

**Exploring the Domain of
Accident Law:
Taking the Facts Seriously**

*DON DEWEES
DAVID DUFF
MICHAEL TREBILCOCK*

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PREFACE

This book is largely motivated by two concerns. First, much of the leading scholarship in tort law over the past 20 years has been dominated by abstract theorizing and is characterized by sharp conflicts among proponents of competing normative goals for the tort system—disagreements that often reflect different empirical assumptions about the way the system works, without actually investigating the accuracy of these assumptions. Second, even where empirical issues are taken seriously, they are often pursued in a partial framework where one aspect of accident law is the focus of attention, and alternative instruments are either ignored or uncritical assumptions are again made as to how these other instruments in fact work in the real world, thus discounting the importance of a comparative institutional framework of analysis which would emphasize that evaluations of one element in the system are necessarily relative to attainable alternatives. This study attempts to redress both deficiencies by emphasizing facts rather than theory and a comparative rather than a partial institutional framework of analysis.

The existing empirical evidence on the efficacy of the tort system and alternatives to it is evaluated against three normative goals: deterrence, compensation, corrective justice. Empirical evidence relating to five major categories of accidents is reviewed: automobile, medical, product-related, environmental, and workplace accidents. In each case, the study proceeds by reviewing empirical evidence on the deterrence, compensatory, and corrective properties of the tort system and then reviews parallel bodies of evidence on, first, penal or regulatory and, second, compensatory alternatives to the tort system.

Following this review of the evidence, we conclude that the deterrent properties of the tort system seem strongest for auto accidents and weakest for environmentally related accidents. The incentive effects of the system are mixed in the case of medical and product-related accidents, making net welfare judgments problematic; in the case of workplace accidents, workers' compensation levies appear to have stronger deterrent effects than the tort system did have or might have if it were resurrected in this context. From a compensatory perspective, the tort system appears to fail badly in all five areas, with the failure being most severe for environmentally related, product-related, and medically induced injuries. In a corrective justice perspective, the tort system appears to perform reasonably well for automobile accidents but much less well for medically induced and environmentally related injuries; its performance for product-related accidents is unclear.

The alternative regulatory achievements appear to have been modest for workplace, product-related, and medical safety; for environmentally related and more qualifiedly traffic-related accidents, regulatory policies appear to have registered some notable successes, although in some cases they have generated costs disproportionate to the benefits. Compensatory alternatives to the tort system have so far played a marginal role in medical, product-related, and environmentally related personal injuries, although in the case of traffic-related accidents the empirical evidence suggests that various kinds of no-fault compensation systems can deliver compensatory benefits, at least for pecuniary losses, at lower administrative costs and with greater speed than the tort system. Even with substantial risk-rating of premiums or contributions to such schemes, there is still a debate over whether a significant loss in deterrence arises from curtailment or abrogation of the tort system. For workplace injuries or disabilities, workers' compensation schemes appear to deliver relatively complete compensation for pecuniary losses (except for long-term disability) at relatively low administrative costs and more expeditiously than the tort system, as well as achieving significant safety gains. For medically related injuries, experience with programs in New Zealand and Sweden suggests that no-fault compensation systems are viable alternatives to the tort system and hold out some promise of compensating a wider range of victims more expeditiously and at lower administrative cost, although these programs suffer from weak internalization of accident costs to wrongdoers. For product-related and environmentally related personal injuries, no general compensatory alternatives to the tort system readily suggest themselves. Our study leads to doubt as to whether a general social insurance alternative to the tort system, covering both injuries and disabilities, with non-risk-rated financial contributions and high levels of income coverage, is a feasible alternative to tort law for personal injuries and disabilities at large. Instead, some focus on more complete coverage of health care and rehabilitation costs and the economic consequences of permanent total and partial disability through enhanced social welfare entitlements seems warranted.

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Toronto, Canada
May 1995

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1

INTRODUCTION

The Tort System under Stress

The crisis in the mid-1980s in the availability, affordability, and adequacy of liability insurance in the United States and to a lesser extent in Canada, and the widespread public attention that has been generated in the United States in a number of huge mass tort claims, such as the asbestos, DES, and Agent Orange litigations, have precipitated much anguished political, judicial, and academic soul-searching as to the goals and future of the tort system, especially with respect to personal injuries. While some scholars have questioned whether the perception of a so-called litigation explosion in recent years is empirically well grounded,¹ calls for a reexamination of the tort system and its alternatives continue unabated.² In any event, the pervasiveness and cost of accidents underscore the immense importance of law and policy decisions in this area. One of every four Americans is injured each year. In 1985, 2.3 million Americans were injured seriously enough to require medical attention or to restrict their activities, and 143,000 of these died from their injuries, making injuries the fourth leading cause of death in the United States.³ One study estimated the cost of injuries in the United States in 1985 to be \$182 billion (in 1988 dollars).⁴

This book documents the ways in which the traditional tort regime has come under seige on a number of different fronts. While upward trends in frequency and size of claim have been less dramatic for automobile accidents than for other accidents, concerns over escalating costs of premiums—which most drivers must pay—have led to questioning of various features of the tort system, as well as proposals for partial or total replacement of it by various forms of no-fault compensation schemes. Although medical misadventure is still ostensibly governed by a negligence regime, the frequency and size of both medical malpractice claims and insurance premiums have escalated dramatically in the last two decades. In turn, this escalation has led to criticisms that the tort system has induced enormously expensive forms of defensive medicine rather than cost-justified improvements in precautions. Again, as in automobile accidents, commentators have urged either major tort reforms or the replacement of tort with some form of no-fault compensation scheme. Product liability, which from the early 1960s onward in the United States has been governed by a strict liability rather than a negligence regime, has similarly evidenced dramatic increases in frequency and size of claims and liability insurance premiums, leading to criticisms that this expansion of liability has had socially negative effects on rates of

product innovation and international competitiveness. The tort system has played a more limited role in environmental accidents than in other areas; nonetheless, strict statutory civil liability for cleanup costs associated with toxic waste dumping, mandated by the U.S. Superfund legislation (CERCLA), has frequently entailed massive—albeit often uncertain—financial exposure due to the operation of rules such as joint and several liability. The tort system has been largely replaced by workers' compensation schemes for workplace accidents, yet a significant percentage of all product liability against product manufacturers arises from workplace accidents, and workers' compensation premiums have themselves increased sharply in many jurisdictions in response to increases in frequency and size of claims.

As the tort system has come to assume increasing prominence in American life, a number of questions arise: Does the tort system achieve socially valuable deterrence effects, or are these effects more often than not perverse? Does the tort system impose an unacceptably heavy administrative burden on the courts? Do the high cost of administering the tort system and the private transactions costs associated with it, along with the inevitable delays entailed in achieving resolution of claims, suggest that alternative compensation schemes may achieve more humane and effective compensation and rehabilitation of accident victims? Do the high levels of tort litigation in the United States, compared with those in most other industrialized societies, imply that a better balance could be achieved between tort and non-tort forms of accident reduction and compensation in the United States, or are other industrialized societies forgoing benefits that could be realized by the adoption of more expansive tort regimes? If a rebalancing of the role presently played by the U.S. tort system is required, to what extent can this be achieved by reforms to the tort system itself, and to what extent can this only be achieved by displacement, in whole or in part, of the tort system by alternative deterrence and compensatory regimes? These and similar questions are the central focus of this book.

Unlike much other tort scholarship over the last 20 years, the focus of this book is empirical. We examine five major categories of accidents in which tort law has historically played a significant role, at the same time recognizing, of course, that a substantial number of accidents giving rise to injuries do not fall within the traditional domain of tort law.⁵ For each of the five categories—automobile, medical, product-related, environmental, and workplace accidents—we review, critique, and interpret most of the available empirical evidence on the workings of the American tort system and the regulatory and compensatory alternatives to it, along with comparative empirical evidence from other jurisdictions where available. Our view is that, in the end, many of the central debates about tort law are less about competing normative values than they are about competing empirical understandings of the world. In resolving some of these debates, we believe that further progress is only likely to be made by attempting to settle those issues where the evidence is in fact relatively conclusive and by identifying other issues where the evidence is to this point ambiguous and where further research is required. We believe that the success of the tort system in achieving any of its goals is likely to differ significantly among substantive areas of law.⁶ Relevant differences among the various accident contexts include the certainty of liability standards, the complexity of causation and scientific issues, the availability and pricing of first- and third-party insurance coverage (pub-

lic and private), the sophistication of plaintiffs, the size of defendants and the competitiveness of their economic environment, and the concentrated or dispersed nature of harms. The efficacy of tort law must be analyzed relative to a specific accident context; it may well be, for example, that the institutional choices that best address problems associated with automobile accidents may not be the most appropriate in the case of environmental mishaps. Moreover, the empirical evidence with which we are primarily concerned here comes mainly from specific accident contexts rather than from tort actions in general. Consequently, we have chosen to undertake a separate analysis for each of the five accident contexts, drawing more general conclusions about tort law in the final chapter.

Our emphasis on empirical data and its implications is not meant to deny the value of theoretical or normative scholarship with respect to tort law and its alternatives. Indeed, some appreciation of these theoretical perspectives and what each implies for an idealized regime is necessary in order to define a reference point against which the real-world evidence can be compared. We thus proceed to review briefly the major competing normative perspectives on tort law and its alternatives, along with the implications that each seems to entail for this idealized reference point.

