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JOINT AND SEVERAL LIABILITY FOR TOXIC TORTS

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Summary

Joint and several liability can be an effective instrument for regulating the risk of and compensating the losses from toxic torts. The doctrinal evolution of the joint and several rule from one concerned primarily with concerted and joint ventures to its expansive, modern application in toxic tort cases which involve numerous, independently operated firms is sketched. Fairness and efficiency objections are discussed and brief concluding observations are given.

I. Introduction

Accidents arising from exposure to toxic substances usually implicate more than one potentially culpable business entity.[1] The causal chain of events leading to a chemical-related injury in the workplace, for example, frequently traces backwards in time from the immediate employer to a wholesaler or distributor, to a transporter, through to the general manufacturer of the chemical agent, and, ultimately to one or more raw material suppliers. Groundwater pollution from hazardous waste dumps is likewise the result of the activities of many entities other than the most proximate — the dump site owner. A site may be the repository of various types of toxic waste generated by a large number of independent generators. Each generator may have employed one or more waste transporters to haul or ship the toxic substances to the dump site. A similar pattern of multiparty involvement characterizes the normal consumer product injury, which links the victim[2] in a vertical relationship to a retailer, wholesaler, product manufacturer, and beyond to component and raw material suppliers.

[1]These business entities will hereafter generally be referred to as "tortfeasors," or, when discussing their relationship to a lawsuit for damages, as "defendants" or "nondefendants."
[2]The terms "victim" and "plaintiff" will be used interchangeably. The fact that victim conduct often contributes to an accident will be ignored for purposes of the analysis in this paper. For a discussion of the rules dealing with multiple tortfeasors, which includes consideration of the victim's conduct, see Ref. [1]. Landes and Posner were the first to apply an economic analysis to the legal rules governing the liability of joint and multiple tortfeasors (see also Ref. [2]).

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Cases of multiple tortfeasors create perplexing problems for courts in deciding how to apportion liability and the concomitant obligation to pay for the plaintiff's injuries. Assuming that plaintiffs will not be allowed to recover more than their actual losses, courts have two basic choices. First, they can specify a formula for judicially apportioning the judgment, which would allocate a fraction of the plaintiff's loss to each defendant according to its relative fault or causal contribution, or to some pro rata division.[3] Among the difficulties with apportioned liability are that fault or cause-based formulas are costly to administer, and that the cost savings of pro rata formulas may be offset by their potential to impose disproportionately law liability on the major tortfeasors, and high liability on peripheral parties — that is, liability for losses below the level of those causally attributable to the tortious conduct of some parties, and in excess of the losses caused by other parties. While fault and cause-based formulas avoid the problem of disproportionate liability, they are likely to produce gaps in the plaintiff's recovery when one or more tortfeasors are insolvent or otherwise unaccountable.[4] Because pro rated apportioned liability is fixed at a fraction of the loss, some tortfeasors will have an incentive to take even greater risks because a substantial portion of the increased loss can be shifted to the other tortfeasors who are bearing disproportionate liability or likely to be unaccountable.[5] The second approach is commonly referred to as joint and several liability. It avoids the administrative cost and compensation gap problems of the apportioned liability approach by simply holding each defendant alternatively liable for all or any part of the assessed damages at the plaintiff's option. The court does not undertake to allocate liability or damages between multiple defendants. Administrative costs are minimized and compensation gaps eliminated because the plaintiff has strong incentives to seek and execute judgment solely against the wealthiest defendant. If the wealthiest defendant has sufficient assets to satisfy the judgment, the plaintiff will ignore other defendants or not even sue them in the first place.[6]

While possessing obvious benefits, joint and several liability may also entail

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[3]The judicially apportionment approach will also be referred to as "apportioned liability."

[4]Unaccountability frequently results from limits on the power of courts to exercise personal jurisdiction over a tortfeasor.

[5]Generally such an incentive will exist when the liability is imposed on a strict basis, regardless of whether the defendant's conduct was reasonable and without fault. As discussed *infra* pp. 10–11, solvent and accountable firms will respond to a threat of liability under the negligence rule by acting non-negligently (reasonably and without fault) no matter how liability is apportioned. But, an incentive to take greater risks will arise under the negligence or fault standard when one or more tortfeasors are likely to be insolvent or otherwise unaccountable.

[6]Many states have modified the joint and several rule by granting the defendant against whom judgment has been executed a right of contribution to recoup any overpayment - determined according to causal contribution or pro rata measures - from other defendants or nondefendants. Contribution rights predicated on relative causal contributions to the victim's loss tend to offset the administrative cost savings of joint and several liability. Contribution based on pro rata divisions reintroduce the problems of disproportionate allocations of loss and safety incentives among the defendants. For a discussion of these and other effects of contribution on the operation of joint and several liability, and of how contribution differs from apportioned liability, see *infra* pp. 11–13.

significant problems. Allowing the plaintiff to recover the entire loss from a single defendant, the rule can result in disproportionate liability on peripheral and even on the more culpable defendants. In many cases, particularly those arising from toxic risks, joint and several liability will require one or a few defendants to pay for the entire loss suffered by the plaintiff even though a substantial portion of that loss was caused by other tortfeasors, against whom the plaintiff has chosen not to bring suit or execute judgment.[7] Disproportionate liability thus implies two consequences: first, that the wealthy defendant may bear more loss than it caused, and second, and perhaps more importantly, that the balance of the tortfeasors may escape liability altogether, giving them incentives to take greater risks because the increased loss is being borne by the wealthy defendants.[8]

Despite the danger and possible adverse effects of disproportionate liability, courts on their own initiative and pursuant to legislative mandate have increasingly resorted to joint and several liability in toxic tort cases [3–7]. This trend has provoked strong objections on the grounds that imposition of disproportionate liability is unfair and inefficient [3–6,8]. According to the critics, the last place disproportionate liability should be imposed is in cases involving toxic substances, where the stakes in terms of both injury losses and socially beneficial activities are likely to be very large [9]. Recognizing the utility of joint and several liability in overcoming cost and compensation gap problems, the critics nevertheless maintain that the rule's net effect is detrimental.

