim the reasoning would be as follows. Suppose that there are two entities; A provides insurance for employees and B has purchased the unmatured claims from the employees. Suppose B spends z amount in enforcing the claims and that this affects the probability of an accident. Now suppose that there is a merger between A and B. The optimal amount spent enforcing the claims goes up since the marginal benefits of enforcing claims and reducing the probability of an accident increases. Although we have not made the argument in a formal mathematical sense, the reasoning indicates that it is likely that the firm providing insurance will also purchase the unmatured tort claims.

Liability-Limiting Agreements

Consider the case of an insurance company that provides

insurance to the employees and that has purchased the claims (as part of an insurance package) from employees. It should be clear from the above discussion that the employer could afford to pay the insurer a fee not to enforce the full extent of the claims. For example, the employer could offer the insurance company a fee not to make any claims. In this case, the employer could reduce caution to zero. The maximum fee that the employer could offer for this is therefore:

$c_d + p(c_d)D$.(3)

The minimum fee that the insurance company would be willing to accept is the loss of revenue due to suit, plus the increased cost of insuring the employees, given that the employer will now adopt zero caution:

$p(c_d)D + [p(0)I - p(c_d)I]$.(4)

If we subtract expression (4) from expression (3) we will get the size of the zone of potential agreement:

$[c_d + p(c_d)D] - [p(c_d)D + p(0)I - p(c_d)I]$.

The question is whether the resulting expression is positive. If it is positive then some agreement is possible. We can rewrite it as follows:

$c_d + p(c_d)I - [0 + p(0)I]$.

Whether this is positive depends on the function $c + p(c)I$. This function is minimized at c_i, which is greater than zero, but less than c_d. We cannot tell whether the above expression is positive or negative. There does, however, exist the possibility that it is positive and, therefore, it is possible that an agreement could lead to the adoption of zero care.

Other agreements are also possible. For example, to find the most beneficial agreement to both parties, but not necessarily to the employees, we note that they could agree

that the insurance company limits its damages to X. Then, the benefit of the agreement to the employer over no agreement would be

$$[c_d + p(c_d)D] - [c_x + p(c_x)X] - F.$$

Where c_x minimizes c + p(c)X, and F is the agreed upon fee, then the benefit to the insurer would be

$$F - [p(c_d)D - p(c_x)X] - [p(c_x)I - p(c_d)I].$$

The expression in the first bracket represents lost collections from the employer and the second bracket represents increased payouts to the employees. Adding these benefits together, and simplifying the expression, yields:

$$[c_d + p(c_d)I] - [c_x + p(c_x)I]$$

Note that X has disappeared from the expression. However, it is X that determines c_x since c_x is the c that minimizes c + p(c)X. The c_x that minimizes expression (5) is just c_i, since c_i minimizes c +p(c)I therefore it follows that X=I. That is the maximum bargaining surplus generated by the insurance company, limiting its claim to I. In this case, the employer will adopt a level of care equal to c_i. Given this, the maximum fee that the employer will pay for such a limitation is:

$$[c_d + p(c_d)D] - [c_i + p(c_i)\ I],$$

and the minimum fee that the employer will accept is:

$$[p(c_d)D - p(c_i)I] + [p(c_i)I - p(c_d)I].$$

The bargaining surplus is the difference, which is, after simplification:

$$[c_d + p(c_d)I]\ - [c_i\ + p(c_i)I].$$

This is always positive since c_i minimizes $c_i + p(c_i)I$. The result is that there are strong incentives for a deal to be struck and for the level of care to be set at c_i. That is, the employer will be underdeterred. Thus, we would not allow such deals to be made.