Competing Normative Perspectives

Deterrence

Law and economics scholars, drawing on concepts of economic efficiency, tend to stress the deterrent objectives of the tort system. They evaluate existing legal doctrine or proposed reforms in terms of whether appropriate incentives are created for the various causal contributors to a given personal injury to minimize the sum of accident and avoidance costs by taking cost-justified precautions that will reduce the likelihood and severity of that outcome.⁷ Deterrence proponents would seek to ensure that liability rules induce both efficient levels of care and efficient levels of activity. With respect to care levels, both liability rules and associated defenses, such as contributory or comparative negligence and voluntary assumption of risk, should be designed to ensure that parties who are able to avoid the expected costs of an accident (injury costs \times the probability of the accident occurring in the event of a failure to take care) by incurring lower precaution costs should bear the expected accident costs where these precautions have not been taken. With respect to activity levels, deterrence proponents emphasize that accident rates are typically correlated with levels of inherently risky activity, even if it is undertaken with due care, and that reductions in levels of risky activity, along with the associated reductions in injury rates, may sometimes be warranted. This concern has sometimes led to arguments for strict liability in particular injury contexts, for example, product-related accidents, on the grounds that strict liability ensures that all expected accident costs are impounded in product prices and therefore will appropriately influence demand for, and hence supply of, the products in question. This argument rests crucially on the assumption that consumers would have ignored or underestimated these accident costs in the absence of the cost-internalization function performed by

strict liability. With respect to quantum rules, deterrence proponents argue that injurers, appropriately identified by care level or activity level rules, should bear the full social costs of their conduct, in the absence of which some expected accident costs will be externalized to other parties and will be omitted from the efficient cost-minimization calculus with which prospective injuries should be confronted. On this logic, all pecuniary and nonpecuniary losses sustained by nonnegligent victims should be recoverable from legally culpable injurers, without offsets for collateral benefits and in the case of fatalities through placing an appropriate value on human life rather than merely compensating surviving dependents. If an enforcement shortfall is likely to occur because not all victims with meritorious claims are likely to bring suit, there may be a case for punitive damages to offset the enforcement shortfall.⁸

Critics of the law and economics (deterrence) perspective on tort law claim that this perspective overemphasizes both the amount of overly dangerous activity that would occur without tort liability and the amount of injury reduction achieved by it. It is often claimed that ignorance by prospective injurers of both law and facts, incompetence, discounting of the threat of liability, taste for risk, small expected penalties, and the pervasiveness of liability insurance all combine fatally to undermine any deterrence effects that the tort system might otherwise achieve. In addition (and not always consistently), it is claimed that in some contexts the tort system induces overdeterrence, for example by promoting defensive medicine in the case of medical malpractice or causing beneficial product withdrawals or reductions in product innovation in the case of product liability.⁹ These critics typically argue that deterrence and compensation objectives should not be assigned to a single legal instrument but instead should be disengaged from each other and assigned to separate legal regimes that have been exclusively designed to achieve one or the other objective: deterrence to penal and regulatory regimes, and compensation to either special or general administrative compensation schemes. Such a division of labor would, they contend, lead to better realization of both objectives.

Compensation

Scholars who adopt a less individualistic, more communitarian perspective on tort law (such as many Critical Legal Studies scholars) than either deterrence or corrective justice theorists view most accidents as the inevitable by-product of the activities (for example, motoring and manufacturing) that an industrialized, interdependent society has collectively decided to embrace. Drawing instead on notions of distributive justice, these scholars stress that accident costs should be borne collectively, not individually, and that the tort system should be evaluated in terms of its capacity to spread risk and provide meaningful, expeditious, and low-cost compensation or insurance to the victims of these activities.¹⁰ While some proponents of this compensatory perspective would search for “deep pockets,” like government or corporate defendants, to redistribute wealth to the needy injured, others accept that the initial imposition of liability will not usually determine its ultimate incidence, as liability costs get variously passed back or forward to different

actors through pricing mechanisms and insurance arrangements. On this view, victims as a class pay a large fraction of expected accident costs through these loss-shifting mechanisms, and the tort system operates as an implicit form of social insurance where individual victims of personal injury pool these risks with other potential victims.¹¹ Arguments are often derived from this social insurance rationale for the tort system in favor of strict liability rather than negligence, for relaxing rules of causation, and for including expansive forms of joint and several liability. With respect to quantum of damage, applying conventional insurance principles, insureds would typically not wish to pay premiums to insure against nonpecuniary losses (which arguably cannot be assuaged by money), and collateral source offsets may be justified in order to avoid the costs inherent in overinsurance. Those emphasizing the compensatory role of the tort system are also likely to be skeptical of the case for a broad domain for punitive damages, simply because it would typically not be rational for an insured to buy (implicit) insurance entailing coverage in excess of his or her actual damages.¹²

However, many compensation proponents would view the tort system, however designed, as incapable of meeting their goals. The delays, costs, and etiological-adversarial character of the system would be viewed as inconsistent with a humane and efficient compensation-rehabilitation system. In addition, the tort system as a distributive vehicle is regressive in that low-income victims pay the same implicit insurance premiums as wealthier victims, despite lower recoveries for economic losses. Moreover, many accidents and disabilities are unlikely to attract compensation under the tort system, however it is designed. Thus, reforms to the tort system would be a distant second-best to the adoption of social insurance systems in which entitlements to compensation are not contingent on proof of the fault or conduct of another. These theorists would see virtues in building on the experience with workers' compensation systems, no-fault auto insurance systems, medical misadventure systems, and more comprehensive accident compensation systems, such as the New Zealand Accident Compensation Scheme, which provides a common set of publicly administered earnings-related benefits for victims of accidents or disease in the workplace; accidents on the highways, at home, or elsewhere; and medical misadventure. Some compensation theorists argue that even the New Zealand scheme perpetuates problems of horizontal equity since victims of most illnesses or other forms of disability are unfairly excluded from the scheme and are relegated to much more modest social welfare benefits.

Critics of the compensation perspective challenge the claim that the tort system achieves few if any desirable deterrence effects and that the goal of accident reduction can confidently be remitted elsewhere in the legal system and dealt with through penal or regulatory regimes. These critics argue that the safety performance of many regulatory agencies has been disappointing, variously involving under- and overdeterrence and the adoption of non-cost-justified regulatory instruments, and that the efficacy of penal sanctions in reducing accident-causing behavior is itself open to question. In addition, critics argue that alternative compensation schemes cannot be entirely divorced from accident-reduction objectives, both in allocating financial responsibility for contributions to these schemes, which may serve an

important accident-deterrence function by internalizing some accident costs, and in setting and determining benefit structures for recipients under these schemes so as to minimize *ex ante* and *ex post* moral hazard problems.¹³

Corrective Justice

More classical tort scholars, drawing on Aristotelian and Kantian theories, stress notions of individual responsibility, as do law and economics scholars. However, they view the purpose of tort law not as deterrence of prospective wrongdoers, but rather as obliging a person whose morally culpable behavior has violated another's autonomy to restore the latter as nearly as possible to his or her pre-injury status.¹⁴ For advocates of this corrective justice perspective, the purpose of tort law is to correct past injustices, not to deter future behavior of other potential wrongdoers or to compensate victims of misfortune whose misfortune is not directly caused by the morally culpable conduct of another.

While, corrective justice theories, like other normative theories of tort law, come in different forms, the most conventional form emphasizes that liability rules should be designed to identify conduct that falls short of acceptable community standards, and in this respect would tend to focus liability on intentional or reckless wrongdoing, or on negligent failures to take reasonable precautions, but would reject strict liability premised on general deterrence or distributive justice considerations. Where morally culpable conduct has been demonstrated, many corrective justice proponents would require quantum rules in which wrongdoers would fully compensate innocent victims for all losses that they have incurred as a result of the wrongdoing, including pecuniary and nonpecuniary losses, and without collateral benefit offsets, to which culpable wrongdoers have no moral claim. On the other hand, corrective justice proponents would be skeptical of the case for a broad domain for punitive damages on deterrent or retributive grounds, but they might accept a more limited role for such damages in the case of egregious violations of trust or dignity "wrongs."¹⁵

Corrective justice theorists emphasize that the form of tort law is inconsistent with general instrumental objectives such as deterrence or compensation. Tort law typically involves a suit by a victim against an injurer where the nature of the interaction between the two has produced a negative impact on the plaintiff. If deterrence objectives were the central focus of tort law, it may be the case that there are any number of other causal agents affecting the outcome whose suppression may more fully advance deterrence objectives (for example, in the case of a highway accident, the failure of highway designers to install a low-cost protective device), but the form of the action precludes an investigation of whether penalizing the injurer or addressing these other causal agents is likely to yield the highest deterrence returns. Moreover, the form of a tort action for personal injury requires that an injury to one person has actually occurred as the result of the conduct of another before a suit may be brought. If general deterrence objectives were the central focus of tort law, why wait for a death or an injury before attempting to deter accident-prone behavior? For example, more clearly deterrence-driven legal regimes such as criminal

sanctions for speeding or drunk driving attempt to interdict accident-prone behavior before it causes accidents.

Similarly, corrective justice theorists argue that the form of a tort action is inconsistent with compensatory objectives. Why single out the party most immediately interacting with the plaintiff for liability, regardless of the quality of his conduct, on the grounds that he is a better risk-spreader or has a deeper pocket than the victim, when countless other people or institutions who are not parties to the action may be even better risk-spreaders or have even deeper pockets than the defendant? In other words, tort law is inherently incapable of promoting any patterned or coherent principle of distributive justice and should not be assigned this goal.

Critics of corrective justice theories of tort law question the barrenness of noninstrumental rationales for tort law on the grounds that they appear to ignore the relevance of the goals of both accident reduction and accident compensation, which are likely to be the chief concerns to most members of the community contemplating the likely impact of an accident on their lives. To claim that tort law is inherently incapable of serving these objectives is to avoid joining the debate over whether tort law is worth preserving. Moreover, it is argued that in tort law, even as classically conceived, the degree of moral culpability is not closely correlated with its legal consequences. A grossly delinquent wrongdoer may be lucky and only mildly injure someone. A mildly inadvertent wrongdoer may be unlucky and gravely injure a very high income earner or class of victims and be exposed to enormous damages.¹⁶

Summary

This summary description of the three major normative perspectives on tort law obscures important differences of viewpoint among scholars and judges who espouse one or the other of these general perspectives, and thus it risks misstating the precise implications of each perspective; however, it suggests the general lines of empirical inquiry that must be pursued. While it is obviously difficult to formulate a coherent tort reform or replacement agenda without resolving these fundamental differences in philosophical perspectives on the tort system, we regard these debates in the abstract as largely sterile. We accept that all three of the major normative values identified—deterrence, compensation, and corrective justice—are legitimate normative values and are worthy of vindication, in the case of accidents, in appropriate domains of the legal system. However, the critical question is not which values are more important but which policy instruments are best suited to vindicate which values. For example, we question whether tort law in fact achieves the deterrence objectives often claimed for it, or whether these could be better achieved through other instruments. We also question whether compensation objectives can in fact be completely separated from deterrent or accident-prevention objectives. We wish to avoid taking refuge in noninstrumental corrective justice theories of tort law that refuse to enter the debate about how a better mix of policy instruments in the larger personal injury system might be devised both to prevent accidents and to

compensate for them when they occur. In addressing our concerns, empirical assessments of relative institutional competence are of central importance. To the extent that different normative perspectives on the role of the tort system rest in part on different empirical assumptions about the actual operation of the present tort system and its alternatives, the assessment in this book of the existing empirical evidence on the efficacy of the tort system and its alternatives is designed to help bridge these differences. Debates over the past two decades or so on the future of tort law have been dominated by competing theoretical perspectives, and, within particular perspectives (such as law and economics), by abstract modeling of alternative liability regimes. These internal and external debates have often proven indeterminate. We believe that it is time to move from theory to empirics if further progress is to be made in resolving those debates—that is to say, it is time to take the facts seriously.

