

University of Chicago Law School

Chicago Unbound

Journal Articles

Faculty Scholarship

1985

Two Fallacies in the Law of Joint Torts

Richard A. Epstein

Follow this and additional works at: https://chicagounbound.uchicago.edu/journal_articles



Part of the [Law Commons](#)

Recommended Citation

Richard A. Epstein, "Two Fallacies in the Law of Joint Torts," 73 Georgetown Law Journal 1377 (1985).

This Article is brought to you for free and open access by the Faculty Scholarship at Chicago Unbound. It has been accepted for inclusion in Journal Articles by an authorized administrator of Chicago Unbound. For more information, please contact unbound@law.uchicago.edu.

Two Fallacies in the Law of Joint Torts

RICHARD A. EPSTEIN*

I. INTRODUCTION

For most of its common law history, the law of torts satisfied the Aristotelian unities. The events that gave rise to liability took place on a very small scale. There was unity of place, in that all the relevant actions tended to occur at a single location. There was unity of time, in that the gap between the defendant's wrong and the plaintiff's injury tended to be short. There was unity of persons, in that the number of actors involved in any case were few. In circumstances like these it was proper to subordinate problems of evidence and administration and to focus judicial attention on the doctrinal rules that best adjusted the equities between the parties.

To take but one example, in *Palsgraf v. Long Island Railroad*¹ a plaintiff was injured when (or so it was said) a train conductor pushed a passenger onto the train; the passenger dropped the package of explosives on the ground, which went off and injured a woman standing some distance away when a set of scales fell on her. The case involved a freak set of events; indeed the facts as stated seem to violate the laws of physics.² It is appropriate, especially in first year torts classes, to lavish attention on the doctrinal subtleties of "the foreseeable plaintiff" and "negligence in the air." It may even be possible to come out with the right result. But in an institutional sense the case does not matter. It is a sport: its freakish facts ensure that it will not be repeated, and no matter how general its language, the case will have (as has in fact been the case) no precedential importance. Literary impulses can dominate a case whose story line reads like a bad novel. The administrative problems are simply not insistent and were rightly subordinated.

Yet the emergence of mass torts in the last generation raises a very different set of questions, which demand a very different set of answers.³ Now the old unities are no longer preserved. The actions that engender liability may have occurred years before the claim is brought. The place of injury may be far removed from the place of the wrong. The number of parties to the suit may be very large. The same basic questions of principle may recur countless times, and administrative and error costs play an ever larger role in the course of litigation. In dealing with such complex cases, the object of the system is not perfect justice, but damage control. The right intellectual orientation is not to set the aspirations of the system too high. Trying to get the right result in all cases is noble, but it is also unattainable. It is another manifestation of the Nirvana fallacy, by

* James Hall Parker Professor of Law, University of Chicago. I would like to thank Terrence Burke for his helpful research assistance.

1. 248 N.Y. 339, 162 N.E. 99 (1928).

2. How, for example, could Mrs. Palsgraf have been the only person on a crowded platform injured by the explosion, had there been an explosion? For a detailed account of the factual oddities of the case, which can account for both its interest and limited practical effects, see Prosser, *Palsgraf Revisited*, 52 MICH. L. REV. 1 (1953); J. NOONAN, JR., PERSONS AND MASKS OF THE LAW 111-51 (1976).

3. See generally Symposium, *Catastrophic Personal Injuries*, 13 J. LEGAL STUD. 417-622 (1984).

which the defects in one proposed set of institutions are compared to an unrealizable ideal instead of to their feasible alternatives.⁴ The hard question is what measures allow the legal system to operate with tolerable accuracy in the face of the high administrative costs and the great evidentiary uncertainty that dominate all complex litigation. Within these powerful constraints, it is necessary to marry the demand for administrative simplicity with the need to create the right set of incentives upon all actors for controlling harm. Sometimes complex rules are necessary to create the proper incentives. Yet the conflict can be overstated, for it is often possible both to have our cake and eat it too: simple rules can have superior incentive effects.

