

## SPECIAL COMMUNICATION

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# Using Decision Science to Gain Insight into Ethical Issues: An Example Involving Thresholds in Workers' Compensation\*

**REFERENCES:** Marpet MI, Primeaux P. Using decision science to gain insight into ethical issues: an example involving thresholds in workers' compensation. *J Forensic Sci* 2001;46(4):969-977.

**ABSTRACT:** Systematically analyzing and comparing the ethical dimensions of policy-decision alternatives is remarkably difficult. The ethical implications of a set of decision alternatives, as well as the ranking of that set, are subject to any number of quantitative and qualitative variables, not the least of which is differing individual interpretation. In spite of this, decision science offers a consistent, transparent framework from which to analyze the ethical components and implications of policy decisions.

Workers' Compensation insurance programs are state-governed systems of insurance in which workers, in exchange for giving up the right to sue their employer and their coemployees, receive some compensation if they are injured on the job, without regard as to who was at fault. Importantly, Workers' Compensation does not compensate workers for all losses. Thus, injured workers often sue those who provide goods and services to their employer's production system.

Different states set different thresholds relating to who can be brought into such a lawsuit and under what conditions a sued means-of-production entity can, in turn, bring the injured party's employer into the suit as a third-party defendant. Forensic engineers are often involved in such lawsuits to evaluate whether or not a given component of a production system is or is not defective.

Using Workers' Compensation as an example, this paper explores the methodology and the difficulty of quantifying the ethical implications of policy decisions by examining the concept of thresholding a policy variable. Thresholding will be defined and the ethical effect on the various parties of varying a policy threshold will be discussed.

**KEYWORDS:** forensic science, ethics, decision science, workers' compensation, thresholding

When a worker sustains an on-the-job injury, Workers' Compensation is the first line of recompense for that worker. Workers' Compensation does not typically cover all the losses sustained by the injured worker. Because of that, and also because the injured employee cannot bring suit against her or his own employer, suits

are often brought against those who were involved in supplying goods and services to the employer's production system. Forensic engineers are frequently retained in these matters to analyze the safety aspects of production systems.

The laws of the individual states govern whether an injured employee can sue the entities involved in the creation of the production system. State law also governs whether the entities involved in the creation of the production system can bring the employer into the suit as a third-party defendant. The extent to which these laws allow (or restrict) suits have profound ethical and economic ramifications.

This paper explores the interaction of decision-science, economics, and ethics. The claim to rationality by each of those disciplines: by decision science, by economics, and by ethics, reflects in each a commitment to a normative objectivity. The analysis of thresholds in this paper, those used to allow (or restrict) means-of-production suppliers from bringing an injured worker's employer into a suit as a third-party defendant, provides a context within which we explore that interaction.

### Ethics and Decision Science

"Ethics" is the study of standards of conduct and judgment, and has long been considered in the formulation of public-policy decisions (1). There are many approaches to defining an ethical calculus. Importantly, different schema can lead to different ethical mandates. Because of this, we believe that it would be helpful to very briefly outline common ethical schema and discuss them in the context of this paper.

At the risk of oversimplification, two basically opposite approaches exist to formulating an ethical calculus. The deontological approach focuses upon foundational questions and accepts the end results that flow from a "properly formulated" foundation. The teleological approach focuses upon benefits of the consequences of a given act. Within each of these two broadly defined approaches, there exist yet finer distinctions. In the deontological camp, for example, there are monistic and pluralistic approaches. The monistic approach holds that there is but one principle from which the rules of ethical conduct must flow. (One well known ethical theory of this type is Kant's Categorical Imperative (2). It states that one should "act as if the maxim from which you act were to become through your will a universal law.") The pluralistic approach holds that there are a number of ethical axioms that need to be balanced in any given

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\* Based on a presentation at the 49th Annual Meeting, American Academy of Forensic Sciences, New York, NY, February, 1997.

Received 31 Dec. 1998; and in revised form 21 March 2000 and 11 Aug. 2000; accepted 14 Aug. 2000.

situation. (Ross (3), for example, argues that there are seven *prima facie* obligations: promise keeping, reparation for harm done, gratitude, justice, beneficence, self-improvement, and nonmaleficence. When conflicts occur between duties, we must intuitively decide how to balance these competing *prima facie* obligations.)

Teleological schema focus on maximizing the benefits to an individual or to society in general. Ethical egoism focuses on maximizing the benefits to an individual (Stirner (4) notes that libertarianism stems from ethical egoism.) Utilitarianism focuses on maximizing the benefits to society. (Two important exponents of utilitarian ethics are Bentham (5) and Mills (6).) The word “*benefit*” can have many meanings, depending upon who is using it. “*Benefit*,” or “*Good*,” can mean happiness, pleasure, well-being, or justice, for example, or some combination of these qualities.

The ethics of policy-decision making alternatives are often, if not usually, analyzed in a utilitarian context. Regulations and laws are often written so that the aggregated benefits to society are not unduly skewed towards—or against—any given individual, given individuals, or to any given segment of society. There is a complex interaction between economics, ethics, and the law. Decision science provides a means of analyzing, of disentangling, the complexity of that interaction, expressed aptly by Vickers in *Economics and Ethics* (7):

Economics, to the extent that it has been ethically self-conscious, has vacillated between . . . deontological criteria and conditions and those established by teleological or consequentialist theories. Frequently . . . , the teleological theory focuses on an aggregative principle, such as the greatest good for society as a whole. An example from economics is the argument that those actions or policies that result in an increase in the level of gross domestic product are automatically, and for that reason, desirable. Questions of the distribution of economic benefits within society may to that extent be set aside. . . . [In other words,] the consequentialist principle may envisage the greatest good for the greatest number of members of society. In one way or another a maximizing principle, such as is frequently espoused in the logic of economic analysis, is generally present.