The Evaluative Framework: Inputs and Outputs

For all three major goals claimed for the tort system, the performance of the system can be evaluated by examining both inputs and outputs. Our *input analysis* examines the structure and rules of the tort system in themselves. We compare these parameters to optimum parameters, assuming that if a particular set of theoretical assumptions is empirically satisfied, then the tort system is likely to realize its stated goal. We focus, then, on whether the assumptions are in fact satisfied by legal doctrines or empirical facts. *Output analysis* examines system performance, first identifying what effects the tort system has in fact induced, then judging whether these changes are of a kind or scale that satisfy the stated normative goal. While we examine both inputs and outputs for each of tort law's normative goals, it is worth noting that, depending on the normative viewpoint, the relative emphasis between inputs and outputs may shift. For instance, empirical evidence regarding outputs—system performance—is highly relevant to determining whether or not the deterrence goal is being achieved, while by contrast evidence of outputs is less germane to corrective justice since this is an explicitly noninstrumentalist viewpoint that regards actual outcomes as less important than justly crafted rules.

Optimal Deterrence

If we assume that the goal of the tort system is to discourage socially undesirable conduct or activities, then, on the input side, the deterrence goal is likely to be well served if empirical evidence suggests the following: legal standards regarding liability and damages are defined to encourage efficient care and activity levels; barriers to suit are few; the process of claims resolution is relatively accurate; and insurance regimes preserve the economic incentives that the liability regime transmits.

To measure deterrence outputs, we look for behavioral changes in care or activity levels among violators, and then the effects of such behavioral changes on

the injury rates among victims. Obviously, if no significant effects are observable, one can hardly argue that the tort system is an effective instrument of deterrence. The more difficult case is one in which observed behavioral effects can reasonably be attributed to the tort system, but there are serious questions whether they reflect the full attainment of optimal deterrence or a net reduction in social welfare through excessive deterrence. Making empirical judgments about how close the real world is to the social optimum, and what contributions the tort system has made to whatever state of optimality or suboptimality is observed, is a highly perilous endeavor, and our judgments on this critically important issue will necessarily be somewhat tentative. This concern is mitigated somewhat when one adds to the ledger our empirical evaluation of the input measures of performance.

Optimal Compensation

As noted here, the goals of compensation differ in important respects according to varying conceptions of distributive justice. Favoring a more liberal and individualistic ideal of distributive justice, our evaluation of injury compensation is based on a model of "optimal insurance," according to which optimal compensation occurs when compensation corresponds to the insurance that would be purchased by rational risk-bearers with perfect information. According to this view of optimal compensation, the desired inputs would seem to include the following: coverage for all injuries associated with a risky activity, but exclusions from recovery for self-injury attributable to grossly negligent, reckless, or intentional conduct; benefits coordinated with other sources of compensation which reimburse losses up to high amounts, with deductibles and coinsurance to counteract moral hazard; benefits that are payable promptly; and insurance provided by efficient risk-spreaders.

From an output perspective, realization of the goal of optimal compensation might be measured through the following empirical facts: the fraction of injured accident victims who actually receive compensation from the tort system, whether the measure of compensation received is adequate or excessive, and the administrative costs and delays entailed in providing compensation to victims.

Optimal Corrective Justice

An input evaluation of this goal focuses on many of the same kinds of factors that are relevant to an input evaluation of the deterrence goal: liability and damage rules should confront wrongdoers with the full costs of injuries attributed to their wrongdoing; victims should have ready access to the legal system; claims should be accurately and promptly resolved; and liability insurance should not insulate wrongdoers from the impact of the tort sanction.

We assess progress toward the corrective justice goal measured by outputs by trying to examine the following: the fraction of wrongfully injured accident victims who actually receive compensation, the frequency with which damages are awarded to those not wrongfully injured or against those not wrongfully causing the injury, and whether the measure of compensation actually received is adequate or exces-

sive. Because a corrective justice perspective on tort law, unlike both the deterrence and compensation perspectives, is noninstrumental, and because many (although not all) of the input criteria for corrective justice are similar to those implied by deterrence, we devote less attention in this book to the empirical evidence on the operation of the tort system from a corrective justice perspective than from the other two perspectives.

Evaluating Alternatives to Tort Law

Tort law cannot be meaningfully evaluated except by reference to its alternatives.¹⁷ Whatever its strengths and weaknesses, the question must always be asked, “compared to what?” Again, much of the debate over the future of tort law in the past two decades has abstracted from the institutional alternatives to it, or made ill-informed or naive assumptions about how these alternatives are likely to work in the real world. Therefore, regulatory, penal, and compensatory alternatives to the tort system will also be evaluated within a framework similar to the one we have applied to the tort system, although, since these alternatives principally implicate deterrence or compensation values, we devote much less attention to them from a corrective justice perspective.

For both the deterrence and compensation goals, we will examine, as with the tort analysis, how well the structure of proposed or existing alternative systems conform to the stated optimal rules (input analysis), as well as the actual performance of such systems wherever they have been implemented (output analysis).

Plan of the Book

In this book we examine separately five substantive areas of tort law: automobile, medical, product-related, environmental, and workplace accidents. Each of these areas represents a major source of personal injuries potentially compensable by the tort system.

Collectively, the five accident areas canvased in the book cover a wide variety of the conditions that are likely to affect the success of the tort system and its alternatives in attaining their declared goals. In each of the five areas, the study proceeds by reviewing first the empirical evidence on the deterrence, compensatory, and corrective justice properties of the tort system and then the parallel bodies of evidence on regulatory, penal, and compensatory alternatives to the tort system. The book concludes with an assessment of the appropriate mix of tort and non-tort policy instruments in each of the accident categories reviewed and in residual categories of accidents and disabilities.

We reemphasize that comparative institutional analysis, grounded in serious empirical evidence, should be central to debates over the future of tort law, as it is to the purpose of this book.

Notes

1. See, e.g., M. J. Saks (1992), "Do We Really Know Anything about the Behavior of the Tort Litigation System—and Why Not?" 140 *Penn. L. Rev.* 1147; S. P. Croley and J. D. Hanson (1991), "What Liability Crisis? An Alternative Explanation for Recent Events in Product Liability," 8 *Yale J. on Reg.* 1; J. J. Phillips (1992), "Attacks on the Legal System: Fallacy of 'Tort Reform' Arguments," 28 *Trial* 106.

2. For an extensive review of reform proposals, see, e.g., American Law Institute (1991), *Reporter's Study: Enterprise Responsibility for Personal Injury* (Philadelphia: American Law Institute). For a more populist critique of the existing tort system, see, e.g., Peter W. Huber (1988), *Liability: The Legal Revolution and Its Consequences* (New York: Basic Books); Walter K. Olson (1991), *The Litigation Explosion* (New York: Talley Truman Books).

3. Max et al. (1990), "The Lifetime Cost of Injury," 27 *Inquiry* 332.

4. *Ibid.*

5. See D. R. Hensler et al. (1991), *Compensation for Accidental Injuries in the United States* (Santa Monica, Calif.: Rand Institute for Civil Justice), chap. 3.

6. For further arguments supporting context-specific tort law analysis, see R. A. Epstein (1991), "A Clash of Two Cultures: Will the Tort System Survive Automobile Insurance Reform?" 25 *Val. U. L. Rev.* 173 at 173–74; Gary T. Schwartz (1994), "Reality in the Economic Analysis of Tort Law: Does Tort Law Really Deter?" 42 *UCLA L. Rev.* 377 at 383–84.

7. S. Shavell (1987), *Economic Analysis of Accident Law* (Cambridge, Mass.: Harvard University Press); A. M. Polinsky (1989), *An Introduction to Law and Economics*, 2nd ed. (Boston: Little, Brown); R. Cooter and T. Ulen (1988), *Law and Economics* (Glenview Ill: Scott, Foresman), chap. 8; W. M. Landes and R. Posner (1987), *The Economic Structure of Tort Law* (Cambridge: Harvard University Press). See also Schwartz, "Reality in the Economic Analysis of Tort Law," *supra* n. 6, at 387–90, who draws a useful distinction between a "strong" form of the deterrence argument (which we address through our input analyses) and a "moderate" form of the deterrence argument (to which our output analyses of tort deterrence apply).

8. B. Chapman and M. Trebilcock (1989), "Punitive Damages: Divergence in Search of a Rationale," 40 *Ala. L. Rev.* 741.

9. See, e.g., S. Sugarman (1989), *Doing away with Personal Injury Law* (New York: Quorum Books).

10. See, e.g., S. Sugarman (1985), "Doing away with Tort Law," 73 *Cal. L. Rev.* 558; *idem*, *Doing away with Personal Injury Law*, *supra* n. 9; H. Glasbeek and R. Hasson (1977), "Fault—the Great Hoax," in Lewis Klar (ed.), *Studies in Canadian Tort Law* (Toronto: Butterworths); T. G. Ison (1967), *The Forensic Lottery* (London: Staples Press); R. Abel (1987), "The Real Tort Crisis—Too Few Claims," 68 *Ohio St. L. J.* 443 at 443; A. Hutchinson (1985), "Beyond No-Fault," 73 *Cal. L. Rev.* 755 at 755; Royal Commission Report (1967), *Compensation for Personal Injury in New Zealand* (Wellington)[hereafter, Woodhouse Report].

11. See G. Priest (1985), "The Invention of Enterprise Liability: A Critical History of the Intellectual Foundations of Modern Tort Law," 15 *J. Legal Stud.* 461; M. Trebilcock (1987), "The Social Insurance Deterrence Dilemma of Modern North American Tort Law," 24 *San Diego L. Rev.* 292.

12. A. Schwartz (1990), "The Myth that Promisees Prefer Supracompensatory Damages," 100 *Yale L. J.* 369.

13. M. Trebilcock (1989), "Incentive Issues in the Design of No-Fault Compensation Systems," 39 *U. Toronto L. J.* 19.

14. See, e.g., E. Weinrib (1983), "Toward a Moral Theory of Negligence Law," 2 *Law & Phil.* 37 at 37; idem (1988), "Liberty, Community, and Corrective Justice," 1 *Can. J. L. & Juris.* 3 at 3; idem (1989), "Understanding Tort Law," 23 *Val. U. L. Rev.* 485 at 485.