This paper examines the fairness and efficiency objections to joint and several liability in toxic tort cases. In essence, the finding is that these objections overstate the problem of disproportionate liability. First, under the negligence standard for tort liability, potential tortfeasors can avoid the possibility of disproportionate liability by simply acting non-negligently. As such, it is irrelevant to fairness and efficiency norms whether liability is threatened on an apportioned or joint and several basis. Second, while the strict standard of liability does not accept non-negligence as a defense, in most cases potential tortfeasors can avoid disproportionate liability by contracting among themselves in advance of the accident to apportion liability according to their respective causal contributions. The analysis supporting these conclusions is initiated in Section II, which sketches the doctrinal evolution of the joint and several rule from one concerned primarily with concerted and joint ventures to its expansive, modern application in toxic tort cases which involve numer-

[7]Characteristic of toxic tort cases is the relatively large number of tortfeasors contributing to the victim's injury, many of which will be small or marginal firms that will be financially incapable of paying for even their share of the loss.

[8]In this respect, joint and several liability seems to reverse and possibly aggravate the incentives inducing increased risk-taking generated by the apportioned liability approach.

ous, independently operated firms; the fairness and efficiency objections are then addressed in Section III; and brief concluding observations are noted in Section IV.

II. Doctrinal evolution of joint and several liability

Originally joint and several liability required a "joint tort" in the strictest sense of the term. Only when the tortious conduct was the product of concerted action, the equivalent of a conspiracy, could the courts hold that "the act of one is the act of all, and liability for all that is done is visited on each [10]." The overtones of intent and willfulness of concerted action, combined with its collaborative nature, provided courts with the justification for refusing to apportion liability in the judgment or by contribution after the judgment was executed [11].[9] Thus one defendant could be held liable and called upon to pay the entire judgment, and have no right to seek reimbursement in any measure from the other tortfeasors — even from those co-defendants who had also been adjudicated liable.

A major step toward the modern, expansive use of joint and several liability in toxic tort cases was taken by the end of the nineteenth century, when courts began applying the rule to cases of concurrent tortfeasors [12]. Concurrent, as distinguished from concerted, action occurs when the tortfeasors act independently of one another in simultaneously or sequentially contributing to the victim's injury. However, joint and several liability against concurrent tortfeasors was initially permitted only when the causal effects of the defendants' conduct merged in the victim's injury to the point that a rational division of responsibility became impossible.[10] Two types of situations satisfied this indivisibility criterion. The first involved the rather coincidental and rare case in which each tortfeasor's conduct would have been sufficient in itself to bring about the entire loss suffered by the plaintiff. The usual example is one of merging fires which burn a building. The second situation, which has great significance for the modern toxic tort context, concerned cases where the conduct of each tortfeasor, while not a potentially sufficient cause, nonetheless was an essential factor in producing the injury. A classic example of this type of indivisibility involves one tortfeasor spilling oil in a harbor shortly before another tortfeasor drops a lighted match in the oily water [13]. A modern toxic

[9]For discussion of joint and several liability as modified to incorporated a right of contribution, see *infra* pp. 5-6.

[10]Pro rata apportionment could be and sometimes was used to spread any disproportionate liability among all of the defendants.

tort example is the synergistic interaction of two or more otherwise harmless chemicals flowing together from separate and independent sources.[11]

The practical wisdom behind the indivisibility extension opened the door to the contemporary use of joint and several liability in toxic tort cases. Most of the traditional constraints on the use of the rule have now been breached [3–7]. Division of the injury need no longer be impossible but only impractical due to cost or unavailability of proof. In addition, courts are applying joint and several liability to cases of concurrent tortfeasors, even when the defendant against whom the entire judgment is executed was only a relatively minor and cumulative factor. Although joint and several liability was originally confined to negligence cases, it is now being applied where the standard is strict liability, under which defendants are held responsible even though they have acted reasonably and without fault. The most exotic use of joint and several liability to date has been suggested for cases involving generic products. As long as the defendants represent a "substantial" share of the market, they should be held liable for the entire loss suffered by all consumers of the product, including the portion of the loss attributable to the other manufacturers not joined as defendants in the action [14]. Under this form of joint and several liability, one or a few defendants will be held completely responsible for the loss even though their "substantial" share of the market may not exceed 50 percent. Moreover, the other tortfeasors that control a majority of the market will escape liability altogether, even though, assuming a correspondence between market share and causal probability, it is more likely than not that they caused the loss.[12]

There is a marked trend in the law, generally statutory, to ameliorate perceived fairness and efficiency problems with joint and several liability by appending to it what is known as a "contribution rule [6]." Contribution rules allow defendants who have paid more than their share, up to the entire loss, to seek recoupment from the other tortfeasors who have paid less than their

[11]It would not strain the boundaries of this second class of cases to include situations like those involving the combination of asbestos exposure and cigarette smoking, where the synergistic interaction significantly increases the toxic risks generated by each substance separately. Following the logic of the analogy, joint and several liability might only be applied to that portion of the loss attributable to the synergistically increased risk, while the baseline risk of each factor would be assessed on a causally apportioned basis.