This last point is of special importance in the law of joint tortfeasors. There, problems of administration and incentives are both acute. The increase in the number of parties will generate its share of litigation complexities. It is, however, precisely in this context that relatively simple rules have their greatest attraction. Nonetheless, it is here that legislatures and courts have moved in the opposite direction. The modern law extrapolates from small number to large number situations in a mechanical way that is largely insensitive to the problems of scale, and which neglects the importance of transaction costs. The traditional common law rules of joint and several liability may have been appropriate when there were two defendants, but they do not work well in today's mass tort litigation. In order to illustrate the problem, I look at two important doctrinal areas, one judicial and one legislative: the market share liability rule first announced in connection with the DES litigation, but arguably applicable elsewhere, and the doctrine of joint and several liability as it is now applied under Superfund.⁵ Both represent fallacies in the law of torts.

II. DES AND MARKET SHARE LIABILITY

The first fallacy of the law of joint torts is illustrated by the market share rule first announced in the DES litigation, notably in *Sindell v. Abbott Laboratories*.⁶ As is now well known, the market share rule states that where an injured party cannot identify which manufacturer has provided the particular product that has caused the harm, the individual may sue the entire group of suppliers, and place on each of them the burden of showing that its product did not cause the loss. The rule presupposes that all the other elements of a product liability action are satisfied—mainly that the product is defective and caused harm. Its application also presupposes that the shares of the various firms in the relevant market can be identified at reasonable cost. As stated in *Sindell*, the rule may impose upon a “substantial” fraction of the firms in the market the costs of all product-related

4. See Demsetz, *Information and Efficiency: Another Viewpoint*, 12 J. L. & ECON. 1 (1969).

5. “Superfund” is the popular name for the Hazardous Response Trust Fund, 42 U.S.C. § 9631 (1982). The Fund was created by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9601-9657 (1982).

6. 26 Cal. 3d 588, 607 P.2d 924, 163 Cal. Rptr. 132, cert. denied, 449 U.S. 912 (1980). (I should note that I worked on the petition for certiorari in *Sindell* and wrote an amicus curiae brief in opposition to the market share rule in *Abel v. Eli Lilly & Co.*, 418 Mich. 311, 343 N.W.2d 164, cert. denied, 105 S. Ct. 123 (1984)). There is a vast literature on the market share question. See, e.g., Robinson, *Multiple Causation in Tort Law: Reflections on the DES Cases*, 68 VA. L. REV. 713 (1982); Rosenberg, *The Causal Connection on Mass Exposure Cases: A “Public Law” Vision of the Tort System*, 97 HARV. L. REV. 851, 867-68 (1984).

losses. While I think that rule is generally unworkable, even in this simple form, for these purposes I shall assume that all the firms in the market can be joined as defendants and that their market shares can be measured with some tolerable degree of accuracy.

Within these ground rules, the single criticism of the rule that I want to make here relates to the way in which the general evidence of market shares should be integrated with specific proof that any given defendant did or did not supply the defective product. In analyzing this question, I take it that the aim of the law should be to minimize the sum of the costs from two quarters: (1) the administrative costs of the rule, and (2) the error costs of the rule, that is the costs of holding someone liable for harms not done, or not holding someone liable for harms he did do, within the substantive constraints imposed by general product liability law. In order to understand how these two types of cost interact, it is useful to note how the market share rule evolved.

The market share rule in *Sindell* is best understood as a generalization of the earlier "alternative liability" rule first adopted by the California Supreme Court in its 1948 decision, *Summers v. Tice*.⁷ In *Summers*, the plaintiff suffered an eye injury attributable to a pellet fired by one of two defendants. The case presented a novel puzzle under the traditional burdens of proof, which ordinarily allow the plaintiff recovery only if the probability that any given defendant is responsible exceeds fifty percent. Under the traditional rule, each defendant could take advantage of the equipoise rule, even though it was (by undisputed evidence) certain that one of the two defendants was responsible. Rather than provide the innocent plaintiff no recovery at all, the *Summers* court held the two defendants jointly and severally responsible, treating this situation exactly as though the defendants were joint tortfeasors. The decision makes the plaintiff *better off* because of the uncertainty as to the source of injury. While there can be only one satisfaction, each defendant can be held for the full amount. In sharp contrast, if any causal identification is made (even by just fifty-one percent of the evidence), then recovery is available against one defendant or the other, but not against both. The alternative liability rule thus provides the plaintiff a guarantor of the underlying obligation, in order to ensure that he is not left uncompensated.