15. Chapman and Trebilcock, "Punitive Damages," *supra* n. 8.

16. For a trenchant critique of corrective justice theories of tort law, see G. Brencher (1992), "Formalism, Positivism and Natural Law in Ernest Weinrib's Tort Theory," 42 *U. Toronto L. J.* 318.

17. See, e.g., S. Shavell (1984), "Liability for Harm versus Regulation of Safety," 13 *J. Legal Stud.* 357; D. Wittman (1988), "Prior Regulation versus Post Liability: The Choice between Input and Output Monitoring," 6 *J. Legal Stud.* 193; Trebilcock, "Incentive Issues in Design of No-Fault," *supra* n. 13.

2

AUTOMOBILE ACCIDENTS

Injuries stemming from automobile accidents are the most numerous and costly of all personal injuries in North America. They are also one of the most fertile areas of current experience and debate regarding the role of the tort system and its alternatives. In 1989, roughly 5 million Americans experienced auto-related injuries, 47,000 of which were fatal.¹ In Canada, more than 200,000 people were injured in motor vehicle accidents in 1985 and more than 6,000 died.² To put these figures in perspective, between 1945 and 1985 more Canadians died as a result of automobile accidents (168,319) than the combined total of Canadians killed in both world wars (102,703).³

The costs of these injuries are enormous. In 1985, the economic costs (medical expenses, wage losses, and other out-of-pocket expenses) of automobile injuries in the United States are estimated to have totaled \$50 billion,⁴ and another estimate assessed the 1986 costs at \$74.2 billion.⁵ Further, despite steady decreases in the annual number of traffic fatalities in Canada and the United States since the mid-1970s, injury insurance costs have risen sharply during this period, increasing by about 140% in the United States from 1977 to 1987.⁶

Largely in response to liability premium increases, governments and policy makers have shown renewed interest in no-fault alternatives to tort law in this area, after a long period of inaction following the initial enactment of no-fault schemes in 16 U.S. states and the province of Quebec between 1971 and 1977. Ontario adopted a no-fault regime in 1989, and existing approaches to preventing and compensating automobile injuries have come under increasing scrutiny as policy makers seek empirical evidence to guide current policy choices. This chapter reviews this evidence on the tort system and on alternative methods of injury prevention and compensation.

Tort Law: Deterrence

Input Analysis

Among law and economics scholars, the main justification for tort law in the automobile context is the incentives for accident prevention (deterrence incentives) that civil liability is said to create.⁷ This section considers the theoretical basis for this claim and examines the extent to which the existing motor vehicle liability regime in

Canada and the United States corresponds to the ideal model envisioned in deterrence theories of tort law.

As with all risky activities, driving promises certain benefits (e.g., convenience and speed) to its participants while it entails costs associated with the occurrence of automobile accidents. Societal efficiency is maximized when individuals adopt all measures to avoid motor vehicle accidents (both by the application of greater care while driving and by reduced driving activity) for which the costs of accident avoidance (e.g., inconvenience and increased travel time) are less than the expected costs of the accidents.

If all drivers viewed injuries to others as if they were injuries to themselves, or if all automobile crashes were single-vehicle accidents that caused losses solely to their drivers, perfect information and risk neutrality would be sufficient conditions for the existence of such a social optimum.⁸ Alternatively, optimal accident avoidance might be realized if all drivers could costlessly and effectively contract among themselves *ex ante* and costlessly monitor contract performance *ex post*. In each case, full-cost internalization would induce drivers to employ all cost-justified precautions against accidents.

In the real world, of course, these conditions are absent. Multiple contracts among all drivers would be absurdly costly to establish and monitor, as well as virtually impossible to arrange, due to the collective action problems that such contracts would entail. Automobile accidents generally involve two or more vehicles, with losses suffered by more than one driver as well as by passengers, pedestrians, and bicyclists.⁹ Finally, while most drivers undoubtedly try to avoid accidents in order to prevent injury both to themselves and to others, self-interest probably induces many to discount the expected accident costs inflicted on others when they decide how and how much to drive. As a result, since accident costs can be externalized to others, drivers may employ fewer precautions than are socially optimal.

The extent to which such precautions are suboptimal depends on the characteristics of drivers as self- or other-regarding, on the ratio of self-inflicted accident costs to losses imposed on others (a ratio that may itself depend on the type of precautions taken by the driver), and on the ability to distinguish between precautions that reduce the probability of self-injury and precautions that reduce the likelihood of injury to others. Although several critics have challenged the significance of tort incentives on the grounds of both self-preservation and social conscience,¹⁰ there is no evidence of which we are aware of any attempts to measure the role of these motivations. Instead, it is often argued that tort law, by threatening to shift accident costs back to those in a position to prevent them in the first place, represents a potential means of encouraging drivers to adopt socially efficient accident precautions.¹¹

Nevertheless, the effectiveness with which the civil liability system creates appropriate incentives for accident prevention depends on the extent to which the existing automobile liability regime actually embodies the structural characteristics envisioned in the law and economics literature. Specifically, liability and quantum (damage) rules must be optimally defined; victims must initiate claims for all damages caused by driver negligence; claims must be accurately resolved with respect to both liability and quantum rules; liability insurance must not obstruct the deterrence

signals otherwise conveyed by the tort system; and drivers must be responsive to the financial incentives that the liability system transmits. This section considers the extent to which these input criteria are actually satisfied by the existing automobile liability system.

LIABILITY RULES

Economic analysis demonstrates that the traditional test of liability for negligence, at least as defined according to the Learned Hand test, can in theory induce efficient levels of driving care.¹² Where the standard of negligence is defined by the failure to take cost-justified precautions to prevent a motor vehicle accident,¹³ the perfectly informed driver will adhere to the efficient level of care instead of adopting risky practices and running the risk of liability for negligence.¹⁴ In addition, since potential victims know that drivers will employ cost-justified precautions to avoid liability for negligence, in principle they too will engage in efficient accident-prevention behavior, with or without a rule of contributory negligence.¹⁵

However, although experience-rated insurance premiums are likely to reduce the number of risky drivers by making it impossible for them to obtain insurance or by making it too expensive for them to drive,¹⁶ in general, a negligence regime does not discourage socially excessive driving activity because each driver's decision on how much to drive need not account for the risk of nonnegligent accidents whose costs fall on others.¹⁷ Consequently, while the prevailing rule of comparative negligence for automobile liability likely encourages optimal driving care, it fails to address the activity level issue.¹⁸

QUANTUM RULES

If the tort system is to encourage efficient precautions to avoid automobile accidents, drivers must face the full social costs of all accidents attributable to their failure to exercise adequate care. Three features of the contemporary law of damages (quantum) contradict this theoretical ideal and imply the underdeterrence of automobile accidents through the civil liability system.

First, the Supreme Court of Canada and many state legislatures in the United States have set limits on the amount that plaintiffs can recover for pain and suffering.¹⁹ While the intangible character of these injuries makes precise translation into monetary terms impossible, arbitrary (and often relatively low) limits on recovery for noneconomic loss are difficult to justify on deterrence grounds.²⁰

Second, while the law of damages generally prohibits the deduction of collateral benefits from plaintiffs' tort awards,²¹ several American jurisdictions now allow collateral source offset. Moreover, in so-called add-on no-fault jurisdictions, where drivers are required to carry some first-party insurance, these automobile accident benefits are typically subtracted from tort damages otherwise payable. Consequently, negligent drivers are not confronted with the full social costs of their actions.

Finally, damages for wrongful death likely underdeter bad driving. Notwithstanding the enormous diversity in attempts to estimate the value of human life,²² tort recovery for wrongful death is insufficient by any measure.²³ Instead of calculat-

ing damage awards on the basis of such deterrence considerations, courts look only to the economic and emotional losses experienced by the victim's relatives and dependents.²⁴ Not only is this approach likely to underdeter automobile accidents, it also creates irrational incentives for injury avoidance by suggesting to drivers that it is better to kill than to disable, and that single adults and children warrant a significantly lower standard of care than do other potential victims.²⁵

CLAIMS INITIATION

Even assuming efficient liability and quantum rules, the tort system will underdeter bad driving if not all negligently injured victims of automobile accidents file claims, since some negligent drivers will escape the financial consequences of the accidents that they cause. While we know of no study that has investigated the proportion of eligible tort claimants who actually initiate liability claims, studies have estimated the proportion of collisions involving fault, the percentage of faultless victims, and the proportion of automobile accident victims who seek and recover tort damages. In the absence of evidence on the number of faultless victims whose injuries are attributable to someone else's fault (as opposed to chance), however, it is impossible to determine the incidence of tort claims among negligently injured victims.

Based on reports filed at the scene of the accident, Rea estimates that about 60% of injured victims were not at fault.²⁶ Since some of these faultless accident victims are injured in single-vehicle accidents and others are injured in two-car collisions where no one is at fault, studies reporting that about 40% of automobile accident victims obtain some compensation through the tort system suggest that a high proportion of negligently injured victims do in fact initiate claims.²⁷ In addition, evidence suggests that the shift in many jurisdictions from contributory to comparative negligence has promoted higher rates of claims initiation.²⁸

The relatively high rate of claims initiation in automobile accidents should come as no surprise. Although one report concludes that a number of accident victims do not initiate claims because of evidentiary problems, confusion or ignorance of legal rights, or the costs and bother of making a claim,²⁹ compared to many other injury areas (for example medical, environmental, and workplace diseases) motor vehicle accidents are easy to detect and involve few problems of proving causation. Consequently, the gap between negligence and claims should be small, and the prospect of underdeterrence through inadequate claims initiation seems slight in this area of tort law.

CLAIMS RESOLUTION

Even if all negligently injured automobile accident victims initiate claims, the tort system will generate appropriate deterrence incentives only if these claims are correctly resolved according to the optimal liability and quantum rules already considered.³⁰ Aside from the rules themselves, how accurately does the existing liability system resolve automobile accident claims?

With respect to findings of liability, the relatively straightforward nature of most automobile accidents seems to suggest considerable precision in their resolution. Indeed, in one study of 352 insurance claims, more than 90% of cases involved

uncontroversial evidence of fault.³¹ A study of U.S. automobile injury claims closed in 1987 indicates that although 63% of liability claims were handled by attorneys and lawsuits were filed in 18% of claims, only 0.6% of these cases were tried to verdict.³² Similarly, in Canada, a recent Ontario study found that although actions were commenced in almost 50% of automobile liability claims involving bodily injury, more than two-thirds of these were resolved before a trial date was set, and only 2%–3% went to trial.³³

On the other hand, a recent British study reveals that, for litigated claims, redistributive goals play a significant role in actual findings of liability. According to Harris et al., litigational success is markedly influenced by the claimant's socioeconomic status—with victims in the lower socioeconomic groups enjoying higher than average rates of success than those higher up the social scale.³⁴ Further, success was noticeably related to employment status, with significantly higher rates of success than average among those employed in the paid labor market at the time of the injury.³⁵ Assuming (as seems plausible) that these distributive concerns produce more findings of liability than warranted under a strict Learned Hand test, one might anticipate excessive deterrence.