[12]The substantial market share form of joint and several liability would override the conventional burden of proof for civil tort liability. Generally, in tort cases the plaintiff bears the burden of proving each of the elements of liability, including causation, by a preponderance of the evidence — that the disputed fact is more likely than not true. Satisfaction of that burden entitles the plaintiff to judgment against the defendant for the full loss. In effect, the conventional burden of proof imposes a form of joint and several liability by allowing the plaintiff to collect the entire loss from a single defendant, ignoring the probability that some other tortfeasor was responsible. For a discussion of the preponderance-of-the-evidence rule and its effects in toxic tort cases, see Refs. [15,16].

respective shares. The right to contribution accrues only upon execution of the judgment against the defendant seeking recoupment.

Whether the court apportions liability when the judgment is rendered or uses the contribution rule will have practical significance for the parties. Under the apportioned liability approach, plaintiffs are assigned the burden of suing all those who contributed to the loss and of proving and collecting the respective fractional shares of liability. The distribution and receipt of payments from defendants will depend directly on how well the plaintiff is able to shoulder this burden; the plaintiff alone bears the risk and, of course, the cost of failure. Furthermore, in large measure, plaintiffs will bear the cost even when they succeed, for they usually cannot recover their attorney and expert witness fees from defendants.

Under joint and several liability with a contribution rule, plaintiffs can first execute judgment in full against the wealthiest defendant. Only after an executed judgment and payment by the wealthy defendant does the right of contribution accrue. At that point the wealthy defendant may sue the other tortfeasors to establish their relative shares of liability and to seek recoupment for any overpayment.[13] Contribution shares may be measured in terms of fault or causal contribution, or on some pro rata division. Thus under the contribution rule, litigation costs, burden of proof, and the risks of nonpayment by insolvent or otherwise unaccountable tortfeasors fall on the wealthy defendant rather than the plaintiff.

Contribution is a compromise rule. By effectively shifting the burden of apportionment with its attendant risks and costs from plaintiffs to wealthy defendants, the contribution rule bestows all of the advantages of joint and several liability upon plaintiffs. At the same time, it grants some of the advantages of apportioned liability to defendants. Although wealthy defendants will bear the risks and costs of apportionment, they will very likely be able to reduce their share of liability (net of litigation costs) to a level more closely approximating their causal responsibility for the accident.[14] But contribution does not solve the problem of disproportionate liability. In addition to the costs of apportionment, the wealthy defendant against whom the entire judgment has been rendered must bear the risk of judgment-proof and unaccountable tortfeasors.[15] Thus the possibility of disproportionate liability remains under the

[13]When the plaintiff has not sued all potential tortfeasors, the wealthy defendant, as a condition for obtaining contribution against these other firms, will also bear the full burden of proving that the firms engaged in tortious conduct which caused the plaintiff's injury.

[14]Of course, the degree of reduction will depend on whether the injury can be divided along causal (or even fault) lines. Contribution on a pro rata basis may be permitted when the injury is indivisible as a practical matter, but then the shares will only coincidentally approximate the defendants' respective causal responsibilities.

[15]Under joint and several liability, some solvent and accountable tortfeasors are likely to be bypassed by the plaintiff in favor of the wealthy defendant. Contribution shares measured in terms of relative causation remove the incentive that the bypassed tortfeasors would normally have under joint and several liability to take greater risks by shifting the increased loss to the unaccountable as well as to the wealthy.

contribution rule, although the fairness and efficiency problems may be muted by comparison to what they appear to be under a rule of joint and several liability without contribution.

III. Evaluation of the fairness and efficiency of joint and several liability

This section assesses the claims that the imposition of disproportionate liability under the joint and several rule is unfair and inefficient, and that it should be replaced by judicially apportioned liability, or, at least, modified to include a right of contribution. The following discussion is fairly theoretical, as has been much of the criticism against joint and several liability. Of course, the advantages and disadvantages of the rule may differ in practice from those suggested by theory. But the virtues of a theoretical perspective lie in its immediate capacity to test the validity of certain assumptions about the fairness and efficiency of joint and several liability as well as the judicial apportionment alternatives, and to provide the basis for gathering and interpreting empirical data about the rule's operation in actual practice.

Before directly analyzing the fairness and efficiency of joint and several liability, these concepts will be abstractly elaborated as justifications for tort liability in general.

1. General elaboration of the efficiency and fairness norms

The efficiency norm is commonly used to express the utilitarian — social welfare maximization — justification for tort liability. When the social welfare function is specified in efficiency terms, tort liability is justified because it enhances social welfare by minimizing the sum of accident costs — injury losses, accident prevention costs, and legal administrative costs [17,18].[16] Assuming that administrative costs are negligible, tort liability achieves the efficiency goal of minimizing the sum of accident costs by threatening firms with responsibility for the injury losses their respective activities cause, in other words by exerting optimal deterrence. Under this pressure, the firm will attempt to minimize its own costs by taking optimal care — bearing prevention costs until the marginal costs of prevention exceed the marginal savings in injury loss [19].[17]

Social welfare is jeopardized if firms are underdeterred or overdeterred by being threatened with liability for less or more loss than their tortious activity

[16]Accident prevention costs include the expense of affirmative safety investments, such as pollution control devices or better quality control, and sacrificed opportunities resulting from lower activity levels. Although these costs are usually thought of as pre-accident burdens, they also are relevant to the post-accident situation when possibilities for abatement and mitigation of continuing hazards exist.

[17]Certain conditions must exist in order for tort liability to achieve optimal deterrence. The threat of liability must be credible. It must also be reasonably calibrated to the expected loss resulting from the firm's activity [16,20,21].

causes [11,16,20,21]. If the firms are underdeterred, they will reduce accident prevention expenditures below the optimal level and, consequently, lower their prices. As a result, demand for the products or services, along with the risks of accident, will increase above the socially optimal level. If firms are overdeterred, they invest too much in safety and increase prices accordingly, thereby reducing demand below the socially optimal level.[18]

The calculus becomes fart more complex when administrative costs are taken into account.[19] In effect, the rule of choice is the one which maximizes net benefits.[20] Even if rule A achieved perfectly optimal deterrence, its high costs of administration might warrant a preference for rule B, which is very cheap to apply, despite its tendency to under or overdeter.