As with economics, ethics, too can take shape and form with respect to the aggregate, and does so precisely by recommending ideal universal and objective principles of behavior for everyone. But such universal principles necessitate the creation of exceptions in an attempt to account for legitimate variation and, at the same time, to identify thresholds and measuring rods from which to judge ethical versus unethical actions. It appears that neither economics nor ethics fully and adequately account for substantial individual differences, whether ascribed to emotional and spiritual origin, or, in Vickers’s attempt to meld economics and ethics, to hedonism:

Hedonistic criteria of pleasure . . . associated perhaps with objectives of self-interest or even selfishness, might be thought to be morally acceptable [under egoistic teleological schema]. But such a . . . criterion might easily offend against alternative notions of what the good entails. . . .

For economics and ethics to emphasize the individual rather than the aggregate community raises another set of difficulties. Among these is that the group, the aggregate, the community,

is reduced to secondary consideration; it is removed to the periphery. For Vickers, neither economics nor ethics resolve this issue:

It is at that point that economic theory has struggled to clarify, or has been content at times to confuse, what have been referred to as egoistic and universalistic utilitarianism. . . . Economics has not exhausted all possible or desirable levels of analysis when distinctions are drawn between the good of an individual and the good of the economic society as a whole. Attention might also be paid to the interests of intermediate social groupings, and analysis and policy objectives may be articulated with such different levels of interest and social concern in view. . . .

Here Vickers recommends a resolution to the difficulty by emphasizing intermediate social groupings rather than by placing primacy on either the individual or the society. The wisdom of looking at intermediate groupings is that it makes manifest the differing interests and concomitant conflicts of both the society and of each individual. The solution to those inevitable conflicts, Vickers hypothesizes, is to enact policy objectives expressed in legal contracts:

But again, consistent ethical egoism is in danger of falling under its own weight. For how, if such a scheme is understood consistently to hold, are conflicts of individual or group interests to be resolved? For that reason, the coherence of an enterprise and market economic system relies on the organization of legally enforceable contracts between market participants

It is at the point of establishing policy objectives that decision science is informative, especially for decision-makers. The economic and ethical calculus of import is ascribed to the decision-maker, the person analyzing the public-policy issue. It is of ethical, economic, and legal import to maximize to the extent possible the benefits to *all* those involved in the Worker’s Compensation system: workers, employers, the suppliers of the goods and services to the employer’s production system, and society-at-large.

*Decision science*, an applied-mathematics discipline that has its roots in statistics and operations research, is used to assist decision makers. Decision science studies the manner in which the particular constituents of a given system interact with one another. As such, it is a tool useful not only for decision making, but also for learning the behavior of the disparate elements of the system, especially in relation to one another. Churchman (8) discusses the problems in attempting to apply decision science and the scientific method to ethical choices. Here, we use decision science to explore the relationships among ethics, economics, and public policy, i.e., law, as applied to an issue in Worker’s Compensation. We assume that all three are directed towards social benefit (as defined by the decision maker and discussed in the paragraph above).

We do not suggest that we or decision science can create an “ethical engine” into which one can input ethical problems and get, after the appropriate machinations, “correct” ethical answers. Rather, we believe that decision science can systematize and clarify the relationship between disparate factors, including ethics, in a public-policy question (9).

**Consistency and Transparency**

Two decision-science criteria are relevant to the task of applying decision science to policy-decision making: consistency and transparency. These properties will be further explored below in a simple “speed-limit”-based example.

*Consistency* means that decisions are a rational function of the decision inputs. Consistency precludes anomalous results. In the speed-limit example below, the decision to issue a speeding ticket based upon whether or not a speeder is traveling at an even or at an odd mile-per-hour speed above the speed limit would not be seen as consistent.

*Transparency* means that the “reasoning” between the decision inputs and the decision is available for scrutiny. Transparency precludes stochastic and Black-Box components in a decision rule. In the speed limit example, the decision to issue a speeding ticket based upon whether or not a light on a “Black-Box” is illuminated would not be considered transparent.

**Thresholds and Thresholding**

In this paper “*thresholding*” is defined as the act of mapping a continuous variable onto a dichotomous (Yes/No) variable. (This definition is satisfactory for our discussion here, but is unduly restrictive. For example, thresholding can map a continuous variable onto a set of more than two categorical variables. Thresholding can also be used to map ordinal variables into categorical variables.) The operation of binary thresholding is expressed mathematically as:

$$t(x) = \begin{cases} 0; & x \leq x_t \\ 1; & x > x_t \end{cases}$$

In English, the threshold function,  $t(x)$ , is either 1 or 0, *True* or *False*, depending upon whether the underlying variable,  $x$ , exceeds or does not exceed a set threshold  $x_t$ .

A familiar example is the speed limit. If the area speed limit is, say, 45 mph, a car will not be speeding if it is traveling at or below 45 mph, and will be speeding if it is traveling above that speed. Paralleling the notation above:

$$Speeding = \begin{cases} \text{Not speeding; } Speed \leq 45 \text{ mph} \\ \text{Speeding; } Speed > 45 \text{ mph} \end{cases}$$

(The multi-threshold function noted parenthetically above has an obvious interpretation in the context of thresholding speeds, namely, a fine for speeding that is a function of the vehicle speed.)