With respect to the amount of damages actually paid to negligently injured victims of automobile accidents, however, the evidence suggests both distributive inequity and substantial underdeterrence. Not only do aggregate indemnity payments consistently fail to recompense aggregate economic losses, but also the proportion of economic losses compensated through the tort system falls as the severity of the injury (and the sum of economic losses) increases.³⁶ According to a study reported by the Ontario Law Reform Commission, while 82% of victims with economic losses less than \$1,000 received 75% or more of their economic loss, only 56% of those with losses between \$1,000 and \$4,999 and 23% of those with losses between \$5,000 and \$24,999 were as fortunate; among victims with losses of \$25,000 or more, fewer than 30% recovered more than a quarter of their economic loss.³⁷ Such a pattern, also apparent in other areas of tort law,³⁸ is a predictable consequence of the settlement process that places the most pressure to settle on those with the fewest resources and the most serious injuries. Aside from its unfortunate distributive implications, this result both weakens and distorts the deterrence signals of the tort system by undercompensating aggregate economic losses and by creating relatively greater incentives to avoid minor injuries than to avoid major injuries with substantial economic losses.

LIABILITY INSURANCE

These deterrence incentives are also weakened to the extent that liability insurance—widely held by automobile drivers and mandatory in most jurisdictions—insulates drivers from the full costs of automobile accidents for which they are to blame. If insurers could costlessly monitor driving frequency and care, premiums would correspond to the expected accident costs of each insured's driving profile,³⁹ and the same cost-benefit trade-offs present in the absence of liability insurance would induce drivers to adopt virtually all the precautions that they would otherwise have taken.⁴⁰ Absent such omniscience, however, insurers often employ copayment

mechanisms (coverage restrictions, coinsurance percentages, and/or explicit deductibles) and premium rating schemes (risk categorization and/or experience-rating) to ensure a rough congruity between expected costs and individual premiums⁴¹ and to preserve some financial incentives to encourage insureds to avoid accidents. Nevertheless, the extent to which liability insurers actually employ these measures varies from one area of tort law to another, depending on the applicable moral hazards, the costs of implementing such measures, and the structure of the insurance industry involved.

In the field of automobile insurance, liability coverage makes extensive use of deductibles,⁴² and premiums typically vary with the driver's age, sex, and marital status;⁴³ the type of vehicle; the geographical area in which it is driven (rural or urban); and the use to which it is put (business or leisure),⁴⁴ as well as the driver's previous accident⁴⁵ and infraction experience.⁴⁶ Therefore, compared to other areas of civil liability (e.g., medical malpractice),⁴⁷ automobile insurance employs several features that retain tort law's deterrence incentives.⁴⁸ Still, since any deviation from perfect risk-rating is bound to affect the precision of the tort system's deterrent signal, most likely in the direction of underdeterrence,⁴⁹ many negligent drivers are likely insulated from the full impact of the deterrence signals created by civil liability for automobile accidents.⁵⁰ On the other hand, to the extent that a significant percentage of drivers do not carry liability insurance, any deterrent effect that the tort system may have remains unattenuated.⁵¹

DRIVER RESPONSIVENESS

Regardless of how accurately the automobile liability and insurance regimes create and transmit optimal incentives for drivers to adopt cost-justified accident avoidance measures, these precautions may not be taken if individual drivers are unable to reduce the likelihood of automobile accidents through modifications to their driving, or if these modifications are possible but drivers are unresponsive to the specific incentives associated with tort liability and liability insurance coverage. Both claims have been made about the nature of automobile accidents and the character of automobile drivers.

A common argument against the deterrent function of the automobile liability system is that automobile accidents are largely random events attributable to momentary lapses of attention experienced by all drivers,⁵² and in no way susceptible to conscious control, whether stimulated by tort or regulatory sanctions, by a purely altruistic concern for others, or even by one's interest in self-preservation. A 1970 study by the U.S. Department of Transportation, for example, concluded that the automobile accident rate is unresponsive to tort incentives since most motor vehicle accidents are randomly distributed among the normal driving population.⁵³ Another study attempted to measure this randomness, concluding that the average driver experiences a near collision every 500 miles, a collision every 61,000 miles, a personal injury every 430,000 miles, and a fatal accident every 16 million miles.⁵⁴

Other evidence suggests more convincingly that individuals are capable of many driving modifications that affect the costs of automobile accidents. Most obviously, accidents are positively related to driving frequency,⁵⁵ and decisions on

how much to drive, although undeniably constrained by employment exigencies and the availability of alternative transportation, are subject to rational choice and sensitive to financial stimuli. Similarly, studies suggest that conscious driving practices can affect both the likelihood and the consequences of automobile accidents. In an investigation of 217 automobile accidents by a branch of the U.S. Department of Transportation, 422 of 612 contributing causes were classified as "human error" and a high percentage of these involved flagrant driver negligence.⁵⁶ Other studies indicate a marked association between the frequency and severity of automobile accidents and such deliberate driving behavior as speeding, driving while intoxicated, and nonuse of seat belts.⁵⁷ This evidence suggests that, even if some automobile accidents are unavoidable by individual drivers, other accidents are related to deliberate driving behavior and thus susceptible to conscious revision.

Whether even ideal tort incentives can actually induce these behavioral modifications, however, is another matter altogether. On this question, the evidence is ambiguous. On the one hand, while studies disagree on the impact of no-fault automobile laws on driving behavior,⁵⁸ a substantial body of evidence attributes reductions in automobile accident and injury rates to both negative and positive incentives. In one study, for example, where U.S. Air Force personnel were threatened with dishonorable discharge and possible referral to a psychiatrist if found to be at fault in a motor vehicle accident, accidents diminished by 50% and personal injuries by 54%.⁵⁹ In a more recent German study, positive economic rewards were associated with a marked decline in culpable accidents per 100,000 kilometers driven by employee drivers for Kraft Foods Corporation.⁶⁰ So, too, studies have reported changes in driving behavior and lower accident costs in response to regulatory sanctions such as speed limit reductions and the introduction of seat belt laws.⁶¹

However, we should be cautious in concluding that tort law is an effective deterrent on the basis of these non-tort incentives. While explicit incentive programs and traffic regulatory authorities attempt to inform drivers about the relevant standards and inducements, the civil liability system has no means of conveying this information to drivers. Since many individuals may be uncertain about the attributes of negligent and nonnegligent driving,⁶² and unfamiliar with the tort sanction itself, driving behavior may be insensitive to tort incentives. Second, if, as several studies suggest, individuals tend to discount certain kinds of low-probability risks,⁶³ incentives (like tort sanctions) that depend on the occurrence of an accident may have little effect. To the extent that premium increases price high-risk drivers off the road, however, tort incentives may reduce the automobile accident rate through changes in activity as opposed to care levels.⁶⁴

SUMMARY

Compared to other areas of tort law, several features of the current automobile liability system comport relatively well with the ideal deterrence model contemplated in the law and economics literature: driving patterns seem capable of rational individual control, the fault standard is suitably designed to encourage optimal driving care, most negligently injured victims appear to file claims, liability deter-

minations are mainly uncontroversial, and the insurance regime preserves many deterrence incentives that are lost in other areas of tort law. Nevertheless, other attributes weaken the tort system's deterrence effect. Quantum rules, settlement amounts, and liability insurance contribute to systematic underdeterrence, while individual tendencies to discount low-probability risks may reduce driver responsiveness to the deterrence signals that the tort system conveys.

Output Analysis

The introduction of no-fault automobile insurance schemes in the 1970s in Quebec, New Zealand, and a number of Australian and American states has given researchers an opportunity to investigate the impact of the tort system in deterring automobile accidents. Nevertheless, despite numerous studies during the past decade, no strong consensus has emerged with respect to the significance of this deterrence effect. This section briefly outlines the legal reforms in the jurisdictions studied, reviews the major findings of the empirical studies themselves, and advances tentative conclusions regarding their relative merit.

NO-FAULT LEGISLATION

No-fault automobile legislation may be usefully categorized as follows. First, "add-on" no-fault jurisdictions mandate first-party insurance coverage at government-determined levels, but they allow parties to sue for negligently caused injuries. Regimes of this kind exist in eight American states,⁶⁵ in two Australian jurisdictions,⁶⁶ and in all Canadian provinces except Ontario and Quebec. Second, "threshold" no-fault jurisdictions mandate first-party coverage *and* preclude tort recovery for any injury falling within explicit legislative parameters, established by dollar value in some jurisdictions⁶⁷ and by verbal formula in others;⁶⁸ above this legislative "threshold," civil actions for negligence are not barred. Sixteen American states and the province of Ontario have enacted legislation along these lines.⁶⁹ Finally, "comprehensive" no-fault jurisdictions have abolished tort actions altogether for automobile accidents that result in death or personal injury; they have established public schemes that compensate a fixed percentage of economic loss up to a maximum level and provide no or limited compensation for pain and suffering. These comprehensive schemes have been established in New Zealand (1974), Quebec (1978), and Australia's Northern Territory (1979).

EMPIRICAL STUDIES

If the tort system plays an appreciable role in deterring automobile accidents, jurisdictions that adopt no-fault schemes should, other things equal, have noticeably higher automobile accident rates than those in which the common law is untouched. Furthermore, since "threshold" schemes preclude more tort actions than "add-on" jurisdictions and since "comprehensive" plans eliminate more suits than "threshold" jurisdictions, one would expect auto accident rates to be positively correlated with the degree to which these schemes preclude tort claims.⁷⁰ In fact, the empirical evidence is far from conclusive.