The fairness norm expresses a moral premise defining the appropriate distributional effects of an accident on the individuals involved [24–27]. Although the precise definition varies according to the underlying theory of distributive justice, there are four central, common features to the fairness justification for tort liability. First, the value of individual entitlements to personal security should be protected at a minimum against wrongful or nonconsensual invasions.[21] Second, those who have not wrongfully invaded the personal security of another should be free from legal responsibility for any loss. Third, to the extent possible, tortfeasors should make victims whole — restore victims to their pre-accident distributional status — by compensating all losses caused by their wrongful conduct.[22] Fourth, because in neither theory nor reality is the right to money damages for injury a perfect substitute for the right not to be harmed in the first place, tort liability should be designed to deter risks of wrongful invasions.[23] The deterrence element of the fairness justification may change the choice of the rule if compensation were the only criterion. Thus a

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[18]When consumers can readily turn to substitutes, the firm may confront crushing liability [22].

[19]Administrative costs include the expense borne by the public in funding the tort system, the costs of attorneys and experts, and the costs to the parties in managing their affairs in conformity with tort liability rules.

[20]For elaboration of the theory of making public policy choices according to the criterion of maximizing net benefits, see Ref. [23].

[21]Definitions of "wrongful" conduct, appropriate "consent," and forbidden "invasions" are supplied by and will vary according to the underlying theory of distributive justice.

[22]The three elements specified so far constitute the foundation principles of the dominant fairness justification for tort liability — corrective justice, see Refs. [27–30]. Corrective justice can be analogized to a double-edged sword. On the one side it requires the defendant to compensate the plaintiff fully for the losses caused by the defendant's tortious conduct. The other side limits the compensation duty to the losses causally attributable to the particular defendant's tortious conduct. Though an adjudicated wrongdoer, the defendant's duty and the plaintiff's right are directly linked on a one-to-one basis. Thus fairness requires an individualized assessment of the tortfeasor's liability to assure that the defendant is not being made the insurer of another tortfeasor's wrongdoing.

[23]For a more elaborate discussion of the deterrence element in rights-based theories of liability, see Ref. [31].

rule promising high compensation might be rejected in favor of a rule which protected the value of entitlements to a greater extent by the combination of substantial compensation and deterrent effect.

The fairness norm is not oblivious to administrative costs. While such costs might not be given the same weight in the net benefit calculus under fairness principles as they are under the efficiency norm, at some point the costs of applying the rule become an important factor [32].

For example, joint and several liability with a contribution rule, could be further modified to provide for a pro rate distribution of losses attributable to the insolvent and unaccountable tortfeasors. This sophisticated rule might serve the fairness norm by relieving both the plaintiff and wealthy defendant of any concentrated loss. Yet, the costs of determining the shares attributable to the insolvent and unaccountable may offset the fairness gains. Moreover, if the pro rata division encouraged greater risk taking by the firms — solvent as well as insolvent and unaccountable — the fairness goal will be further undermined by the devaluation of potential victim entitlements. It should be noted that the public component of these administrative costs is particularly problematic under the fairness norm. Why should the public, as opposed to the benefiting plaintiff, pay any of the cost of securing compensation for losses? The answer may lie in the deterrence element of fairness. If enforcement of a rule in any given case not only yields benefits in compensation and deterrence for the particular plaintiff, but also provides a certain degree of deterrence protection for other potential victims, then it would be unfair to tax the particular plaintiff for the costs proportionately related to the benefits enjoyed by others. In order to supply the "public good" of deterrence, it is appropriate to tax all the beneficiaries for the cost.

2. Analysis of the joint and several liability rule under the efficiency and fairness norms

At first glance, it might appear that the threat of disproportionate liability from application of the joint and several liability rule contravenes the efficiency and fairness norms. Wealthy defendants are subject to liability for more loss than their activities caused, while at the same time less well-off defendants — including the insolvent and those who escape suit because the court lacks jurisdiction over them — likely will pay nothing or, at most, only a small fraction of the loss they caused. In short, the wealthy will be overdeterred and unfairly taxed for the wrongs of others, while the other tortfeasors will be underdeterred and reap the unfair windfall of not paying for their wrongdoing. Adding the contribution rule only partially mitigates these effects. Indeed, the administrative costs of applying the contribution rule in a series of actions after judgment has been executed may be sufficiently high to more than offset its benefits. This means that the contribution rule probably cannot survive the

net benefits test under the efficiency norm, and, if the cost-benefit differential is great enough, the rule may be doomed under the fairness norm as well.[24]

These efficiency and fairness concerns are not borne out on close analysis of the joint and several liability rule. At least in theory, joint and several liability will not systematically produce such adverse effects, and in many cases it may serve to rectify somewhat the inefficient and unfair effects of other rules. First, when negligence is the standard of liability, the threat of disproportionate liability is negated by the defendant's ability to avoid all liability by simply acting non-negligently. As a result, the threat of liability is directed toward the other defendants, who in turn will have the incentive to act non-negligently. Second, even though the standard of strict liability does not allow the wealthy defendant to avoid all liability by acting non-negligently, the defendants can overcome any inefficient or unfair effects of the joint and several liability rule by contracting before the accident to allocate liability according to their respective causal shares of the loss. These points will be spelled out below.