An attractive feature of the *Summers* rule is that it reduces the error costs associated with factual uncertainty. Under the traditional rule, the sum of the errors for the three parties is equal to twice the damages, D , or $2D$. To explain, the plaintiff who should recover in full gets nothing, for an error of D . One defendant pays O when he should pay O , for an error of O , while the second defendant pays O when he should pay D , an error of D . The sum of $D + O + D = 2D$. By hypothesis, one of the two defendants is necessarily innocent, so that no payment from that defendant must be an accurate measure of its responsibility; with the other two errors set at the maximum, D , there can be no further increase in the aggregate error rate.

With *Summers*, that error level is reduced from $2D$ to D . As the plaintiff rightly recovers, the first error term is reduced to zero; the second error term is increased to $1/2D$, since the second defendant now pays $1/2D$ when he should

7. 33 Cal. 2d 80, 199 P.2d 1 (1948). The result in *Summers* has been adopted by RESTATEMENT (SECOND) OF TORTS § 433B(3) (1965).

not pay at all. However, that increase in error is offset as the second defendant now also pays $1/2D$ so that the second error term is reduced by $1/2D$. The sum of the errors is now: $0 + 1/2D + 1/2D = D$.

The alternative liability rule is a precursor of the market share rule, then, for the simple reason that both rules are efforts to reduce the uncertainties attributable to lack of evidence on the question of causation. Yet the market share rule differs from the alternative liability rule in three significant respects. First, in practice the market share rule arises with a large number of plaintiffs, instead of a single one. Second, there are multiple defendants, so that the "fifty-fifty" issue and the preponderance of evidence question both drop out of the case. Third, the all-or-nothing feature of *Summers* is absent: the likelihood that any given defendant has caused harm is equal to its fraction of the market. Thus, while the alternative liability rule makes it clear that both defendants receive the wrong treatment, such is not the case with market shares. In principle we know that all the harm was not caused by only one of the parties, so that the interior solution (pay your expected costs) now matches up pretty closely with the actual number of cases in which harm is caused.

Under these three conditions, the market share rule is, if anything, more appealing than the alternative liability rule as a means to control legal error. While the alternative liability rule tends to reduce expected error (from $2D$ to D) *ex ante*, the market share rule gives a good expected value both *ex ante* and *ex post*. Indeed, if the distribution of harm obeyed statistical laws exactly, then the market share rule could claim a zero error rate, since each plaintiff would recover only his losses while each defendant pays only for the losses he causes. The size of the error therefore is limited by the laws of chance and becomes ever smaller as the size of the sample becomes larger.

In addition, the expected costs of error do not vary much from defendant to defendant, because individual injuries do not depend on product purity or quality. In contrast to the Agent Orange litigation, they are (as best one can tell) randomly distributed across producers. There is every reason therefore to expect a strong convergence between the amount that firms will be held liable for under the market share rule and the amount of damage that their products have caused. In one sense the market share rule works better here than alternative liability does in *Summers*, for the total amount paid by each defendant under a proportionate share rule tallies very well with the amounts that each would pay if perfect identification had been possible. Where all possible defendants are present in the case, the plaintiffs also receive recoveries that tally well with those payable when identification is made. Even when some defendants are absent, the reduction in recovery by each plaintiff only reflects the possibility that he was hurt by a product supplied by an absent defendant. Yet even here, given risk aversion, the pooling of risk across all plaintiffs may be better than the all-or-nothing recoveries that result when product identification is possible. This ironically suggests that market share pooling may be desirable when some suppliers are absent, *even where* identification is possible. Under these circumstances, the inability to match each defendant with the plaintiff whose injuries it caused is therefore quite beside the point. The distribution of benefits and burdens for all parties can be made as well without such identification as with it.

On these assumptions, it is possible to identify two critical errors in the stan-

dard formulation of the market share rule. First, the insistence on joint and several liability for the entire loss reproduces on a grand scale the error in *Summers*: ignorance on the identification issue is again improperly used to make each defendant the guarantor of every other defendant's independent obligations. That bias to overcompensation should be avoided by adopting a rule of proportionate share liability that holds each defendant responsible for the harms caused by his products and none other.⁸ Where some defendants are insolvent, no plaintiff goes without recovery because the defendant's pool remains intact, but each plaintiff's draw from the pool should rightly be diminished to ensure that the amounts paid by defendants and collected by plaintiffs are not biased by the inability to make proper identification in individual cases. Any other rule requires each defendant to pay for greater levels of harm than it caused, while plaintiffs obtain an extra recovery equal to the obligation of absent or insolvent defendants. Joint and several liability thus gratuitously introduces systematic error into the process, which the proportionate share rule avoids.