United States. Two U.S. studies purport to demonstrate precisely the results predicted by deterrence theories of the tort system. Medoff and Magaddino estimated the impact of no-fault automobile legislation on the "liability loss rate" by regression analysis on cross-sectional data for all U.S. states during the year 1977.⁷¹ Working with more comprehensive data from all states and Washington D.C. during the period 1967–75, Landes measured the effect of different legislative thresholds on the incidence of fatal accidents.⁷²

Despite differences in data sets, dependent variables, and structural equations, the conclusions of both studies are highly complementary. Medoff and Magaddino derive a direct relationship between the loss rate and the scope of each state's no-fault coverage.⁷³ Estimating coefficients on dummy variables representing different aggregations of these no-fault schemes—from add-on and threshold jurisdictions together ("compulsory" no-fault), to threshold jurisdictions alone ("mandatory" no-fault), to a subcategory of the most significant threshold jurisdictions ("pure" no-fault)—the authors report increased loss rates over tort jurisdictions of 7.4% in "pure" no-fault states, 6.3% in "mandatory" no-fault states, and 4.0% in "compulsory" no-fault states. Depending on the stringency of the state's laws, these additional losses represent costs of between \$13.8 and \$51 million.⁷⁴

Landes's conclusions are even more striking. Estimating coefficients on three measures of the stringency of no-fault laws,⁷⁵ she reports a positive correlation between the stringency of each "legal variable" and the numbers of fatal accidents.⁷⁶ States with "relatively modest restrictions on tort suits" are estimated to have experienced between 2% and 5% more fatal accidents as a result of adopting no-fault, while states with "more restrictive" laws experienced as many as 10% to 15% more fatal accidents.⁷⁷ In sum, she concludes, the states that adopted no-fault between 1971 and 1975 experienced a total of between 376 and 1,009 additional automobile fatalities during the years the laws were in effect.⁷⁸

Although these studies suggest that the tort system may play an important role in deterring automobile accidents, they are vulnerable to several criticisms. With respect to the Medoff and Magaddino study, questions can be raised regarding both the large number of independent variables relative to the limited sample size of 1977 data and the choice of the "liability loss rate" as the dependent variable. In particular, since this dependent variable involves four components (average claim cost, average premium per vehicle, number of accidents, and number of insured vehicles), its increase could just as easily signify a rise in average claim cost, a fall in average premiums per vehicle, or a drop in the number of insured vehicles, as it could reflect an increase in the number of accidents. While the authors reject the prospect of a rise in average claim costs, the evidence on which they base this conclusion is limited.⁷⁹ Nor do they address the very real possibility that average premiums per vehicle may have fallen as a result of the enactment of no-fault automobile legislation—a particularly significant omission given that this is one of the avowed objectives of no-fault automobile insurance. As a result, little weight can be attached to the study.

The Landes study is also open to criticism. On a basic conceptual level, critics have questioned her use of fatal accidents as a dependent variable. As O'Connell and Levmore point out, because all tort thresholds examined by Landes are exceeded in

the case of any accident causing death, it is difficult to understand why no-fault jurisdictions would experience any increase in such accidents.⁸⁰ Further, as Zador and Lund explain, since most threshold states abolished tort law only for relatively minor injuries, leaving major injuries and property damage to the tort system, and since injury claims without associated property damage are extremely rare, the extent to which at-fault drivers are penalized by increased insurance premiums was largely unaffected by no-fault laws.⁸¹ Thus, a substantial reduction of liability-induced precautions (to the extent that they exist) seems implausible.

On a more technical level, criticism has been directed at both the independent variables employed in the estimated equation and at the functional form of this equation itself. Landes's use of dummy variables to screen out state- and time-specific effects instead of actual data reflecting determinants such as weather, road quality, police surveillance, and urban-rural differences has been criticized as crude and unexplained.⁸² Similarly, Landes provides no justification for the partly linear partly "log-linear" form of her equation, for the absence of a free constant, and for simultaneous regression on three separate variables describing state automobile insurance systems.⁸³ Nor does she control for multicollinearity due to the selection of population density as an independent variable.⁸⁴

Finally, doubts exist with respect to both the force of Landes's empirical conclusions and the inferences that she draws from them. In only two of the six regressions conducted is the reported *F* statistic sufficient to reject with 90% confidence the hypothesis that the coefficients of the legal variables are all zero.⁸⁵ Furthermore, Landes fails to justify her emphasis on the positive stringency-variable coefficients that support her conclusions at the expense of the largely negative coefficients on the two dummy variables that call her inferences into question.⁸⁶ Finally, even assuming the validity of her statistical work, there is no empirical basis for Landes's conclusion that the effects she derives stem from reductions in driver care as opposed to increased driving stimulated by lower insurance costs⁸⁷ or by changes in the premium structure accompanying the introduction of no-fault in U.S. states.⁸⁸

In addition to these criticisms, the results of the Medoff and Magaddino and the Landes studies have been challenged by more recent empirical work. A 1985 report by the U.S Department of Transportation concluded bluntly that "no-fault insurance laws do not lead to more accidents." However, the lack of scientific rigor upon which this assessment was based makes it even more unreliable than the contrary findings just considered.⁸⁹ Nevertheless, the same conclusion has also been reached in two recent econometric studies. In one attempt to replicate Landes's study with data covering the period 1967–80, the coefficients of all legal variables were insignificantly different from zero.⁹⁰ Similarly, Kochanowski and Young found no significant relationship between no-fault automobile legislation and the rate of fatal accidents.⁹¹ On the other hand, a more recent study by Sloan and others concludes that no-fault plans that exclude 25% of all tort claims increase auto fatalities by 18%.⁹² Thus, the empirical results are sharply contested.

New Zealand and Australia. Two studies have analyzed the impact of no-fault legislation in New Zealand and Australia. In the first, reviewing raw data on driving

activity and accident rates in New Zealand before and after the introduction of no-fault accident compensation in 1972, Brown found "no significant increase in motoring activity" and "no noticeable increase in accident rates" as a result of the legislation.⁹³ In the second, comparing fatal accidents in New Zealand and all Australian states and territories during the years 1970–81,⁹⁴ McEwin reports that while add-on no-fault legislation had no effect on traffic fatalities, comprehensive no-fault schemes were responsible for a 16% annual increase in automobile fatalities per capita.⁹⁵ As a result, he concludes, "the right to sue for personal injury loss is an important factor in promoting road safety."⁹⁶

Although the more rigorous character of the latter study makes it the better choice between the two,⁹⁷ even it is not without ambiguities. McEwin admits that "the problems involved in modelling road accidents" suggest that little weight should be placed on the size of the impact derived.⁹⁸ More important, as with the Landes study, it is impossible to attribute any effect to the abolition of tort actions per se, as opposed to the flat-rate premium structure and substantial cost externalization that accompanied the change from fault to no-fault.⁹⁹ Thus, while McEwin's research is free from the obvious methodological defects of the Landes study, his conclusions on the effect of the tort system are still subject to important reservations.

Quebec. Two studies have examined the effect on the rate of motor vehicle accidents in Quebec of the no-fault scheme introduced there in 1978. In Gaudry's study, looking only at the first 12 months of the new regime, legal reform was associated with a 26.9% increase in all automobile accidents, a 26.3% increase in accidents involving material damages above a specified amount (despite the fact that this amount increased from \$200 to \$250), a 31.8% increase in accidents with at least one injury (no deaths), and a 7.0% increase in automobile fatalities.¹⁰⁰ While the larger figures probably contain a substantial reporting bias,¹⁰¹ the reported impact on the number of fatal accidents is free from any such defect.

Perhaps surprisingly, Gaudry attributes the effects that he does derive not to the no-fault scheme itself, but instead partly to more stringent enforcement of compulsory insurance after 1978, leading previously uninsured drivers to drive with less care, and partly to the adoption of a flat-rate premium structure that substantially reduced the cost of driving to high-risk drivers.¹⁰² While emphasizing the difficulty of distinguishing among different components of the 1978 reform, he concludes that "previous moral hazard experience with compulsory automobile insurance and the very strong evidence of adverse selection caused by the subsidization of high risk drivers suggest that the contribution of no-fault, as such, to the reduction of driver care and deterrence was very small."¹⁰³ Thus, it is the insurance regime, rather than the liability regime, that is central to Gaudry's conclusions.

Despite strikingly similar empirical findings, Devlin attributes increases in automobile fatalities directly to the abolition of civil suits for negligent driving. Estimating an increase of about 4.7% in fatal accidents as a result of the flat-rate premium structure,¹⁰⁴ and an increase of 9.6% in fatal accidents, accidents involving bodily injury and property damage only (representing total monetary losses of about \$260 million per year¹⁰⁵) attributed to a reduction in average driving care,¹⁰⁶ Devlin concludes that "irrespective of how the first-party insurance is priced" no-fault

compensation reduces average driving care and increases the incidence of automobile accidents.¹⁰⁷ For two reasons, this conclusion should be cautiously received. First, by emphasizing a strong inverse relationship between driving care and no-fault compensation, Devlin downplays the deterrent effect of the injury itself; since monetary compensation can never perfectly alleviate noneconomic losses from injuries (and since no-fault typically limits recovery for pain and suffering), Devlin's focus on the marginal impact of eligibility for monetary compensation seems inflated. Second, by minimizing the significance of first-party insurance pricing, Devlin ignores the important role of the insurance regime in shaping driver care and activity levels. In fact, while her model controls for total kilometers driven and for the proportion of young male drivers among the total driving population,¹⁰⁸ it fails to account for the elimination of experience-rating under the Quebec scheme.¹⁰⁹ As a result, any attempt to attribute lower average driving care to the abolition of tort liability, as opposed to changes in the structure of insurance premiums, is inherently problematic.

SUMMARY

Despite numerous empirical studies, the impact of no-fault automobile legislation on the level of motor vehicle accidents remains uncertain. Much of the empirical analysis is contradictory, and differences in interpretation of the results abound. Some studies suffer from serious methodological difficulties. Above all, in accounting for observed effects, it is difficult to distinguish between the impact of the liability system itself and the insurance regime with which it is associated. In fact, many studies fail to even distinguish between these two determinants.¹¹⁰ Significant policy issues turn on precisely this question. If no-fault schemes can achieve comparable deterrence incentives through experience-rated premiums and/or direct levies on driving activity (for instance gasoline taxes),¹¹¹ the deterrent value of the tort system may be only marginally (if at all) better than a well-designed no-fault scheme. Nonetheless, the empirical evidence does indicate that without added financial deterrence incentives, no-fault schemes are likely to lead to increased accident rates, injuries, and fatalities.

Tort Law: Compensation

In both the United States and Canada, first-party compensation for the losses associated with automobile injuries is available from various sources. In 1985, 85% of American families held at least some life insurance, although on average this amounted to less than 26 months of disposable personal income per family (less than the life insurance industry's rule of thumb of 4–5 years).¹¹² Similarly, almost 85% of Americans are protected by one or more forms of private health insurance,¹¹³ and Medicare and Medicaid programs exist to meet the urgent needs of many of the remainder.¹¹⁴ In addition, motorists in tort states can purchase first-party "medical payments" insurance, covering medical expenses for purely auto-related injuries,¹¹⁵ while those in no-fault jurisdictions are entitled to medical and rehabilitation ex-

pense benefits of varying amounts, depending on the particular scheme. In Canada, public health insurance pays for virtually all medical and physical rehabilitation expenses.

