

# ACTIVITY LEVELS UNDER THE HAND FORMULA: A COMMENT ON GILO AND GUTTEL

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A response to David Gilo & Ehud Guttel, *Negligence and Insufficient Activity: The Missing Paradigm in Torts*, 108 MICH. L. REV. 277 (2009).

## INTRODUCTION: THE HYPNOTIC HAND FORMULA

Within the law and economics field, there often surfaces a near hypnotic attraction to the Hand formula as the one and only tool that drives tort law toward economic efficiency. Hand's intuition was, of course, that the test for efficiency requires a balancing of three variables. The burden of taking particular precautions is compared to the expected loss from some activity, which in turn consists of the likelihood of some particular harm multiplied by its anticipated severity. Liability attaches only where the burden of precautions is lower than the anticipated accident costs. By forcing cost-effective precautions and no others on potential tortfeasors, so the story goes, tort law weeds out desirable from undesirable conduct.

There are many ways to attack this myth, and I will just mention a few points before speaking about the ingenious contribution that David Gilo and Ehud Guttel offer pursuant to this orthodox tradition in their article, *Negligence and Insufficient Activity: The Missing Paradigm in Torts*.

First, the Hand formula does not explain why it is that negligence is superior to strict liability, or the reverse. As a first (and not very good) approximation, parties will ordinarily take as much care under the strict liability rule as under the negligence rule. A pair of simplified examples illustrates the point.

Suppose that the cost of care is 100, and the risk of a 200 loss is 0.6. At this point under both a negligence and a strict liability system, the rational defendant will take care. The expected loss of 120 is greater than the 100—the cost of care. Under the negligence system, the cost of care is lower than the cost of the accident, so it is rational to make expenditures that avoid the harm. The same holds true under strict liability, which also imposes liability. Next, suppose that the costs of care are 120 for a probable loss of 100. The

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defendant will not take precautions under either system. With negligence, the cost of prevention is too high, so there is no fear of liability from doing nothing. Under strict liability the losses fall on the defendant who will still do nothing because the 120 in prevention costs exceeds the expected loss from judgment. In the end, therefore, the same tipping point for corrective conduct applies under both systems. The only difference is that, under strict liability, they will be responsible for what are sometimes called inevitable accidents, for which the negligence rule puts the risk of loss on the plaintiff. An examination of second-order considerations, such as administrative costs, is therefore necessary to decide which rule is preferable and why.

Second, the Hand formula poorly deals with these costs, for, as Hand himself recognized, the rule places enormous informational demands on judges and juries to estimate approximate magnitudes for these three variables after the fact.

Third, the apparent simplicity of the formula breaks down once we leave the unilateral case, where, by assumption, only the defendant can take care to avoid the damage. Thus, the Hand formula does not apply to the frequent cases in which two parties independently contribute to the harm, or two parties engage in cooperative efforts that sometimes result in harm. Indeed, the formula does not work at all on the complex issues in *United States v. Carroll Towing*,<sup>1</sup> an admiralty case decided under a divided damage rule that involved three parties and an allegation of contributory negligence. The court never paused to ask why the owners of a barge tucked far away from the sea lanes owed any duty of care at all to the tug whose risky maneuvers damaged it.

Fourth, unsurprisingly, the Hand formula covers, at most, that small sliver of the tort landscape in which there are no institutional guidelines or well-formed social expectations about proper standards of care. It is instructive that in their exhaustive article, Gilo and Guttel never once refer to the two most common sources of an obligation to take care: custom and common practice on the one hand, and statutes that dictate rules of the road or impose safety standards on the other.

Fifth, the Hand formula does not cover any of the specialized rules that deal with important areas of tort such as bailments, medical malpractice, athletic injuries, occupier's liability, and product liability. These relationships are often covered by a wide range of rules that have, as I argued in my recent *Michigan Law Review* article, strong efficiency properties precisely because they consciously reject the cost-benefit approach of the Hand formula.<sup>2</sup>

It is against this background that it is appropriate to evaluate the distinctive contribution of Gilo and Guttel's Article, which shows, with some instructive numerical examples, the weaknesses of the Hand formula in dealing with activity levels that, as the authors argue, may be too low as

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1. 159 F.2d 169 (2d Cir. 1947).