Second, and perhaps more instructive, is the proper treatment of the exculpation evidence offered by individual defendants. In *Summers*, the question of alternative liability arose only after exhaustive testimonial evidence failed to establish which defendant had fired the offending pellet. Ideally, one would have had a rule that could have made the fifty-fifty split without incurring the costs of investigation into which defendant fired the shot. To be sure, in *Summers* the search could be justified on the ground that it promised to reduce the level of legal error, for most investigations of this sort will produce evidence to break the tie between codefendants, thereby allowing liability to be imposed on one defendant or another under the usual (error-minimizing) rules. The costs of trial therefore are justified by the reduction in error rates that they secure.⁹ This common sense observation explains, for example, why no analogue to the market share rule has ever been proposed for ordinary traffic accidents. There is no reason to join every automobile owner in the state for an infinitesimal share of the loss, when a little spadework can establish the proper defendant with great certainty.

The analysis of error rates assumes a very different form in the market share situation with multiple defendants. Here the prospects of correct identification on a case-by-case basis are slim indeed, given the passage of time and the inadvertent destruction of all documentary evidence. Now the individual inquiry is simply not worth making, because it cannot improve on the distribution of payouts and recoveries generated by the straight market share rule. Allowing individual firms to introduce exculpation evidence in some individual cases thus brings about the worst of all possible worlds. The administrative costs of a mar-

8. For my defense of this position, see R. EPSTEIN, *MODERN PRODUCTS LIABILITY LAW* 153-60 (1980).

9. See Kaye, *The Limits of the Preponderance of the Evidence Standard: Justifiably Naked Statistical Evidence and Multiple Causation*, 1982 AM. B. FOUND. RESEARCH J. 487, 496-500, for a formal demonstration that the ordinary preponderance of error rule minimizes error costs, as opposed to a rule that allows the plaintiff to recover an amount equal to the damages caused multiplied by the probability that the defendant was responsible for the harm. The two rules yield the same result only in three cases: where the probabilities are zero, one, and one-half. At zero and one, the error rate is zero under all rules, because we have the case of certainty. Only the last case (where the probability is one-half) causes any difficulty because it alone does not provide any clear direction for the disposition of the case. Here, moreover, the error rate reaches its maximum under all rules. Denying recovery in this context has the desirable feature of minimizing administrative costs.

ket share rule with exculpation are greater than the costs of the same rule without exculpation. Similarly, the error rate will be higher when exculpation is allowed than with the pure market share rule. The additional error costs are both a source of injustice in the individual case of allocative inefficiency and for the system as a whole. On every count therefore the pure market share rule is superior to the hybrid version, which seems desirable only if case-by-case adjudication is mistakenly regarded as the bedrock norm of a system of individual justice. The proper approach is to *begin and end* with evidence of market shares. No exculpation evidence should be admitted, no matter how probative it appears in the individual case.¹⁰

Use of exculpation evidence cannot be disciplined. Once particular identification evidence is introduced in any given case, it will be necessary to combine it with the evidence from background probabilities. It will also be necessary to readjust the shares for the other members of the pool to take into account the individual cases that have been removed from it on a nonrandom basis, usually on the strength of imperfect testimonial and record evidence. In large number situations, the market share procedure with proportionate shares gives rise to *perfectly offsetting* errors, without any administrative costs spent on exculpation.¹¹ The defendant with ten percent of the market pays for ten percent of the loss on the ninety percent of the cases for which it is not responsible, but it escapes ninety percent of the loss on the ten percent of the cases for which it is responsible. The upshot is that the *per se* rule is both cheaper and more reliable than case by case determinations of product supplier, where the errors are independent and costly, but need not be offsetting. The legal rule that clings to market shares may be inferior to one that abandons the entire *Sindell* enterprise, given its high administrative costs. But if a court regards these costs as acceptable, then the pure market share rule is superior to the common judicial hybrid, which yields the worst of both worlds by combining market share rules with individual exculpation evidence. The two systems simply do not mix. Once the system starts with using pooled data, it should stick with that data, and not shift gears in midcourse. Where the identification evidence is thought to be generally reliable (as with automobile accidents), market share evidence should be systematically excluded.