In contrast to life and health insurance, first-party insurance for lost household services and employment income is far less comprehensive. Except for limited benefits payable under no-fault personal injury protection (PIP) policies, no first-party insurance of which we are aware is available for lost household services. Workers' compensation schemes in Canada and the United States pay substantial income replacement to traffic victims injured in the course of employment, but occupational injuries represent only a small fraction of all auto accidents.¹¹⁶ In each country social welfare programs (Social Security Disability Income, Canada Pension Plan) provide long-term replacement income, but amounts are minimal (e.g., \$56 plus 19% of earnings up to a maximum benefit of \$146/week Canada Pension Plan disability payments) and limited to cases of protracted total disability.¹¹⁷ In Canada, unemployment insurance sickness benefits are more generous (60% of lost wages up to a maximum benefit of \$318/week), but compensation is limited to 15 weeks after a 2-week waiting period.¹¹⁸ No-fault personal injury protection coverage also generally pays slightly higher amounts than general social welfare programs and includes cases of partial disability, but benefits are typically short-term (1–3 years)¹¹⁹ and are generally available only in jurisdictions with add-on, threshold, or pure no-fault jurisdictions. Although private insurers sell Medical Payments insurance for purely auto-related injuries, insurers in tort jurisdictions have been unwilling to offer income interruption coverage as well.¹²⁰ Private long-term disability protection generally replaces 60%–70% of income,¹²¹ but it is held by only about 20% of U.S. employees¹²² and 40% of full-time employees in Ontario.¹²³ Employment-related short-term disability income protection and sick leave are more widely held (by about 56% of American employees, according to 1984 data),¹²⁴ but they pay benefits for only a short duration.

Whether this coverage is optimal would turn primarily on evidence of market failure. For example, on the demand side, is there evidence that drivers have insufficient information about the risks entailed in driving and therefore suboptimally insure against them? Even if this information is available, do they systematically undervalue certain risks—e.g., low probability events entailing serious injury—if they occur? Also, if accident victims can externalize the cost of their own injuries to others—e.g., public health or welfare systems—will this lead to the purchase of suboptimal amounts of first-party insurance? On the supply side, one would need to investigate whether, under a voluntary first-party insurance system, adverse selection problems may render the supply of private voluntary first-party insurance for some or all classes of drivers inadequate. As far as we are aware, there is no systematic evidence available on these issues.

As a supplement to compensation from public and private first-party insurance plans, some analysts have argued that tort liability can be viewed as a system of compulsory insurance.¹²⁵ From this perspective, empirical evaluation should consider how well both the terms of third-party coverage for automobile injuries (eligibility criteria and benefit levels) and the method of disposition associated with automobile liability claims comply with sound insurance principles. In addition,

from the perspective of distributive justice, one should examine the extent to which the means of financing tort compensation corresponds to principles of vertical and horizontal equity commonly applied to the collection of program revenues. As the following discussion attempts to establish, as an instrument for compensating automobile injuries, third-party liability fails to satisfy both elementary insurance considerations and basic principles of distributive justice.

Eligibility

INPUT ANALYSIS

In a hypothetical market with full-cost internalization and perfect appreciation of risks, economically rational motorists and pedestrians would adopt all cost-justified accident-avoidance measures and insure against the residual risk of automobile injuries that remains despite efficient care and activity levels. Assuming judicial accuracy and a Learned Hand test for determining negligence, this simple economic model predicts that no one will be found to be negligent, and hence that no one injured in an automobile accident will be compensated through the tort system.¹²⁶ Optimal automobile injury insurance would therefore cover precisely those injuries resulting from automobile accidents in which no party is at fault. Drivers, passengers, and pedestrians alike would purchase first-party coverage at prices that reflect the residual risk of injury at efficient levels of activity and care.

In the real world, with imperfect information and limited powers of individual concentration, optimal automobile injury insurance might be expected to expand on this model in several crucial respects. For drivers, the risks of inaccurate cost-benefit calculations and momentary lapses of concentration resulting in self-injury also suggests first-party coverage against "self-inflicted" losses of this character.¹²⁷ Similarly, the dangers of hit-and-run drivers, inaccurate judicial determinations of liability, and judgment-proof defendants make it natural to purchase first-party coverage against injuries caused by the negligence of third parties from whom one may be unable to recover.¹²⁸ Similar considerations apply to pedestrians, although the difficulty of distinguishing pedestrian activities that entail risks of traffic injuries from pedestrian activities that involve other accident risks (e.g., falls) makes distinct first-party insurance for automobile-induced pedestrian injuries implausible. Finally, while common sense suggests that passengers are overwhelmingly passive participants in automobile accidents (requiring no protection against self-injury), the risks of hit-and-run drivers, inaccurate judicial determinations of liability, and judgment-proof defendants recommend that passengers obtain first-party coverage against injuries caused by the negligence of third parties from whom they may be unable to recover.

For insurers, on the other hand, the practical impossibility of monitoring driver and pedestrian care and the consequent prospect of *ex ante* moral hazard may suggest a coinsurance percentage limiting full recovery for these parties,¹²⁹ and/or coverage exclusions for self-injury caused by grossly negligent, reckless, and intentional conduct (e.g., driving/jaywalking while intoxicated and "joyriding"). To the extent that passengers contribute to automobile accidents through similar inexcusable be-

havior (e.g., grabbing the wheel), corresponding coverage exclusions for these injuries may also be justified.

Turning to the liability rules that govern eligibility for tort compensation for automobile injuries, several discrepancies from the picture of optimal automobile injury insurance just sketched are immediately apparent. First and foremost, contrary to the initial conclusion that optimal coverage should protect against all residual risks of motor vehicle injury that remain at efficient (cost-justified) care and activity levels, negligence doctrine explicitly excludes this category from tort compensation.¹³⁰

Second, tort compensation is also unavailable for the "self-inflicted" losses of drivers and pedestrians that result from their own inaccurate cost-benefit calculations and momentary lapses of concentration. Although pedestrians often benefit from a reverse onus of proof that requires motorists to prove that the pedestrian's injuries were *not* caused by driver error,¹³¹ the central negligence precept of no liability without third-party fault remains.

Third, even where a third party is at fault, the traditional rule of contributory negligence excludes negligent plaintiffs from tort recovery, no matter how trivial their own "negligence" might be. While the risk of *ex ante* moral hazard generally supports the comparative negligence principle of reduced compensation,¹³² only the most extreme forms of undesirable conduct can justify the complete bar on tort recovery effected by the traditional contributory negligence doctrine. Although most North American jurisdictions have now replaced contributory with comparative negligence,¹³³ as late as 1985 eight U.S. states still retained a traditional rule of contributory negligence.¹³⁴

Finally, until quite recently, most North American jurisdictions barred "guest passengers" against recovering damages from their driver "hosts."¹³⁵ Sharply criticized by one of Canada's most distinguished legal academics as one of the "most vicious pieces of legislation which an active insurance lobby was able to foist on an unsuspecting public,"¹³⁶ the Ontario rule was revised in 1967 to allow tort actions, provided gross negligence could be established,¹³⁷ and finally abolished in 1977.¹³⁸ Although many U.S. legislatures have also abolished the rule, it remains on the books in 18 states.¹³⁹

On an input analysis, then, the structure of tort compensation clearly deviates from optimum compensation by failing to compensate for both nonnegligent losses (residual losses that remain after cost-justified precautions) and self-inflicted losses. Contributory negligence doctrines and prohibitions against guest passenger recovery from hosts also contribute to suboptimal compensation, but to a lesser extent, since both rules are becoming less pervasive across jurisdictions than they have been in the past.

OUTPUT ANALYSIS

Not surprisingly, studies indicate a noticeable relationship between specific tort compensation rules and the extent to which automobile injuries are compensated through the tort system. A study by a group at the University of Michigan found that only 37% of injured victims obtained tort damages under Michigan's comparative

negligence regime of the early 1960s.¹⁴⁰ A mid-1960s analysis in Ontario, which had replaced contributory with comparative negligence, disclosed a tort recovery rate of 43% of injured automobile victims.¹⁴¹ Similarly, a U.S. survey of seriously and fatally injured automobile victims conducted in 1970 (when many states had begun to liberalize tort compensation rules) indicated a rate of tort recovery of 47.7%.¹⁴² These figures are consistent with later U.S. studies concluding that a shift from contributory to comparative negligence increases the number of traffic victims who can recover through third-party liability insurance by between 10% and 25%.¹⁴³ Finally, reflecting doctrinal and insurance reforms that have made the fault system "more compensationist" during the intervening decades,¹⁴⁴ U.S. evidence suggests that roughly two-thirds of all injured automobile victims compensated under first-party insurance would be eligible for tort liability compensation.¹⁴⁵

This evidence suggests two important conclusions. First, unlike some other types of personal injury (e.g., medical malpractice) where a large proportion of eligible tort claimants fail to initiate claims and recover liability payments, most eligible automobile injury claimants appear to obtain some compensation through the tort system. Second, despite apparently high rates of claims initiation and claims payment, even the most "compensationist" tort regimes leave about a third of all traffic victims ineligible for any third-party compensation. On this basis, it is hard to disagree with commentators who have described tort compensation for automobile injuries as "incomplete"¹⁴⁶ and "deliberately selective"¹⁴⁷—a system of compensation that is not designed to compensate all accident victims.¹⁴⁸

Benefits

INPUT ANALYSIS

Sound insurance considerations recommend at least three principles which should govern the level of benefits in a compulsory insurance plan. First, since monetary recompense can only alleviate the suffering associated with pain and suffering, but not eliminate this type of injury itself, it is questionable whether parties would rationally insure against nonpecuniary losses.¹⁴⁹ Second, although optimal insurance would likely cover almost all economic losses up to very high (or unlimited) damage amounts, transactions costs and moral hazard considerations suggest that individuals would self-insure against small losses through deductibles that reduce recoverable amounts by a specific quantity¹⁵⁰ and coinsure against large losses by limiting recoverable amounts according to the extent to which the individual is able to affect both the likelihood of the loss *ex ante* and its severity *ex post*.¹⁵¹ Finally, optimal insurance requires the rationalization of all sources of coverage to minimize premium costs and prevent unnecessary overinsurance.¹⁵²