2. Richard A. Epstein, *The Many Faces of Fault in Contract Law: Or How to Do Economics Right, Without Really Trying*, 107 MICH. L. REV. 1461 (2009).

well as too high. The argument in the paper builds on the classic work of Steven Shavell,<sup>3</sup> who showed, under the conventional economic framework, that the Hand formula does not lead to efficient results because it only takes into account the level of care conditional on entering into a given activity. Shavell pointed out that activity levels are also key to understanding risk creation. For example, drivers who travel longer than optimal distances create more unreasonable accidents even if they exhibit the proper care levels. Yet so long as their care levels are appropriate, they will escape liability because the tort system is unable to monitor their excessive activity levels. Suppose it could be proved, for example, that a given defendant drove ten percent more often than appropriate. The actual cause in fact turns out to be intractable because the injured plaintiff cannot prove at trial that her injuries took place during a period of excessive driving. So while some cases hint that it may be negligent to conduct certain activities at a certain location *at all*, most courts are not keen to use the Hand formula to treat as negligent decisions to operate refineries, place power lines over ground, or to sell outdoor swimming pools.

In contrast, the strict liability system does not ignore activity levels. A strict liability system apportions liability solely based on outputs, not inputs, so the plaintiff need only show the violation, say, of a rule of the road to recover. Care levels and activity levels are irrelevant to the trier of fact on the issue of liability, but will be taken into account by the actor who is subject to liability. In some unstructured environments, a plaintiff wins by showing that she was struck by the defendant or fell into a trap of his creation. In other more regulated environments, the touchstone of liability is conformity with the rules of the road. The defendant who engages in more activity will create more harms, all of which he will be responsible for. The internal corrections against excessive activity and insufficient care thus operate silently in a strict liability system without placing huge informational demands on courts to make *ex post* assessments of the proper levels of *ex ante* risk. So why use the Hand formula at all in the unilateral accident cases analyzed by Shavell? The strict liability system adjusts to both variables in all cases.

#### THE INSUFFICIENT ACTIVITY PARADIGM

Gilo and Guttel are aware of the difficulties in using a negligence system to deal with heightened activity levels. Their twist on the conventional analysis is to show, as noted above, that relying on the Hand formula can lead people to cut their activity *down* to an inefficient level in order to avoid the harm from the activities that result. The intuition here is consistent with the basic model. Gilo and Guttel assume that there is one durable precaution that could be taken to deal with accidents of a particular type. They then note that this precaution becomes cost-justified if activity levels exceed a certain threshold. The risk of crossing this threshold in turn results in an

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3. Steven Shavell, *Strict Liability versus Negligence*, 9 J. LEGAL STUD. 1 (1980).

actor's decision to reduce activity levels so that the precaution in question need not be taken, which in turn means that under the Hand formula, the defendant is not liable in negligence for the harm caused. By using activity level reductions to take certain costs off his own private balance sheet, the defendant can create a gap between private and social welfare. There is too little activity from a social point of view when the defendant is no longer able to charge for the omitted precaution. It is worth noting that this problem also disappears with a uniform strict liability system for the class of unilateral accidents. The defendant still remains liable for all accidents notwithstanding the reduced activity level, and thus does better privately by gearing up its activity level to the socially optimal level, whatever that may be.

I have no desire to quarrel with the formal features of the authors' analysis under the Hand formula. But there is good reason to doubt whether this chink in the Hand formula's armor—the incentive for defendants to perform at insufficient activity levels—is one that has any institutional clout. The first question one might ask is whether any defendant has *ever* explicitly relied on this defense in order to escape liability. Of the many cases Gilo and Guttel present in their Article, none includes such a defense. Let me just mention two of them. *Donovan v. Castle & Cooke Foods*<sup>4</sup> raises many interesting questions of administrative law under the Occupational Safety and Health Act, which imposes duties on employers to take feasible steps to secure worker safety. But the case was not a tort action at all, and the word negligence was never mentioned in the opinion, which only addressed the perennial question of the level of deference that courts show to administrative agencies in overseeing a statute.