(i) Analysis under the negligence standard

Under the negligence standard, firms avoid liability for loss if they act non-negligently — that is, in terms of the justifications for tort liability, if the defendant efficiently allocates its resources by taking optimal care or refrains from wrongfully invading the entitlements of others. Since a defendant can avoid all liability by taking optimal care or refraining from wrongful action, it will not be overdeterred by any threat of disproportionate liability from the joint and several rule. If the courts accurately determine what constitutes non-negligent conduct for the given activity, then the defendant will not take any greater precautions than is efficient and fair under the circumstances. Assuming the wealthy defendant responds rationally to the incentives issued by the joint and several rule under the negligence regime, then the other defendants will likewise be induced to take optimal care. At least one of them will always be threatened with disproportionate liability sufficient to compel avoidance behavior in the form of non-negligent conduct.[25] Neither the contribution rule nor apportioned liability is thus necessary to prevent inefficiency or unfair-

[24]For a further discussion of the administrative costs of the contribution rule and the other judicial allocation method, apportioned liability, see *infra* pp. 13–17.

[25]Landes and Posner [1] were the first to notice and provide an economic analysis of the incentives of joint tortfeasors under the negligence rule and the resulting non-negligent equilibrium, see also Ref. [33]. For a more intuitive rendition of the point, see Ref. [34].

To the extent that firms underestimate the accident prevention measures required for a finding of non-negligence, or the courts misjudge the measures actually taken, the negligence standard enforced on a joint and several basis may impose disproportionate liability. This danger warrants efficiency and fairness concerns, but not necessarily use of judicial allocation methods — apportioned liability or contribution. For, the joint and several rule creates incentives for the wealthy firms to allocate liability by pre-accident contract among the potential tortfeasors in accord with the expected loss attributable to their respective activities. The incentive structure and comparative cost advantage of contractual allocation of liability is discussed *infra* pp. 11–17.

ness. Indeed, use of either approach, even when it would divide liability strictly according to relative causal contributions, would likely be inefficient and unfair because each would achieve no greater benefits than the joint and several rule, but would entail far greater administrative costs.

(ii) Analysis under the standard of strict liability

Joint and several liability poses the problems of overdeterrence and underdeterrence when applied under the standard of strict liability. This is because the threat of disproportionate liability in the strict regime cannot be avoided by acting non-negligently. Joint and several may overdeter the wealthy firm by threatening it with more loss than its activities caused, giving it an incentive to cut its liability exposure by taking precautions above the optimal level. When that option is exhausted, the firm may be forced to exit from the market.[26] At the same time, other tortfeasors who are not sued or compelled to pay their shares will be underdeterred, since they will not be forced to bear liability for losses attributable to their activity. Indeed, these other defendants may well find it profitable to take even greater risks since the wealthy defendant will be bearing the liability.

While these dangers from joint and several liability have been expressed in efficiency terms, they are readily convertible into the language of fairness when causing harm is considered wrongful in itself.[27] Disproportionate liability confiscates unfair amounts of wealth from tortfeasors and overdeters their exercise of liberty. At the same time, tortfeasors who escape liability receive windfalls, and, by taking greater risks, they depreciate the value of entitlements to security possessed by potential victims.

These efficiency and fairness problems are not insurmountable. As long as the defendants are in a pre-accident position to contract with one another and allocate potential liability (a situation that will very often exist in toxic tort contexts), then the risk of disproportionate liability may be obviated. In effect, the threat of joint and several liability motivates a collaborative solution among tortfeasors just as it does in a more traditional concert of action case. Just as the defendants will collaborate to minimize their joint expenses as if they were a single person or entity in a concert of action case, so a group of independent firms may apportion liability through contract to avoid inefficient and unfair effects of joint and several liability. Ideally, these contract adjustments will result in the efficient and fair allocation of liability – in many cases, the outcome may be superior to the one that could be achieved by judicial allocation through apportioned liability or contribution.

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[26]Although strict liability does not excuse a firm when it acts non-negligently (takes optimal care or refrains from acting wrongfully), overdeterrence is not a danger as long as the standard threatens liability for only the losses attributable to the firm's activity. Confronted by liability for the losses it caused, the firm will minimize its costs by taking optimal care. Beyond that point it will always be less expensive to pay for the losses than to absorb further accident prevention costs [35]. Assuming that the firm's activity yields a net social benefit after deducting its costs, including expected liability for the injury losses it causes, then it will continue to profit in the marketplace.

[27]For a fairness argument equating cause and liability, see Ref. [26].

The success of pre-accident contracts in avoiding the problems of disproportionate liability outside of the traditional concert of action context will vary according to the tortfeasors' market relationship with one another. These relationships are likely to fall into one of three categories: vertical, wheel-shaped, or horizontal. In a vertical relationship, the defendants, though operating independently and in their own self-interest, will in effect comprise an economically interdependent enterprise spanning the entire chain of production, distribution, and marketing. This relationship probably characterizes the situation in most toxic tort cases involving consumer products and occupational hazards. The bargaining motivations and leverage that usually drive this enterprise will in the normal course lead the firms to a contractual allocation of their potential liability that is consistent with efficiency and fairness norms. If there are competitive markets for the products and services of each firm, then the contracts each will make with the others will minimize their respective costs by allocating future liability on the basis of the relative causal contributions of each to the loss.

The wheel-shaped relationship describes the situation where there are a number of independent firms comprising the rim and spokes. These firms do not interact with each other, but generate risks of personal injury through their separate interactions with a common firm, the hub. This relationship exists in most toxic waste dump site cases. Confronting disproportionate liability, the wealthier firms on the rim have an incentive to allocate potential liability by pre-accident contract. But the other firms on the rim do not, since they may escape liability under the joint and several rule. However, competitive market pressures may induce the hub firm, the dump site owner, to require such contracts as a condition for accepting toxic waste in order to attract the wealthy firm's business.