In our vehicle-speed example here, the threshold is varied by changing the speed limit.

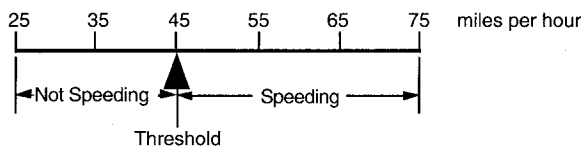


FIG. 1—Vehicle speed can be used to illustrate the concept of thresholding a variable.

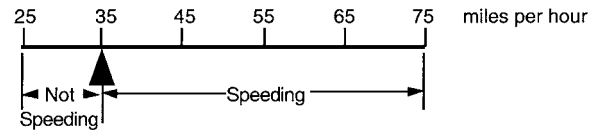


FIG. 2—Setting the threshold to the left favors safety over driver freedom.

One decision rule for issuing a speeding ticket might be: Issue a speeding ticket if appropriately calibrated Doppler radar tracks the speed of the vehicle under study at or above 52 mph. The decision process here is consistent and transparent.

Here are some inconsistent decision rules:

- Issue a ticket for speeds between 52–57, 62–67, . . . but do not issue a ticket for speeds between 58–61, 68–71 . . .
- Issue a ticket for even-valued speeds above 50 mph (52, 54, 56, . . .); do not issue a ticket for odd-valued speeds above 50 mph (51, 53, 55, . . .).
- Issue a ticket in the first half of any hour; do not issue a ticket in the second half of any hour.

The decision rule above: issue a speeding ticket if appropriately calibrated Doppler radar tracks the speed of the vehicle under study at or above 52 mph, is transparent because each and every step in the decision process is able to be observed and scrutinized: How was the radar calibrated? Exactly what speed did the radar unit indicate? A decision rule would not be transparent if it involved flipping a coin to determine whether a ticket would be issued. It would not be transparent if the radar unit had no speed readout, but only a light that lit up to indicate when the speeding ticket was to be issued.

The speed-limit threshold that society sets in a given situation is a reflection of that society’s balancing of the trade-off between an individual driver’s freedom to travel at whatever speed that driver thinks is appropriate and the safety of that driver and those in the driving environment namely, other drivers and pedestrians, perhaps including children. If society were to, in a given instance, set the threshold to a rather low speed limit, this would strongly favor safety at the expense of driver freedom.

Raising the speeding threshold favors driver freedom over societal safety:

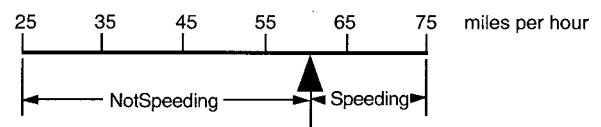


FIG. 3—Setting the speed-limit threshold to the right favors driver freedom over safety.

Economic theory would argue that the optimum speed-limit threshold would minimize the aggregate long-term costs to individual drivers and to society. Such an analysis is, to say the least, extremely difficult.

While thresholding a variable might, on average, benefit society, it will not necessarily benefit a given individual in a given situation. Let's look at the speed-limit example. Different vehicles have different capabilities. A "junkmobile" is allowed the same 45 mph speed limit as a properly-maintained high-performance vehicle driven by a trained and competent driver. The junkmobile, for whatever reason, might not be safe above 25 mph; the high-performance car might well be safe, depending upon conditions, at speeds over 125 mph. Thus, any given speed limit may not be reasonable or appropriate for any individual driver-and-vehicle combination. But it is clear that a *reasonably set* speed limit is justifiable because speed limits benefit society (at least, in the aggregate). Two points are worth making:

(a) In spite of the fact that the different speed limits might be safe for each individual vehicle when each vehicle is considered in isolation, when the vehicles are mixed in traffic, a far different set of considerations emerges. For example, the junkmobile and the high-performance automobile could be on the same road at the same time; large disparities in vehicular speed are *per se* dangerous. [Imagine the high-performance car, traveling at 125 mph, coming upon the junkmobile traveling at 25. The cars would be coming together at 100 mph (about 150 feet per second). That would be a situation where a very serious accident would be difficult to avoid.]

(b) "*Reasonable*" in this context will mean different things to different professions or interest groups. Economists would define *reasonable* speed as meaning that the marginal cost from an increment in the speed limit balances the marginal benefits of that increment. A traffic engineer would define *reasonable* speed in the context of a specified percentile from the vehicular speed distribution. And a homeowner whose porch faces a road under study might define reasonable in an entirely different manner.

Thresholds are needed for simplicity. Quantitative speed limits are administratively desirable because the enforcement capability of any municipal entity that had to handle a volume of tickets would be crippled if each speeding defendant were able to argue the merits of the ticket on a speed-appropriate-for-conditions defense. The threshold sets a line-in-the-sand limit: exceeding the threshold puts a driver in line for a summons.