Similarly, *Spagnulo v. Com., Dept. of Environmental Management*<sup>5</sup> was a personal injury action brought when the plaintiff was injured when he fell off a set of bleachers the defendant maintained at a hockey match. But this case was brought under Massachusetts's recreational use statute, which required proof of recklessness for the cause of action to go forward. The case says nothing about how a negligence system should work, nor does it give any hint that these bleachers were somehow involved in low-level activities. The key question for all of the Hand theorists is why these recreational statutes are widely regarded as a necessary exception to the any negligence formula.

The absence of cases that actually talk about the problem of insufficient activity levels is instructive. Priors really matter. There is an old saying in medical diagnosis that when you hear a herd of animals rushing down the Great Plains, think horses not zebras. The underactivity defense strikes me as all zebra and no horse. The first point is a simple matter of ginning up credible numbers to make out the factual underpinning for this claim. In

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4. 692 F.2d 641 (9th Cir. 1982). The regulations in question had been promulgated pursuant to the Occupational Safety and Health Act, 29 U.S.C. §§ 651–678 (2006). *Donovan*, 692 F.2d at 643.

5. No. 2003191, 2006 WL 1238671 (Mass. Super. Ct., Mar. 15, 2006).

most American jurisdictions, the jury decides questions of negligence. And in the absence of clear error, those determinations are left undisturbed. The kinds of mistakes that Gilo and Guttel illustrate show at most ten percent deviations from the ideal, which are just too small to matter. The examples all presuppose that the information problems have been solved, so that we have perfect point estimates for all the relevant variables in all relevant states of the world. But once we introduce any error term into the mix, the point estimates will become ranges, and these ranges will mean that at least some estimates for the relevant parameters will falsify, not reinforce, the underactivity hypothesis. I cannot believe that any defendant would prefer to make this explicit defense when a straightforward denial of negligence by showing high care and low risk is available.

There are also more conceptual problems. Gilo and Guttel posit a situation in which the total activity level for the relevant period is known at trial. But how do we know what this is? We can only assume that early on within some relevant period, the defendant commits some action that will cause harm. How does he establish that he has planned to engage only in a limited amount of the activity in question, such that the proposed new precautions need not be taken? The unfortunate incident could have happened anywhere in the cycle, so it is doubtful that any judge or jury would accept the self-serving statement that the defendant should be excused because he had no intention to engage in high levels of activity in the first place.

The implausibility of the underactivity defense is heightened, moreover, once we wean ourselves from the illusion that the Hand formula describes the way in which tort law works. In many instances, the Hand formula yields to particular statutes or customs in regulated activities. These other formulations leave no opening for the underactivity defense. For example, the doctrine of negligence per se, which provides that statutory violations create rebuttable presumptions of negligence, is widely adopted. There is the occasional case in which an unanticipated epileptic fit could be sufficient to allow the defendant (or plaintiff) to escape a finding of negligence for breach of a statutory obligation. But I know of literally no case that lets the negligence per se rule be undermined by a generalized cost benefit analysis of the sort that Gilo and Guttel recommend. Thus once the focus is put on whether the defendant (or plaintiff) has run a red light, no one cares whether he drives lots of time or not at all. Assuming the presence of causation, the statute trumps any cost benefit analysis, and so eliminates all references to either care or activity levels. At this point, the system starts to converge on a strict liability system, where all that matters is deviation from the applicable norm.

The use of this approach also makes it easier to deal with cases where two or more actors contribute to the harm. Two variations matter: First, the same negligence per se rule that applies to the defendant's conduct will also test any plaintiff's independent breach of a statutory duty. Doctrines of contributory or comparative negligence link the defendant's breaches with the plaintiff's breaches to determine liability. Therein lies no pretext that these rules can actually induce efficient behavior—it is simply a question of

cleaning the dockets in small cases. Second, if the plaintiff's deviation from the norm was in response to the defendant's perceived deviation, the usual negligence per se approach is displaced. Under this approach, the inquiry is whether the plaintiff under stress did her best to minimize the risk by taking action that is neither rash nor foolish. These variations represent a two-fold deviation from the Hand formula—the first veers toward strict liability and the second toward intentional torts. In neither setting does anyone explicitly address activity levels.