The most difficulties for the contract solution arise in the horizontal relationship. In these cases, which comprise a relatively small minority of the toxic tort situations, the defendants interact neither with one another nor with any common defendant.[28] A contemporary instance of the horizontal relationship involves the manufacture of the prescription drug diethylstilbestrol (DES) by a number of independent pharmaceutical firms. Because of the generic form and long-delayed carcinogenic effects of the drug, the plaintiffs were very often unable to trace a causal connection between the injury and the DES produced by a particular manufacturer. By the time litigation commenced, many smaller manufacturers had gone out of business. A form of joint and several liability has been suggested as a solution to the compensation gap problem [3–7]. Joint and several liability would attach to any one or more defendant manufacturers

[28]Indeed, it is difficult to imagine a situation where a firm controls the entire chain of production, distribution, and marketing so that it never contracts with any other firm that might require terms allocating potential future liability.

so long as they represented a "substantial" share of the DES market. This proposal drew strong objections on efficiency and fairness grounds because of the potential for disproportionate liability.

The emergence of a contractual allocation even in the horizontal case is not, however, impractical or unlikely [36]. To be sure, the wealthier defendants in such cases may have no market leverage over any other defendants to compel a contract allocating potential liability. Yet in some cases, the wealthy firm might find the threat of disproportionate liability sufficient to make a buyout of the smaller firms worthwhile. Moreover, in most situations involving horizontal relationships — such as DES — intermediary, but not legally culpable, firms will provide the basis for a contractual connection between the defendants. Such intermediaries include insurance companies, trade associations, and, in a great many instances, government licensing agencies. Market pressures can induce insurance companies to condition coverage on the firm's joining a contractual arrangement allocating liability. Trade associations can themselves or through consultants serve as neutral monitors of the relative risk contributions of each member firm. Of course, there may be some firms which will operate without insurance or trade association connections on the assumption that they can escape all liability, either because the wealthy firm will always pay the entire loss and never retaliate against them in the marketplace, or because they expect to be judgment-proof by the time the injury occurs. To bring these hold-out firms to the bargaining table the wealthy firm can threaten to implead non-contracting firms in any future damage action, and to make it worthwhile for the plaintiff to execute a punishing share of the judgment against such firms. Short of that, government licensing agencies can blunt this hold-out strategy by conditioning license approvals on the purchase of liability insurance to cover the risk. Competitive market conditions in the insurance industry will take over from there.

(iii) The costs of contract versus judicial allocation of liability

While contracting to avoid disproportionate liability is costly, its administrative costs (public and private) are likely to be less than those entailed by post-accident judicial allocations using either apportioned liability or the increasingly common contribution rule. Cost comparisons of the contract and judicial approaches require consideration of several factors: (i) the parties must identify and meet with each other; (ii) they must transfer and evaluate information concerning the relative risks of their respective activities; and (iii) they must then decide how to allocate liability. In the absence of empirical data, logical analysis indicates that contracting is less expensive than judicial

allocation for each factor considered individually, and more probably, for all three in the aggregate.[29]

The costs to firms of identifying and meeting with each other in order to contract will not likely be high, even when there are a large number of firms involved. In vertical relationships, bargaining over the allocation of potential liability will take place in the normal course of negotiations for the basic service or product contract. Similarly, normal market forces in wheel-shaped relationships will induce the rim firms serially to identify themselves to and meet with the hub firm in order to contract for its services — a process which will include terms allocating liability.

Horizontal relations are more problematic, although in a great many cases identifying and meeting with all members of an industry at the local, regional, or even national level will not be difficult to accomplish. In the DES case, for example, the competing manufacturers certainly knew of each other and could easily meet through their trade association to negotiate an allocation of liability. In contrast, judicial allocation requires tortfeasors to bear the process costs of suing or at least threatening to sue each other, very often on a redundant case-by-case basis. Additional costs frequently arise if the litigation is complicated by issues of jurisdiction, venue, or the statute of limitations.[30] The decisive factor weighing in favor of contracting is that it is undertaken before the

[29]It is important to count public as well as private costs of the competing methods of allocation. Thus, to some degree, simply comparing costs to firms under the contractual allocation regime with their costs in the judicial allocation process understates the expense of the latter. The judicial process is publicly subsidized, and to the extent that such services facilitate allocation decisions by settlement or judgment, the costs must be added to those borne by the tortfeasors. Similarly, it is irrelevant to net benefit analysis that the tortfeasors' costs of allocation might be less under the apportioned liability method of judicial allocation than under either contractual allocation or contribution. When judicially apportioned liability compels plaintiffs to bear more costs than do the other methods, it only redistributes, but does not reduce, total costs.

It should be noted, however, that while the risk of failing to bear the burden is plaintiff's, and while some defendants might escape liability as a result of such a failure, in practice, once liability has been established, the cost of dividing up payment realistically falls on the defendants. The plaintiff, whose interest in the case is limited to the loss (or damages) involved, usually lacks the incentives necessary to invest in drawing very precise dividing lines. Consequently, the defendants, in response to the plaintiff's evidence and the evidence offered by each other, will normally bear the costs if not the burden of apportionment to a degree not substantially different from the costs they would bear in contribution proceedings and in the contractual allocation process. And, from the perspective of the fairness norm as well as efficiency, the costs of allocating liability seems appropriately placed on the tortfeasors.