Rationally setting a threshold minimizes warps in the situational fabric caused by the act of thresholding. (Speed-limit thresholds, according to traffic engineers, should be set at the point where 85% of the traffic travels below that threshold and 15% of the traffic travels above (10).) The speed limit example above is clearly numeric, and thus differs from the Workers' Compensation example below. This has no particular import. Some threshold criteria, like a numeric speed limit, have cardinality. Some, like the Workers' Compensation example below, don't. (There is nothing to prevent states from adopting a nonquantitative speed-limit threshold. Montana has a nonquantitative threshold: a driver must not travel at an inappropriate speed given the conditions. Some drivers incorrectly interpret this to mean that there is no speed limit at all; if caught, they find the executive and judicial branches of the Montana State government take a dim view of their anarchic interpretation of Montana's rules of the road.)

We introduced the concept of thresholding a variable using the relationship between vehicular speed and the speed limit as an example, because virtually everyone old enough to drive is familiar with that relationship. The concept of thresholding a variable is far more general than its application to the speed limit. To explore the

issue of thresholding in a policy-decision context, this paper will discuss who can be sued in the context of an injury adjudicated by Workers' Compensation.

### Workers' Compensation

*Workers' Compensation* is a state-administered system of insurance in which workers, in exchange for giving up the legal right to sue their employer and their coemployees, receive *some* compensation if they are injured on the job, without regard as to who was at fault. Thus, workers receive some compensation even if no one was at fault or if the injured employee caused the accident. Importantly, Workers' Compensation does not compensate workers for all losses. The compensation scale for workplace injuries is arguably too low, and may be far too low in some instances, depending both upon the jurisdiction and the injury (11). Notably, hedonic losses are not covered.

Workers seeking to recover for losses beyond those compensated by Workers' Compensation often bring legal action against the manufacturers and others involved in the production system, e.g., production-machinery manufacturers, trainers, material suppliers, etc. Production-system manufacturers argue that many of these actions are factually tenuous, and held together more by the employee's inability to sue the employer and the reluctance of the courts to deny recovery to injured individuals than by any real fault on the part of the means-of-production supplier. Some metal-forming-machinery manufacturers have been sued into bankruptcy on the basis of metal-forming equipment produced generations before the lawsuit; machinery sometimes having been through many owners; sometimes modified beyond recognition; sometimes with essential safety mechanisms disabled (sometimes by the injured-employee's employer, by an employee, or by *the* employee who sustained injury).

None of this should be taken to suggest that the idea of a system of Workers' Compensation insurance is necessarily a poor one. Rather, there are many ways in which a Workers' Compensation system can be implemented, and each implementation involves many trade-offs, with significant economic and ethical ramifications.

A key issue in the implementation of any Workers' Compensation system is when employees should have the right to sue means-of-production suppliers for damages beyond the amounts provided by Workers' Compensation. If such a right is granted, as it is in most, if not all, jurisdictions, should the sued means-of-production suppliers have the right to bring the employer into the suit as a third party? This question is a complex one. For one thing, there is great variation in employer safety attitudes and conduct, ranging from those who are highly concerned and proactive about worker safety, to benign neglect about safety, to treating employees as fodder.

### Workers' Compensation Thresholds

The ability of means-of-production-supplier (hereinafter MOPS) defendants to, in turn, sue the injured-worker's employer as a third party defendant is governed by thresholds set by the state legislatures. That threshold ranges from, at one extreme, MOPS may not ever bring the employer into a suit to, at the other extreme, MOPS can, without limitation, bring the employer into a suit. In between these two extremes can be "in-between thresholds," which may be based upon the employer's conduct (for example, MOPS may bring the employer into the suit only if the employer can be shown to have exhibited a pattern of reckless disregard for the safety of its employees), based upon an injury threshold (for exam-

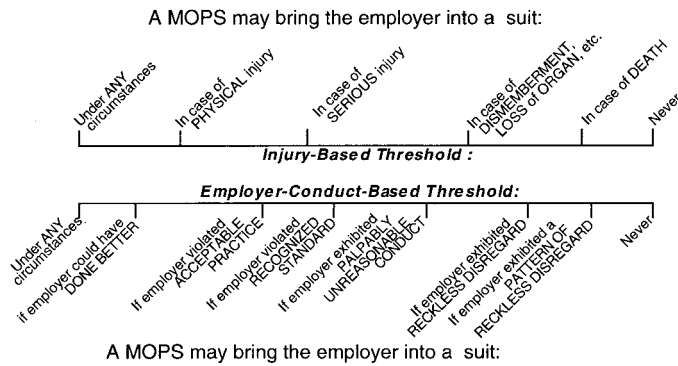


FIG. 4—Two continuums of thresholds related to bringing a MOPS defendant into a Workers’ Compensation lawsuit. It is clear from this diagram that each of these threshold sets can be ordinally ranked.

ple, MOPS may bring the employer into a lawsuit only for death, dismemberment, or similar serious, disabling, permanent injury), or based upon some other criteria. A threshold can also be based upon combinations of criteria, (for example, a MOPS may bring the employer into a suit only if there is serious injury *and* if the employer can be shown to have violated a recognized standard).

The two diagrams in Fig. 4 illustrate the two threshold-setting criteria described above: the upper diagram depicts an Injury-Severity-based threshold; an Employer-Conduct-based threshold is illustrated in the lower diagram. Setting the threshold on the left side of Fig. 4 favors the MOPS. As one moves from left to right, the threshold will favor the employer and disfavor the MOPS. On the extreme right, the employer is completely protected at the expense of the MOPS.

*The Effect of Varying the Policy Threshold on Bringing Employers into MOPS Lawsuits*

(Given the choice between the two criteria, we strongly prefer an Employer-Conduct-based threshold. Employer conduct goes to the heart of safety management. The injury-based criterion may be useful in limiting the number of suits, but it gives no incentive for employers to appropriately manage employee safety because there is no *direct* incentive—in the form of the fear of lawsuit-generated losses and transaction costs—to “motivate” employers.)