III. JOINT AND SEVERAL LIABILITY: SUPERFUND

The rules for apportioning loss in the DES cases are directed to cases in which

10. The idea was rejected in *Payton v. Abbott Laboratories*, 386 Mass. 540, 437 N.E.2d 171 (1982), where the importance of individual identification was maintained. Note that the statement in the text does not hold where identification is a certainty, but cases of that sort can be ignored on matters such as this.

11. The offsetting nature of the errors is ignored, for example, by Justice Richardson in his *Sindell* dissent:

Recovery is permitted from a handful of defendants *each* of whom *individually* may account for a comparatively small share of the relevant market, so long as the *aggregate* business of those who have been sued is deemed substantial. In other words, a particular defendant may be held proportionately liable *even though mathematically it is much more likely than not that it played no role whatever in causing plaintiff's injuries.*

26 Cal. 3d at 615-16, 607 P.2d at 939, 163 Cal. Rptr. at 147.

it is known that the loss is caused by one (or some) defendants but not by others in the same class. The critical problem of joint causation also arises where it is known that each of several responsible parties has contributed something to the harm in question. One central problem for the legal system is to determine what method of apportionment best controls the administrative, error, and incentive losses in these situations.

The problem has assumed immense practical importance with the growth of major toxic tort litigation under the Superfund legislation. The explanation is not hard to find. The statute defines liability in a way that makes it possible to hold both the original generators of toxic wastes and the operator of dumpsites liable for environmental harms. The question of joint liability necessarily arises when releases from two dumpsites cause a single harm. Although that possibility is certainly a real one, the rule of joint and several liability achieves its special prominence because the liability provisions under Superfund provide that the separate parties who generate off-site wastes or transport wastes to given dumpsite may be held jointly and severally liable for any release from it, even if all releases take place from a single dumpsite.¹² As every dumpsite involves receipt of toxic wastes from many separate off-site generators, the probability of invoking the principle of joint and several liability approaches one, especially in light of the obvious inability to identify the original generator of any given waste. Yet here the statutory language was drafted in a way that glossed over the question of joint liability of generators, and the courts have filled the gap by holding, here as a matter of federal common law, that the common law rules of joint and several liability should be used to resolve this problem. As Representative Florio, chief sponsor of Superfund in the House, said, "Issues of joint and several liability not resolved by this [legislation] shall be governed by traditional and evolving principles of common law."¹³

The problem here is like that found in the shift from alternative liability to a rule of market shares. The new Superfund cases are far removed from the old and simple common law type situation where *A* creates a dangerous condition that *B* fails to correct.¹⁴ Under the common law, a rule of joint and several liability may create a definite risk of excessive liability, but with two defendants the losses will at most be double their appropriate level. Even here the issue is clouded. In the traditional case, the harm was indivisible between the two parties, while the possibility that the other party might have to bear the full loss meant that *ex ante* the anticipated losses were about correct, except where one party bore a high systematic risk of escaping detection or of being insolvent.¹⁵

The same basic issues are at stake when the rule is extended to *n* parties, but

12. See 42 U.S.C. § 9607(a) (1982). The joint and several liability interpretation of this provision has been adopted in many cases. *E.g.*, *United States v. Wade*, 577 F. Supp. 1326, 1337-39 (E.D. Pa. 1983); *United States v. Chem-Dyne Corp.*, 572 F. Supp. 802, 804-10 (S.D. Ohio 1983).

13. 126 CONG. REC. H31,965 (daily ed. Dec. 3, 1980) (statement of Rep. Florio).

14. See, *e.g.*, *Gray v. Boston Gas Light Co.*, 114 Mass. 149 (1873) (contribution when one party creates nuisance that other fails to correct); *cf.* *Union Stock Yards Co. v. Chicago, B. & Q. R.R.*, 196 U.S. 217 (1905) (no contribution when both defendants failed to discover defective brakes because both guilty of like negligence).