A similar analysis applies to medical cases governed by the usual customary standards of due care. No surgeon can defend himself by saying he did not need extensive training because he only operates once in a blue moon. He must still meet the customary standards within the field, or turn the case over to someone who can. It is widely known that medical and surgical errors are reduced with practice and experience. This is why clinics that do a low volume of work in any practice area still pay high insurance premiums. The law always provides exceptions to negligence liability for emergency situations, and it contains additional rules to adjust the standard of care for community hospitals with fewer resources and less sophisticated doctors. These rules on hospital liability, however, have not evolved in response to any concern with activity levels. Rather, they represent how practical knowledge influences the shape of tort law in ways that Gilo and Guttel ignore in their discussion of the supposedly all-purpose Hand formula.

Gilo and Guttel's failure to account for the medical cases in their Article also highlights another issue: the lack of differentiation between the two accounts of "care" that exist in tort law. These accounts carry with them very different connotations. The first is to take care to steer clear of a stranger. The second is to render care or assistance to another particular human being pursuant to a voluntary relationship. Together, these axioms present a problem for Gilo and Guttel's model: voluntary relations are far more complex than they acknowledge, because the patient is virtually always willing to accept some degree of risk in treatment in exchange for the reduction of other greater risk. Conversely, there is no need for any stratification of care levels on highways, which is why the rules of the road take on a categorical form. But it is not sensible to assume that the physician or surgeon would agree to meet levels of care that they do not have the equipment or training to reach. So "tort" law now acts like contract law in disguise, fashioning different levels of care to reflect the very different circumstances on which care is provided. These local variations may move a standard of care in one direction or another, but they bear no relationship to the problem that Gilo and Guttel flag in their Article—i.e., getting the benefit of lower care standards by lowering the frequency of surgery or other forms of treatment. Indeed, the whole point of the particular rules is to avoid getting enmeshed in the difficult calculations of care levels under the Hand formula.

## CONCLUSION: THE RISKS OF OVERGENERALIZATION

There is a more general lesson that can be learned from Gilo and Guttel's Article: there are two ways to study tort law. The first way is to create formally conceived models to deduce the efficiency or inefficiency of the current rules. My own sense is that this approach has limited utility because it ignores the wide variations in institutional contexts that give tort law its richness. The great danger here is that modelers start looking for problems that have never bubbled to the surface in the case law. The alternative method treats the cases and the statutes as raw materials of the system that then direct theoretical inquiry, which works because it rests on a strong descriptive basis generated by a huge number of cases each with its own rich factual pattern.

I think that a closer attention to these patterns would have hinted to Gilo and Guttel (and to many others in the law and economics movement) the limitation of abstract conceptions. Quite simply, the Hand formula only touches a small fraction of the case and statutory law that regulates tortious conduct. It takes a systematic disregard of the vast body of law to conclude otherwise. Once the Hand formula is relegated to its proper place as a back-up consideration when all else fails, the landscape changes. In some contexts, such as road accidents, much of the difference between strict liability and negligence disappears through the invocation of the doctrine of negligence per se, and aided in other contexts by the use of *res ipsa loquitur*. Yet at the same time, the rise of customary standards in medical malpractice pushes the law away from the Hand formula in the opposite direction—by a reliance on practices developed within the industry when a strict liability system imposes inordinate costs that cannot be borne out of the revenues collected from the patients it treats. Similar variations take place with athletic injuries and occupier's liability, where often recklessness standards prevail. Product liability cases vary all over the lot, with different considerations for construction, design and warning cases.

This dispersion shows that for all its allure, the Hand formula loses out pretty much across the board, as it should. Hand himself never claimed that much for his bit of algebra. Indeed, he used the formula not to unify the law of torts, but to explain why it tended to resist theoretical unification. But his caution has been thrown to the wind by economists who make the assumption that efficiency requires a case by case analysis of the facts and circumstances of each case. Rather, the better use of the formula is as a guide to the formulation of sensible rules—not expressed in cost/benefit terms that can be used for discrete categories of cases. Of course, overall efficiency is a laudable goal for the tort system. But an unmoored cost-benefit analysis is not the way to reach it, whether we look at care levels, activity levels, or both. Gilo and Guttel have added a novel brick on a road that runs unfortunately in the wrong direction, toward greater, unnecessary formalism.