As we wrote above, there is distortion—including economic and ethical distortion—any time that you force a dichotomous threshold on a variable. This is true whether the variable is continuous (like a speed limit) or rank ordered (like the threshold for a MOPS to bring an employer into a Workers’ Compensation lawsuit). Not under any circumstance does allowing a MOPS to bring an employer into a lawsuit result in the lessening of the need for employee safety by the employer (a direct consequence of immunizing the employer from suit) and will generally result, given the present compensation levels of workers, in a “shortchanging” of an injured worker for any workplace injury incurred. (This “shortchanging” is, at least arguably, justifiable; this will be discussed below.) To a decision maker with a short temporal horizon, the disincentive for ignoring safety: the possibility of experience-based insurance rates increasing the cost of Workers’ Compensation insurance, is too remote, too slow acting, and too diffuse to compensate for the incentive to cut costs or increase production at the expense of worker safety.

It might similarly be argued that the production-system components of yesteryear that MOPS produced undervalued the safety of

employees using them because the employees were effectively barred from suing the MOPS as a result of privity (a legal concept that prevents one from suing another unless there is a contractual or similar relationship between the parties).

Allowing MOPS to routinely third party the employers into suits does violence to the heart of the Workers’ Compensation bargain: in return for the employee dropping the right to sue, the employer agrees to (partially) compensate injury without regard to fault. Allowing a MOPS to bring an employer into a lawsuit as a third-party defendant drives up the transaction costs of the total workplace-injury compensation mechanism (Workers’ Compensation reimbursement + lawsuit awards + transactional costs). This can have the perverse effect of preventing workplace accidents by eliminating workers; as the cost of labor is driven up, the substitution of machinery (capital-based solutions) becomes attractive compared to the use of labor.

For each different threshold, there are significant explicit and implicit costs. Each has incentives and disincentives for employers to maintain a safe workplace, incentives and disincentives for employees to work safely, and incentives and disincentives for MOPS to make their part of the employer’s production system safer.

*Related Threshold Issues in Workers’ Compensation*

Closely related to the question of whether a MOPS can bring a suit against an employer is the question of setting the threshold under which an employee can sue a MOPS. Presently and generally, an injured employee is allowed to bring a MOPS into a suit without limitation. That should provide MOPS with great incentive to provide safe workplace equipment, services, and training.

The obverse: completely disallowing suits by injured employees against MOPS would, given no other changes, give employees, to the extent that they can control accidents, real incentive to prevent accidents: without anybody to sue, the worker would be strictly limited to the amount offered by Workers’ Compensation. Any workplace injury costs not compensated by Workers’ Compensation would be shifted onto the backs of the injured workers themselves. MOPS would have less economic incentive to supply safe workplace components, and no reason to sue an employer. This can create disincentives to employers—to some employers, at least—to implement a safe workplace. (What kind of employer is likely to disregard employer safety is an interesting question, and will be discussed below.)

On the other hand, any mechanism that *completely and with certainty* compensates an employee for workplace injury takes away at least some incentive for safety on the part of the employee. (Why work if you can get paid just as much to stay home?)

**Economic Implications of Workers’ Compensation Policy Thresholds**

As we discussed above, the decision fabric is least rended when a rational or, better yet, an optimal threshold is selected. Setting optimal thresholds when the underlying variables are not continuous is an extremely difficult task. Approaching the problem rationally is, at minimum, a good start. In this paper, economics provides our rational starting point, our good start.

*An Economic Criterion for Setting a Threshold to Efficiently Balance Costs*

We start by noting that when the threshold is set so that the expected marginal benefits from preventing the next accident are

equal to the expected cost of the next accident, we have, according to classical economic analysis, minimized the systemic costs. This is only a starting point for two reasons: first, the thresholds that we consider are ordinal but not continuous, and this can induce profound effects into the results of any analysis; and, secondly, threshold shifting has a definite medium- and long-term effect upon the system itself, as the various parties change their behavior to gain advantage. Thus, an “optimal” solution today might be less-than-optimal tomorrow. This is especially true in situations, like the one under study, where politics may get involved. (This will be briefly discussed at the end of this paper.)

It is crucial to look at *all* the costs of the system (12). On the prevention side, we need to consider the cost of improving the production system to prevent an accident, the cost of training, the cost of lost production due to training and safeguards, and so forth. On the injury side are the cost of lost production due to the injury and possible death of the injured worker, the cost of treating the injury, and the “noneconomic” costs of pain and suffering. In economic terms, these costs reflect more than the fixed and variable costs seen in financial statements. One must examine not only the “real” costs, but also the costs of having foregone alternatives not taken: the opportunity costs (8,12). The failure to consider the consequences and implications of safety-related decisions, e.g., safe working conditions, can and will translate into actual costs and, thus, profit or loss to the firm.

The devil is in the details. It is remarkably difficult to get from the macroeconomic data—total injury in the United States costs  $x$  dollars, to the microeconomic data—preventing an injury in the Normal, IL Acme Widget plant costs  $y$  dollars.

One thing is certain, solutions that require a balancing of costs rarely (if ever) find optimality when the threshold is set at either of the extremes, i.e., at either end, of the threshold diagrams illustrated in Fig. 4.