[30]The compulsory nature of judicial process does give it an advantage over voluntary meetings. Of course, suing a firm does not mean that it has to meet for settlement negotiations, but the administrative cost incentives of formal adjudication surely work in that direction. However, wealthy tortfeasors are not without power to compel meetings with their less well-off competitors. In addition to exerting pressure in the market and trade association, the wealthy can also threaten to implead tortfeasors into any future action and, by premium or indemnity, arrange with the plaintiff to execute a punishing share of the judgment against recalcitrant firms.

accident. Judicial allocation after the accident can raise great difficulties in the toxic tort context because of the long latency period of cancer and other toxic substance-related diseases. In the decade or more between the time a firm engages in business and causes toxic exposure, and the time when the disease manifests itself and the victim sues, the firm may change its name, location, or ownership, or merge, or cease operating. Given these problems with judicial allocation, it would seem less costly for tortfeasors to bargain with each other while each is still in existence and engaged in the kind of risky activities that affect the liability as well as business interests of one another.[31]

Transferring and evaluating risk information as a prelude to reaching agreement on a contractual allocation of liability will undoubtedly entail substantial costs. Once the firms have identified and met with each, however, these information costs are unlikely to vary significantly because of the relational context. In general, pre-accident contracting would again seem to have a cost edge over post-accident judicial allocation, with its high costs of discovery, redundant case-by-case processing, and expert and attorney fees.

While pre-accident contracting necessarily involves uncertainty about the risk estimate, problems about monitoring the behavior of contract signatories, and the possibility that some firms will lack resources to transfer and evaluate risk information, none of these factors has significant bearing on the comparative cost advantage of contract over judicial allocation. Risk information may be more accurate after the accident than before it has occurred, but there is no reason why the contract must make a once and for all determination. The contract can provide for periodic adjustments based on new information, which is the routine procedure firms follow in updating their liability insurance. Periodic adjustment is probably less costly than redundant relitigation of the entire relative risk issue in judicial allocation proceedings, and in any event it is precisely the cost that the substantive standard of strict liability (or negligence) requires the firms to incur in determining their current optimal care levels.[32] Moreover, residual uncertainty can be accommodated on a post-accident basis by providing for an arbitrated resolution.

Under the contract regime, firms will have an incentive to cheat by generating risks in excess of allotted shares. Cheating will be less likely when the

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[31]The possibility that some tortfeasors will be bankrupt or otherwise unaccountable by the time judicial allocation takes place should be reason enough for the wealthy firms to prefer pre-accident contractual allocation.

In general, of course, market power will determine the capacity of wealthy firms to compel other firms to bargain over terms allocating liability. While it is plausible to assume that the wealthy possess such power, the matter ultimately is an empirical question requiring industry-specific research.

[32]The only difference worked by contract is that instead of each firm calculating the relative risk of its activities by inferring the risk contribution of other firms from their market shares and various specific features of their products and services, under the contract regime the information will be provided directly.

relationship is a continuing one, as in the vertical and wheel-shaped contexts, than in the horizontal configuration where firms operate quite separately from one another. Costly monitoring may be required to check the temptation to cheat. But the monitoring costs that wealthy firms would have to carry in order to enforce a contractual allocation will in any event be borne by them as discovery costs under judicial allocation, which creates even greater incentives to cheat. These incentives are especially strong in toxic tort cases because by the time the issue of apportionment or contribution is adjudicated, the evidence of cheating may be difficult or impossible to obtain. The advantage of the contractual relationship is that it permits timely, informed, and efficient legal enforcement against cheaters through liquidated and penalty damages. The costs of monitoring can be reduced substantially by providing for disclosure of risk data on a confidential basis to intermediaries, such as trade associations, insurance companies, consulting firms, or government licensing agencies.[33] Enforcement responsibilities can also be delegated to these intermediaries.

Given the demands of the substantive strict liability standard — that firms constantly internalize the potential injury loss associated with their activities to determine their optimal care levels — any concern that a financially marginal firm will lack resources to gather, transfer, and evaluate risk information for contracting purposes would seem entirely misplaced. Moreover, there is no reason to believe that the costs of gathering, transferring, and evaluating information in the judicial allocation process will be less costly. Indeed, the most likely possibility is that many small firms, which cannot afford to determine their own levels of optimal care or even negotiate an efficient liability insurance premium, are operating on an insolvency strategy to avoid liability. It may be best to drive these firms out of business as quickly as possible.[34] Small firms, and even those inclined to follow an insolvency strategy, may find that the contract solution produces economies of scale and secondary markets that

[33]Such a process obviates concerns about disclosing sensitive marketing data to competitors. In contrast, the discovery process for judicial allocation threatens compulsory wholesale release of confidential information to competitors and the public generally.

[34]In some cases the small firm may go underground rather than out of business. Instead of disposing of toxic wastes at a licensed and monitored site, the threat of contract-enforced standards of optimal behavior may create incentives to dump the waste in the river at midnight. Midnight dumping is a general problem, and it is not clear that joint and several liability will add very much to it by inducing contract allocations of liability that force some marginal firms to internalize accident costs rather than escape responsibility through insolvency. Indeed, since there is a vertical element in almost every relationship, those confronting joint and several liability will have an incentive not to do business with potential midnight dumpers. Other law enforcement devices are available and sufficient to deal with any additional underground activity spurred by the contract solution. Taking into account the costs of using judicial allocation in effect to force responsible firms to subsidize marginal firms to keep them above ground, including both the direct expense of the judicial allocation process and the foregone benefits from the contract solution, it would seem that society would pay too high a price for the incremental dimunition of underground activity that might result by relying solely on judicial allocation methods - apportioned liability or contribution.

can be exploited to reduce information costs significantly, even to the extent that the marginal firms might be able to afford to act responsibly.[35]