15. See generally Landes & Posner, *Joint and Multiple Tortfeasors: An Economic Analysis*, 9 J. LEGAL STUD. 517 (1980) (arguing that traditional common law rules governing joint and multiple tortfeasors, including common law indemnity and no contribution rules, are economically efficient).

now the preservation of the joint and several liability rule brings with it far higher administrative and error costs. The question of systematic bias and insolvency looms larger, for now one firm could be asked to assume the liabilities of dozens of others. If parties are in any degree risk averse, their private losses from the new regime will be greater, as they are required to place bets in which there is a smaller chance that they will be found liable, but a far greater loss should liability be established. In addition, the administrative costs will in all likelihood increase faster than the number of parties. In part, it is only a simple question of the potential number of interactions. With 2 parties, there is only 1 relationship (*A* to *B*), with 3 parties there are 3 (*A* to *B*, *A* to *C*, and *B* to *C*), with 4 parties there are 6 combinations, while with *n* at 20, the number of possible relations is 210. With the increase in the number of parties comes the possible increases in strategic behavior, which in turn is enhanced by the absence of any definite rules for apportioning the responsibility among them.

There is still the question of whether the actions for indemnity and contribution can reduce the risks in question. Yet here the problem of large numbers has an unexpected twist. The position of the government has always been that joint liability is necessary in order to make its litigation worthwhile. If each generator were held only for the fraction of the harm it caused, then the government could never afford to bring suit, because its own expenses would exceed its ultimate recovery, even without regard to the risk of a defendant's judgment. This argument, however, presupposes a perfect correspondence between the government's litigation strategy and the social interest. Yet if the costs of suit are so great, the suit should not be brought, as other methods to control external losses are preferable. It hardly seems sensible to inflate the damages in order to make the lawsuits profitable for the government to bring, if no social good is thereby obtained.

Even if the government has its way on its own rights of action, the problem of how best to handle the contributions of individual firms still remains. The present law is quite unclear, but it seems as though the government position is that it should be allowed to pick and choose the single defendant it wants to answer for the entire loss. The legal question of whether the defendant selected can implead other parties into the main action is not clearly resolved, but even if such impleader is fully allowed, its benefit to the defendant in the original suit will be dubious. The defendant will only act as a third party plaintiff if its costs of suit are less than its anticipated level of recovery. Here the same cost considerations that make government actions unattractive under theories of proration reassert themselves. In a contribution suit, the suing firm can only recover on a pro rata basis; it may be deprived of the benefit of presumptions granted to the government on the causation issue; it may be able to prosecute its action only after the government collects its money. On these very plausible assumptions, its right of contribution or indemnity may not be worth having, for its private costs could well exceed its anticipated recovery. If that is the case, then the original decision by the government to fix initial liability on one defendant becomes de facto the final decision on liability. Again, the transactional costs in mounting an action for contribution and indemnity are very different as we move from a case of two parties to one with 200. The only way to avoid this problem is to allow the firm sued by the government to take advantage of presumptions and rules similar to

those afforded the government, which in turn reinstitutes the wasteful cycle generated by the original government cause of action.

The problems with a regime of joint and several liability extend beyond those of administrative costs. There are also perverse incentive effects when joint and several liability is the norm. The issue here is but another version of the common pool problem. Normally the problem applies to assets, to things of value, such as fish or natural resources. But it can apply to joint liabilities as well, for example to debts that are jointly held or incurred. Thus, suppose there is a pollution case in which there are ten parties who have contributed waste to the site. Put aside the formidable administrative complications, and assume, as seems plausible, that each particular defendant knows that for any private expenditure of wealth it makes, the level of pollution it creates, and hence of liability it faces, can be reduced by a certain amount. For ease of exposition we can assume that this relationship between expenditures and pollution is roughly inverse, so that a twofold increase in the level of investment reduces the level of pollution by half, and so on down the line.¹⁶

Now, where the defendant is the only party responsible for the harm caused by his pollution, each dollar of investment in precaution translates into a corresponding reduction in liability, which he captures for himself. In principle we should expect under the strict liability rule of Superfund that the defendant will choose the level of precautionary investment that approaches the social optimum: the defendant will compare at the margin the costs and benefits of any additional unit of investment in precautions, and will continue to take precautions until they are no longer cost effective.¹⁷ Once the costs of precaution exceed the costs of liability, the defendant will have an incentive to stop taking measures, at a first approximation at the right social position.

This simple relationship is vastly complicated because of the errors in estimation that pervade pollution cases, and the heavy administrative costs involved in setting any liability rule. But even after these are noted, the private party still has the (weaker) incentive to make the right trade off between investment in safety and the costs of accident. The liability system may not function perfectly, but at least it will function better than no system at all.