#### *It May be “Wrong,” and it’s Arguably Unethical, for Workers’ Compensation to Pay all of the Costs of Injury*

There are economic arguments for Workers’ Compensation paying out less than 100% of the total injury costs in a workplace injury. First, as we noted above, there is the harsh reality that complete compensation is not at all an incentive to get injured workers back to work. Secondly, Workers’ Compensation is designed to replace fault-based suits between employer and employee. Just as settling a lawsuit before trial typically results in neither side obtaining all that they desire, Workers’ Compensation payments can be thought of as the “certainty equivalent” of dollars that might (or might not) be awarded in a trial. In other words, because fault is eliminated from consideration in the award to the injured employee, the award is based upon a fault-depreciated scale; on average, everybody gets a fair amount of compensation. In Workers’ Compensation, the innocent accident victim gets paid less than he or she should, while the worker who causes his or her own injury gets paid more. Again, on average, and assuming that fault is properly weighted and that all sides agree to the Workers’ Compensation bargain at the beginning, there is indeed “system-wide fairness.” But if fault-averaging is a legitimate approach to Workers’ Compensation awards, then the economic justification for allowing suits against MOPS seems thin indeed.

#### **Ethical Implications of Workers’ Compensation Policy Thresholds**

Perceptions of “fairness” will differ between interest groups. It would certainly not seem fair to a faultless, injured worker who re-

ceived less than the full compensation that was appropriate since, *on average*, all workers received full “fault-adjusted compensation” for and to the extent of their injuries. And it would not seem fair to a without-fault MOPS defendant in a lawsuit that their presence was needed as a mechanism to allow a culpable, injured worker to recover damages beyond that allowed for “fault-adjusted compensation.” We come back to the fact that there has been in effect since 1911 a policy decision to allow injured workers compensation regardless of fault. That policy decision is the root cause of the warping of the fabric binding the employer, the employee, and the MOPS. We are certainly not suggesting that injured workers should not be allowed to bring suit against MOPS. Rather, we are writing that changing the Workers’ Compensation thresholds to smooth over its most-salient singularities might produce safer workplaces, a fairer legal climate and, ultimately, lower Workers’ Compensation costs.

To the extent that an employer is responsible for the safety of its workers, to the extent that workers are responsible for their own safety, and to the extent that MOPS are responsible for providing a safe workplace, there are clear ethical implications for different Workers’ Compensation policy thresholds.

Just as the microeconomic effects of company and industry policies aggregate into macroeconomic effects, ethical considerations extend beyond the individual firm to society. The ethical and economic imperatives of injury prevention and compensation are similar: to minimize the long-term cost of the injury on a system-wide basis. Ethics differs from microeconomics in that the words “cost” and “system” take on the broadest possible meaning. Thus, ethically, it would be completely inappropriate to make a decision to shift the cost of an injury onto society or onto an injured employee in order to increase a microeconomic effect namely, profit. Just as with economic analysis of these Workers’ Compensation issues, the best ethical solution is one that balances the interests of all involved. In decision science, a solution that collectively maximizes, to the extent possible, the objectives of all parties is called a Pareto-optimal solution. Thus, worker safety can neither be ignored nor can it be something pursued to the exclusion of other relevant factors.

For example and hypothetically, assume an employer, to speed up a production process, removed a needed guard from a machine, knowing that (a), there would likely be no economic penalty for removing the guard or, worst case, the profit from removing the guard exceeded any economic penalties, and (b), that any cost of the injury in terms of pain, suffering, and disability would be borne by either the injured worker or the MOPS. It might make “economic sense” for the employer to remove the guard, but it would certainly be unethical. It would be unethical because it involves the shifting rather than the minimizing of the systemic costs of, taken together, injury prevention and injury.

Ultimately, it is both economically and ethically appropriate to place the full cost of accident prevention on the customer, who should pay the *full* cost of the production of the end product.

When a “big-picture approach” is taken, ethical issues—if not the solutions—are seen in context:

- The Workers’ Compensation paradigm is the taking of the adversarial process out of the workplace in exchange for *some* compensation for the injured worker. When is it ethically appropriate to allow the vitiation of that paradigm by allowing a MOPS to sue the employer?
- Conversely, when is it ethically appropriate for the employer to escape responsibility for inappropriate production-process design, management, and safety supervision?

- In situations where the MOPS has designed a component of the production system, one which must be integrated into the production process, when is it reasonable to sanction the MOPS for decisions taken by the employer that integrated the component into the production system?
- In situations where an injured party is the cause of his or her own injury, for example, by violating known and enforced employer safety rules, should that employee be entitled to take action against a MOPS? (More realistically, since just about anyone can sue just about anyone, should there not be stringent sanctions in situations where a suit was brought where the causal nexus between the MOPS and the employee injury is nonexistent, untenable, or frivolous? One might argue that sanctions ought to apply *wherever* a cause of action or a defense against a cause of action was nonexistent, untenable, or frivolous. The ethical big picture here is that MOPS are entities that support families, and that unjust lawsuits hurt these entities, and thus harm society. The root of this problem is that it is the legal process itself—and not the attorneys and the parties that each take part in that process—that is supposed to achieve fairness. Quite the contrary, attorneys are *required* to be vigorous advocates for their clients, to the point where they are not supposed to have concern for the fallout that their actions cause. Fundamentally, the solution to this problem is that attorneys (who are paid either in direct proportion to the result that they achieve, or paid in proportion to the quantity of “legal churning” that they accomplish) must somehow be made sensitive to the fallout of their actions. This would require a tectonic shift in attitudes of both the legal community and of the society that the legal community serves.