Finally, while contract negotiation costs will be substantial and strategic bargaining may prevent agreement, decisions by contract rather than by courts are likely to be less expensive. In contrast to the judicial allocation process, the contract negotiation process is flexible, allowing the parties to tailor it to their own needs. For example, firms can delegate power to allocate liability on the basis of confidentially submitted information to a trade association or some other third party. Some decisions can be assigned to post-accident arbitration, or simply to insurance company bookkeeping. The decisive factor, however, is that in order to negotiate a contract the firms need only deal with each other, exploiting the information and expertise each has already developed for other business purposes. Judicial allocation, in contrast, requires educating generalist judges and juries, often redundantly in separate cases and on appeal, about the content of the risk information and how to evaluate it. The costs of this educational process fall not only on the parties, but on the public as well. Strategic litigation tactics will only add to these costs and the already substantial probability of erroneous decisions. Moreover, since most cases are settled, judicial allocation does not avoid negotiation costs, but only defers them.[36]

IV. Conclusion

Joint and several liability can be an effective instrument for regulating the risk of and compensating the losses from toxic torts. Upon close analysis, efficiency and fairness concerns about the rule's potential to impose disproportionate liability upon wealthier firms do not support current reform efforts to replace or supplement joint and several liability with one of the judicial allocation methods — either apportioned liability or contribution. Under the negligence standard, the threat of disproportionate liability serves only to reinforce a firm's incentives to act non-negligently and avoid all liability. As such, when the negligence standard applies, efficiency and fairness norms will be satisfied regardless of whether or by what formula liability is apportioned.

Under the standard of strict liability, the ability of the tortfeasors to apportion liability by pre-accident contract removes the efficiency and fairness problems of joint and several liability. Although the effectiveness of pre-accident contracts in this regard varies according to the market relationship between

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[35]Insurance companies, among other existing institutions, and innovative institutions, such as waste disposal brokers, might provide consulting services supplying information about toxic risk and how to reduce it.

[36]Because out-of-court settlements, like other contractual agreements, may be prevented by strategic bargaining, the judicial allocation process presents the possibility of doubling the costs of allocating liability, once for the unsuccessful settlement negotiations and again for the judicial resolution.

the tortfeasors, in many cases terms allocating liability can be settled in the normal course of negotiating the underlying service or product contract. Recalcitrant firms can be brought into the contract fold if the wealthy firm threatens to implead and to support the plaintiff in executing a punishing share of the judgment against them.

Overall, joint and several liability combined with contract allocation is likely to be more efficient and fair than the judicial allocation alternatives. The chance of overdeterrence and underdeterrence that arises when a firms's liability is fixed at a fraction of the loss will be lower under joint and several liability than under either method of judicial allocation, for the simple reason that contractual allocations can be enforced at any time — even before the accident. This advantage has particular importance in the toxic tort area, where damage actions are often separated by decades from the time when the tortious conduct took place. The insolvency strategy followed by many marginal firms will continue to plague the area regardless of what rule is adopted. Yet, in contrast to the negligible effect that judicial allocation methods have on the insolvency problem, joint and several liability is likely to have a positive impact. To minimize their exposure to disproportionate liability under joint and several, the wealthier firms will not only allocate liability by contract, but they will be very discriminating about the smaller firms with whom they do business. Wealthy firms will be careful to ensure that smaller firms are financially prepared, through reserves or insurance, to assume their share of the loss.[37] Finally, it appears that contract allocation entails lower administrative costs than either of the judicial allocation methods. For, among other reasons, it is likely to render that additional level of judicial administration unnecessary to achieve efficient and fair ends.

In effect, contract allocation tailors legal regulation of toxic substance risk-taking to the individual needs of the parties and context. Its flexibility, in contrast to the more formal and rigid rules of judicial allocation, promises benefits in lower costs, swifter enforcement against cheating, and more protection for confidential information. The social benefits of efficient and fair control of risk should be substantial.

This is not to say that joint and several liability with contractual allocation will work efficiently and fairly in every case. Horizontal relationships are the most problematic,[38] however, there should be no flat presumption in favor of this approach for either of the other two relational contexts. But the opposite presumption is similarly unwarranted, and it is this presumption which is

[37]The wealthier firms will shun the marginal, insolvency-prone firms only when liability is imposed under the strict standard. When the standard is negligence, the wealthy — as well as all solvent and potentially accountable firms — will act non-negligently to avoid all liability.

[38]The most difficult situations will be those in which all firms in the industry are small and marginal, or in which firms engaged in unrelated types of activity secretely pollute air and water resources.

implicit in much of the criticism of joint and several liability and the reforms adopting judicial allocation methods.[39] In short, the choice between approaches should be a discriminating one, made on the basis of a careful analysis of the relative effectiveness of each in the particular context.[40]

The broader point of analyzing the contract allocation approach is to emphasize that legal regulation of toxic substance risks may often be achieved effectively by creating incentives for, and by all means allowing, private contract and enforcement as an alternative or supplement to centralized, command and control decision making by courts and other government agencies. As this paper shows, there are special advantages to the contract approach when the costs of that process would largely be borne by the parties anyway in order to comply with the substantive standard of liability. Government can foster the contract alternative by providing risk and market share data, and by requiring as a condition for a license to operate that a firm demonstrate its financial responsibility for the risk of loss its activities generate. While financial responsibility regulation might be enforced by government agencies, some reliance can be placed on the natural incentives of competition. By legislation or common law rule, it might be declared a form of "unfair competition" — redressible by injunction and damages at the behest of aggrieved competitors — for a firm to operate without sufficient insurance or other financial provisions to cover its risk, or to engage in midnight dumping or other underground evasions of the law. Joint and several liability with contract allocation is thus an example of the type of hybrid regulation required for effective control of toxic substance risk that can be found once the horizon of regulatory choices is expanded to include private contract and enforcement [38].

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[40]Such a context-by-context process of decision-making entails costs in terms of predictability and uniformity of legal rules, as well as administration. These costs will necessarily affect the degree of context particularization that can profitably be achieved.

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