The picture changes radically with joint and several liability, for now one has to take into account the possibility of game playing by separate defendants. Under the regime of joint and several liability, a defendant who contributes any small fraction to the total social loss can be held to answer in damages for the full loss no matter what the level of precautions taken. To see the contrast, suppose that a defendant is the only firm whose waste causes total losses of \$2000 at the dumpsite. Suppose further that this defendant can, at a cost of \$500, eliminate half his toxic substances, which themselves would cause harm at \$1000. As a single defendant, that firm will normally be expected to undertake

16. That is, a relationship of the general form $p = k/i$, where p is the level of pollution, k is any constant, and i is the level of investment in pollution control devices. The argument's validity is not tied to the form of this function, but only presupposes some relationship where pollution levels decrease as investment increases.

17. See generally Brown, *Toward an Economic Theory of Liability*, 2 J. LEGAL STUD. 323 (1973) (extensive analysis of economic effects of various tort liability rules).

the precautions, because the \$500 in safety translates into a \$1000 reduction of liability for a net gain to the firm of \$500.

Now suppose there are ten defendants, of whom each contributes \$2000 to a total loss of \$20,000. If one defendant now spends \$1000 to clean up its own waste, it reduces (if the level of activity by other parties remains constant) the total social loss from \$20,000 to \$19,000. That defendant should therefore be encouraged to undertake the act. Nonetheless, under a rule of joint and several liability, that defendant's anticipated share of the loss is reduced from \$2000 (its one in ten chance of being held for the entire loss) to \$1900, for an anticipated saving of only \$100. At this point, the private gain is far lower than the social gain, so the party has an incentive to forgo the expenditure, ninety percent of which benefits other parties who ship wastes to the dumpsites. Common pool problems arise as much with joint liabilities as with joint assets. The implicit externalities tend to encourage insufficient investment in loss prevention in both cases. Just that problem arises with the liability rules under Superfund.

This argument oversimplifies the current legal regime, but no set of complications undoes the collective action problem that lies at the root of the issue. Thus, the firm that can reduce its release of wastes to zero faces no liability. It therefore might appear that the rule of joint and several liability would drive a defendant to the extreme solution. Yet here it is far from clear that one wants a world in which there is zero loss from toxics, given that the marginal costs of prevention needed to obtain that situation are exceedingly high, while the last unit of benefit is apt to be very low. Nor is there any way in which a determined firm could get to that zero level even if it tried, short of not generating or shipping wastes altogether—which would mean the cessation of all manufacturing of such essential products as chemicals and food. Even if the waste material shipped were by some miracle risk-free, a jury could decide that the defendant firm did make some incremental contribution to social loss, so that liability would be imposed. Again it would be liability with a vengeance, for the tiniest level of waste exposes the virtuous defendant to exactly the same legal risks as the slothful defendant whose waste contributions are many times as large. Why then be virtuous? As a matter of first principle, there should be very little difference in the liabilities of the firm that generates the scintilla of waste, and those of the firm that generates no waste at all.

The vice of the current law is that it creates a discontinuity in the anticipated costs facing the firm. Where pollution is zero, liability is zero; but where pollution is infinitesimal, liability is then complete. In such a world, it becomes extremely difficult to choose the right course of private behavior. Why worry about taking precautions if the benefit will go to other users of the waste site? Instead, the optimal strategy, which some firms will follow, is to save by reducing precaution costs. Here the savings that any one firm achieves could be substantial, and the loss that it creates will be borne not by it, but by other firms. The total level of pollution therefore could be expected to *increase* beyond what it would be if each firm were held responsible for its pro rata share of the loss.

On both administrative and incentive grounds, some form of pro rata liability seems as appropriate here as it is with the market share test. The problem still remains as to how this should be done. Unlike the DES situation, the question is very hard because waste is not fungible and there is no obvious surrogate (paral-

lel to market share of DES) for the level of harm caused in the waste that is shipped, stored, and released. One could hold all defendants equally liable for the loss, but that ignores the obvious point that the fractional contributions will differ widely from one another. Simply dividing the total loss by the number of defendants was rejected on just this ground in *Sindell*, and the same conclusion seems to be in order here. But is there any workable alternative? One could adopt a rule that prorated the loss in accordance with the amount of gross waste material shipped into a dumpsite. Yet that rule will not reward generators who have shipped waste with low toxic levels, or those who have taken precautions to see that the waste so shipped will not escape. Since it is doubtful that this test will work, at least some evidence must be taken on the question of what contaminants were shipped to the site and what particular forms of precautions were used to reduce their incidence of escape.