Figure 5 can be used to illustrate a tenet of decision science: in situations where conflicting constraints exist, unless the importance of one of the factors is overwhelming—not the case here—the “best” balancing of the conflicting constraints rarely exists at the ends of the decision spectrum. Applied to the question of setting the threshold conditions for allowing a MOPS to bring the employer into a Workers’ Compensation lawsuit, we are saying that an ethically-efficient solution would be highly unlikely to exist at the **Under ANY circumstances** or the **NEVER** points on the threshold-setting line. Many, if not most, states have set the

threshold at **NEVER**. The end result of that is twofold: unethical employers are able to use their employees as fodder, and havoc is wreaked upon (sometimes essentially innocent) MOPS defendants, as plaintiffs must stretch and twist reality to fit the situation where the only pocket that they can recover from is the MOPS pocket. We are certainly not suggesting that every employer treats its employees as fodder or that every MOPS defendant is an innocent, dragged in by Workers’-Compensation-caused warps in the legal fabric. What we *are* saying is that: (a) the act of thresholding, while it may be necessary on purely administrative grounds, always warps the situational fabric; (b) the maximum warping typically occurs at the ends of the threshold-setting line, (c) most states have set their threshold at the **NEVER** end of the threshold, and (d) *that* causes a disproportionate number of cases that are cobbled together against MOPS because the real culprit, the employer, is legally immune from suit.

Ultimately, the problem with **NEVER** allowing the employer to be brought into the lawsuit is that the careful preservation of the Workers’ Compensation bargain: the elimination of the adversarial process in the workplace in exchange for *some* compensation, often does violence to another, arguably more fundamental ethical principle: that people and organizations should not be held accountable for wrongs that they did not commit.

### Organizational-Structure Impacts on Policy Threshold Decisions

Decision science emphasizes the importance of looking at the Big Picture. The setting of the threshold allowing an employer to be third-partied into a suit against a MOPS is, as the discussion above should indicate, anything but simple. It will be profitable to very briefly touch upon an “even bigger picture”: the relationships between, on one hand, the way an organization is structured and the way corporate and employee rewards are determined, and, on the other hand, worker safety, Workers’ Compensation costs, and the potential for subsidizing (by the MOPS) of suboptimal employer decision making and conduct.

We believe that one determinant of both employer and employee attitudes toward worker safety is the rigidity of the organizational structure of the organization. At one extreme is the organization structured in a strictly hierarchical manner—like an army. At the other extreme is a team-directed “flat” organization, with project-directed work groups fulfilling broadly defined functional roles. We believe that, *cet. par.*, an organization which is strictly hierarchical—where each cog-in-a-wheel employee, manager, or worker—has a narrowly defined function and, concomitantly, a narrowly established area of competency, will have a poorer attitude towards safety and higher long-term Workers’ Compensation costs than an organization where workers are broadly trained to understand not only their team functions but how their team functions within their organization and within their economic environment. That’s because the individual in a purely hierarchical organizational structure is required to have a concentration on his or her prescribed situation which is, at the limit, so intense as to result in a disregard for anything outside of that worker’s organizationally-prescribed mandate. Furthermore, the functional and organizational compartmentalization inherent in a rigidly bureaucratic organization can easily allow a worker (or manager) not in the safety department to feel that safety is “not my job.” Many companies, including those with a hierarchical structure, assert that safety is *everyone’s* job. That can certainly be, if the organization supports safety education and institutionalizes safe practice. In a hierarchy,

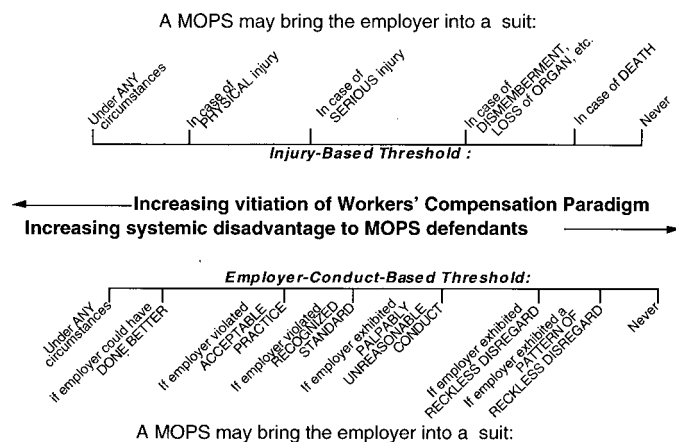


FIG. 5—The effect upon the “Workers’-Compensation paradigm” and upon the MOPS of varying the thresholds used to allow a MOPS to bring an employer into a Workers’-Compensation-based lawsuit.

unfortunately, without top-down, active support for safety, the idea that safety is the job of every one will usually operationalize down to the fact that safety is the job of no one.

Also inherent in the hierarchical structure is the relegation of decision making to formally-designated leaders, with a corollary demand for compliance on the part of the followers. When the knowledge base of the line workers is disregarded, important knowledge about safety is never brought to light. To the extent that workers are mandated to follow orders without the benefit of their input or thought, an underlying corporate culture of distrust and, sometimes, hostility results. Such a climate is not conducive to developing a safer workplace. Because any production system must evolve over the long term, we believe that, *cet. par.*, the communications limitations alone in a strictly hierarchical organizational structure result in a relative disregard for safety and a concomitant long-term increase in Workers' Compensation costs. Admittedly, the picture that we paint here is starkly Manichean: *Hierarchy* versus *Team Approach*, with no middle ground. We recognize that there exists every shade of organization between pure hierarchy and pure team management, and all sorts of informal organizational workarounds that help both orthodox hierarchies and teams function more smoothly. Importantly, the way a given organization model is implemented has a profound effect upon the way an organization runs. A hierarchical organization led by a management that *listens* to its employees can have more worker involvement than a "flat," team-managed group led by an unresponsive autocrat. In short, it is not enough to look only at the organization chart, one must also look at the way the organization actually functions.

When organizational shortcomings increase worker accidents, again *cet. par.*, an increase in employee suits against MOPS will be the probable result. And to the extent that threshold setting prevents MOPS carrying the suit full circle back to the employer, we are left with the clearly unethical and uneconomic situation where the MOPS may be subsidizing the organizational inefficiencies of a poorly managed employer.

This brings us to a second point: it seems clear that an important determinant—implicit or explicit—of corporate and employer attitudes toward safety is the reward structure that the stockholders impose upon management and the reward structure that management imposes upon the employee. As to the reward structure for management, the time horizon taken in is important profit-maximization or cost-minimization decisions, with longer horizons, *cet. par.*, favoring worker safety. Organizational management that is strictly focused on the next quarter's bottom line is in an extremely poor position to take the steps needed to lower the organization's long-term costs. Short term, a company's Profit and Loss Statement can be hoisted by ruthlessly cutting costs, including the costs of employee training, equipment maintenance, and plant engineering, all critical to employer safety and critical in lowering long-term costs. By setting the Workers' Compensation threshold for bringing an employer into a suit so high so as to prevent a MOPS from bringing the employer into the suit, the MOPS is forced to subsidize the employer's short-sighted, long-term sub-optimal reward structure. That, to say the least, is not-at-all optimal from either an economic or an ethical viewpoint. Similarly, the use of piecework rates to remunerate employees, without *strict* controls on workers' safety-related conduct, is both unethical and long-term economically sub-optimal. For example, it would be dangerous and unethical to pay a pizza-delivery driver by the delivery, rather than by the hour, because it would give that driver concrete incentive to speed and to take chances. It would be similarly unethical to pay a punch-press operator by the piece unless management was constantly vigilant to ensure that the punch-

press safeties were not disabled by the employees in the short-sighted interests of expanding production at the expense of increased probability of severed digits, mangled hands, or worse. The fact is, the production worker is not in a good position to weigh the short-term benefits of increased piecework-based production remuneration against long-term marginal costs of a safety-related action, especially when the long-term costs are composed of low-probability, catastrophic-consequence events. And again, by setting the threshold so high so as to prevent a defendant MOPS from bringing the employer into the suit, the MOPS in some circumstances end up unethically and uneconomically subsidizing unsafe practices resulting from the employer's improper safety supervision and any employee's circumventing of appropriate safety practices. When one compares the golden parachutes given to business leaders with the incomplete recompense that workers—including some without-fault workers—receive for the injuries that they receive in the workplace, one can see that, at least in some instances, unethical unfairness does indeed exist in the workplace. To conjure up an artificial but certainly feasible example, imagine a chief executive who, in the name of "streamlining" a production system to generate a better bottom line, makes decisions that gut the safety aspects of that production system, causing injury to production workers. Is it ethical to reward the executive for increasing the quarterly bottom line without penalizing that top manager for the injury caused by decisions that weakened the safety systems in place before the decisions? And assuming that the executive's "streamlining" is ineffective, is it ethical to reward that executive for incompetent decision making with a Golden Parachute?

### Political Implications of Workers' Compensation Policy Thresholds

As we noted above, Workers' Compensation is a program administered by the individual states. New York was one of the few venues that allowed MOPS to bring the employer into a litigation as a third-party defendant. In fact, in New York, MOPS had the *unrestricted* ability to bring employers into a Workers' Compensation lawsuit as third-party defendants. Governor Pataki of New York, by holding the 1995–6 fiscal-year state budget for ransom, forced a change in New York State Workers' Compensation law, partially stripping means-of-production defendants of the right to bring the injured employee's employer into the lawsuit as a third-party defendant. This brought New York in closer alignment with the other states of the union. This was a hard-fought political battle, and it will not be clear for a generation what the economic and ethical fruits of this change will be. One thing is certain: the effect will not be felt just in the State of New York, as MOPS generally do not produce New-York-State-only versions of production equipment, supplies, and training; and multi-state employers generally do not have New-York-State-only organizational and safety policies.

The New York solution, by strictly limiting but not removing the ability of the MOPS to bring in an employer, probably produced an "improvement" in the overall fairness picture, both with respect to New York under the old rules and with respect to the many states that forbid under all circumstances MOPS bringing employers into Workers' Compensation lawsuits. As we wrote above, decision science principles suggest that ethical and economically-efficient policy decisions rarely lie at the ends of the threshold-setting scale.

### Acknowledgment

The authors gratefully acknowledge the suggestions of Dr. Valerie Englander who, on multiple occasions prior to its submission,



carefully and constructively reviewed this paper. The authors also gratefully acknowledge the careful editing of this paper by Joshua Marpet, who repeatedly and carefully cleaned up the countless glitches that come from rewrite after rewrite.

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