The defenders of the current regime could point to one obvious difficulty with any system of proration: the government will rarely be able to recover in litigation an amount that exceeds the cost of bringing suit. Yet these problems with administration and incentives suggest that the difficulty with the present legislation may be more fundamental than the criticisms thus far made have indicated. I think that one fundamental flaw in the system as it now exists is its decision to extend liability (strict or otherwise) to persons who are not in possession and control of the dumpsite at the time of the release.¹⁸ In essence, the proper solution seems to be to impose the *sole* tort liability upon the party in possession of the wastes at that time. Everyone else in the chain of waste generation should be out of the system of primary tort liability. The rules on joint and several liability (which should still be several) should only apply to damage caused by releases from multiple sites. The number of parties to litigation should be reduced dramatically, and each dumpsite in a case will no longer be able to claim that someone else was responsible for the loss in question. This reduction in the number of parties should go a long way towards alleviating the administrative and incentive problems that arise under Superfund. And it should introduce some measure of predictability and stability into the area.

It may be said that there is still the need to control the condition at which waste arrives at the site. So there is, but it could be handled best by private contracts, now mistakenly banned under Superfund,¹⁹ between the generator and the site owner. Under this system, all the necessary determinations about what form of waste should be shipped in what kind of container could be resolved by private agreement *before* the occurrence of harm, and not by adjudication after its occurrence.²⁰ The threat of an insistent and well calibrated system of tort liability should, in effect, create the necessary incentives for dumpsite firms to run the right kinds of inspections and controls upon the waste materials received, and a system of mandatory, public bonding, and insurance requirements could be introduced to prevent the risk of insolvency of dumpsite operators which might otherwise impair the operation of the system. The reduction of

18. I developed this theme at length in Epstein, *The Principles of Environmental Protection: The Case of Superfund*, 2 CATO J. 9, 25-29 (1982). Unfortunately, I think that many of the dire predictions I made there have been borne out by recent events.

19. See 42 U.S.C. § 9607(e)(1) (1982).

20. See Epstein, *supra* note 18, at 27-28.

the number of responsible defendants should also improve the insurance market, because risks should be easier to price, as the premium charged to one party will not depend on the misbehavior of other unknown parties who use the same dumpsite. Similarly, the applicable industry reserves will have to be divided among fewer policies, with lower administrative costs. The system can be supplemented by public inspections at the sites in order to add an injunctive protection when and as necessary. This system will not work with respect to the waste materials that are already in place, or for abandoned sites, but here all incentive arguments are suspect because the conduct the law seeks to influence is already etched in stone. It may be best therefore to give up on the tort system altogether and resort to clean-up programs that are financed by taxes, whether from general revenues or from special levies on industry sources.

In matters of environmental protection it is important to start from the proposition that the "polluter pays." But here the implicit limitation on that moral imperative is that the adverse social consequences of making individual polluters pay too much are as perverse as those that arise from making them pay too little; both kinds of errors have their substantial costs. The collective action problems that arise in dealing with cases of joint and several liability under the current Superfund arrangement illustrate those weaknesses perfectly. A more modest system that avoids the present pitfalls of joint and several liability offers a good way to correct some of the present errors. The statute's weaknesses are on points of detail, but they influence the entire course of litigation.

IV. CONCLUSION

The general common law rule approach to joint liability has had a very powerful preference for joint and several liability. Yet the desirability of that result depends heavily on the number of parties involved in a lawsuit. As those numbers increase, the error and administrative costs from that rule become very dramatic. Whether we deal with the law of market share liability for drugs, or liability for environmental losses, the same message rings through. As numbers become greater, simplicity becomes more imperative. Rules of joint and several liability create indefinite obligations that generate the same negative social consequences as indefinite property rights in land or fish. These problems of incentives and of administrative costs can both be best confronted by regimes that identify the proper defendants to a tort suit, and then limit the liability of joint wrongdoers to their proportionate share of the harm.

Karl Llewellyn once said that technique without morals is a menace, but that morals without technique is a mess. He could have been thinking of the modern law of joint torts.