Although comparative negligence rules satisfy part of the second principle of optimal insurance by reducing damages in proportion to the claimant's fault, the tort system generally runs afoul of the other criteria for an optimal structure of compensatory benefits. While some jurisdictions have imposed judicial or legislative ceilings on recovery for pain and suffering and loss of enjoyment of life,¹⁵³ threshold no-fault jurisdictions in several U.S. states restrict tort recovery for

relatively small claims,¹⁵⁴ and Ontario's no-fault scheme contains explicit deductibles on tort recovery for nonpecuniary losses, the general rule remains that plaintiffs are entitled to damages for all losses, pecuniary and nonpecuniary, with no deductible on compensation paid and thus no restriction on recovery for small losses.¹⁵⁵ Further, despite recent attenuation in some U.S. states, the collateral source rule promotes overinsurance and expensive subrogation arrangements by prohibiting the deduction from tort awards of indemnity payments otherwise receivable.¹⁵⁶

Furthermore, unlike first-party insurance, where the payment of premiums guarantees the insured a stipulated basic coverage against loss, tort compensation relies ultimately on the ability of each negligent defendant to satisfy the specific plaintiff's damages. Therefore, to the extent that defendants are uninsured or underinsured, the liability payments actually made to traffic victims, particularly those most seriously injured and suffering large economic losses, are apt to be incomplete.¹⁵⁷ Although it is estimated that only a small proportion (less than 2%) of Ontario motorists are uninsured,¹⁵⁸ studies place this figure at between 8% and 11% of U.S. motorists nationwide,¹⁵⁹ more than 20% in several states,¹⁶⁰ and almost 70% in urban areas like Detroit and Los Angeles.¹⁶¹ Moreover, these motorists tend to be involved in more accidents than their numbers would otherwise suggest.¹⁶²

Evidence on the rate of underinsured motorists shows a similar contrast between Canada (where all jurisdictions retaining tort actions for automobile injuries require drivers to carry a minimum of \$200,000 liability insurance)¹⁶³ and the United States (where liability insurance remains optional in 11 states,¹⁶⁴ and minimum policy limits generally range from between \$10,000 and \$25,000 coverage per victim).¹⁶⁵ In Ontario, a U.S. study of paid liability claims found that almost 85% of defendants carried at least \$500,000 liability coverage.¹⁶⁶ In contrast, U.S. insurance industry data indicate that only 32% of vehicles involved in injury-producing accidents had liability coverage with policy limits of \$100,000 per victim or more, while 38% carried coverage of \$25,000 per victim or less.¹⁶⁷ This amount is clearly inadequate to compensate accident victims who suffer severe and critical injuries.¹⁶⁸ Nor could it even begin to compensate catastrophically injured claimants whose treatment and care costs were estimated at \$408,700 in 1982 and \$722,300 in 1989.¹⁶⁹

As a result, our input analysis of benefits suggests that the rules governing tort awards coupled with standard insurance practices result in a system that does not conform well to the structure of an ideal compulsory insurance plan. While comparative negligence doctrines, caps on nonpecuniary losses, and recent attenuation to the collateral source rule reflect some elements of efficient compensation, tort law remains overcompensatory in some cases, especially nonpecuniary and small losses. At the same time, inadequate insurance coverage, or lack of insurance altogether, can leave victims either without adequate compensation or uncompensated altogether.

OUTPUT ANALYSIS

Output analysis of benefits paid through the tort system reveals the operation of tort rules governing the quantum of damages and the effects of inadequate liability coverage. Consistent with sound insurance principles, comparative negligence re-

duces compensation for economic loss among a significant number of paid liability claims. Contradicting insurance considerations, but consistent with the tort principle of full recovery for all losses, paid claims surveys also reveal the extent to which tort suits are dominated by payments for nonpecuniary losses and by claims involving relatively minor injuries with small economic losses. Further, evidence on the degree to which paid liability claimants also recover from other sources indicates how the collateral source rule encourages wasteful overinsurance and double recovery. Finally, empirical analysis also reveals a small proportion of seriously injured claimants whose injuries are inadequately compensated on account of low liability policy limits.

Claimant Negligence. According to a recent U.S. study, between 2% and 10% of paid liability claimants receive special damages less than their economic losses on account of their own negligence.¹⁷⁰ In California, which adopted a rule of pure comparative negligence in 1975,¹⁷¹ claimant negligence is estimated to account for 28% of paid claims in which payments for special damages were less than full economic losses.¹⁷² Furthermore, although this study also reports that no more than 30% of negligent paid claimants in any state surveyed received special damages less than their economic loss,¹⁷³ a marked relationship between comparative negligence and both a reduced likelihood and a lower quantum of general damages¹⁷⁴ suggests that total settlements are regularly reduced on account of claimant fault—even if this fact is not explicitly reflected in listed amounts for special damages.¹⁷⁵ In fact, this conclusion is supported by a separate empirical analysis of compensation from all sources: conditional on receiving some payment, tort state accident victims who are issued a traffic ticket obtain on average 29% less compensation than all tort state traffic victims who obtain some payment.¹⁷⁶

Nonpecuniary Loss. Surveys of paid liability claims in both the United States and Canada indicate the extent to which tort compensation for automobile injuries is dominated by payments for nonpecuniary losses. In the United States, a 1985 study concludes that between 70% and 96% of liability claimants who received some payment received compensation for noneconomic damages.¹⁷⁷ In aggregate, over 60% of all third-party liability compensation for motor vehicle accident injuries is devoted to nonpecuniary losses.¹⁷⁸

Ontario data collected for the Osborne Inquiry on Motor Vehicle Accident Compensation exhibits a similar pattern. In a survey of about 1,500 paid liability claims closed in 1986, 94.5% received damages for nonpecuniary loss, while only 38.4% were paid for loss of employment income.¹⁷⁹ In total, 45.6% of all liability payments were for nonpecuniary damages, and a further 5.4% were for family law actions for loss of care, guidance, and companionship.¹⁸⁰ While this ratio decreased for claims involving larger dollar amounts, nonpecuniary damages represented “the single most significant segment of damages at all levels,” even for claims involving \$75,000 or more.¹⁸¹ For paid claims of \$10,000 or less, compensation for noneconomic loss amounted to more than 70% of total liability payments.¹⁸² The Alberta Automobile Insurance Board has recently recommended that consideration be given to adopting a \$10,000 deductible in all claims for noneconomic loss.¹⁸³

Small Losses. U.S. and Canadian data also reveal the extent to which liability claims are dominated by relatively minor injuries with small economic losses. According to a 1970 survey by the U.S. Department of Transportation, 78.9% of paid liability claimants suffered economic losses of \$500 or less, only 11% had losses of more than \$1,000, and a mere 1.6% had losses of more than \$5,000.¹⁸⁴ Similarly, a study of paid tort claims in Florida from 1971 to 1973 (prior to the enactment of no-fault) found that between 63.7% and 70.2% of paid claims involved less than \$500.¹⁸⁵ More recent studies reveal a similar pattern, although at higher dollar amounts. In California, for example, 51% of liability claims paid in 1977 involved payments of less than \$1,000, and only 11% were for \$5,000 or more.¹⁸⁶ In Ontario, a recent survey indicates that the vast majority of paid liability claims involve nominal injuries ("shaken up") and injury to soft tissue.¹⁸⁷ Of the 56.9% of paid claimants who suffered measurable time loss,¹⁸⁸ almost 45% lost 4 weeks or less, and only 19% experienced time loss of more than 6 months.¹⁸⁹ More than half of all paid claims were for amounts of \$3,000 or less (27.7% less than \$1,000), and only 21.5% involved payments of more than \$10,000.¹⁹⁰

Collateral Sources. According to one U.S. study, roughly 18% of benefits actually reaching injured traffic victims duplicate coverage already available from other sources.¹⁹¹ Although many collateral sources have rights of subrogation against the defendant's insurer, transactions costs seem to discourage most collateral sources from exercising their subrogation rights.¹⁹² As a result, as a recent Ontario study concluded, "the collateral source rule results in substantial overcompensation to . . . motor vehicle accident victims taken as a group."¹⁹³ Considering all sources of compensation, this study determined that the roughly 30% of claimants with collateral benefits in addition to add-on automobile accident benefits (which are deducted from tort awards) received compensation for loss of employment income equal to almost 136% of their gross lost wages.¹⁹⁴ In the United States, nearly 20% of surveyed motor vehicle victims reported recovery from more than one source; many of these individuals were paid twice their economic loss or more.¹⁹⁵ Almost half of those with private health insurance failed to submit liability claims, mainly because they had already been compensated from another source.¹⁹⁶

Large Losses. Notwithstanding overcompensation of some claimants when all sources are taken into account, empirical evidence also reveals a consistent tendency of the tort system to undercompensate victims with large economic losses.¹⁹⁷ While the process of claims settlement likely contributes to this result,¹⁹⁸ insufficient liability coverage seems to be a significant factor in undercompensation as well.¹⁹⁹ Between 1974 and 1977, roughly 16% of Quebec drivers involved in automobile accidents were found to be without insurance.²⁰⁰ However, we are unable to find any recent evidence on the incidence of accidents involving judgment-proof defendants.

With regard to underinsured motorists, recent U.S. data are more revealing. Although these data suggest that policy limits prevent no more than 0.5% of claimants from recovering their full economic losses, the figure rises to 5.0% in a low minimum policy-limit state like Massachusetts.²⁰¹ Moreover, those whose damages are limited in this manner are disproportionately the small minority of accident victims suffering severe or catastrophic injuries. A survey of paid liability claims in

California indicates that 13% of payments in the highest economic loss category (over \$2,814) were constrained by the policy limit.²⁰² A recent industry study reports that economic losses exceeded policy limits in about a quarter of paid claims involving death or permanent total disability.²⁰³

Disposition

INPUT ANALYSIS

Turning to the disposition of insurance claims, sound insurance principles emphasize the importance of prompt remuneration of stipulated benefits upon relatively uncomplicated proof of loss. This achieves the certainty of payment that underlies the very decision to insure; it ensures a source of funds to finance current costs of treatment, care, and environmental adjustment, to respond to sudden disruptions to employment income and household services, and to initiate immediate steps toward physical and vocational rehabilitation; and it minimizes the costs of claiming benefits in order to provide maximum compensation value for each premium dollar paid.

Given these criteria for optimal compensation, the tort process of claims disposition is highly problematic. As an inherently adversarial system, third-party liability provides a right to compensation only if the claimant can prove that the defendant was negligent. Although the vast majority of accident claims are settled without going to trial,²⁰⁴ the process of claims settlement allows extraneous factors like litigation costs and relative bargaining power to influence the benefits that are ultimately paid. As a result, one might expect small claims to be settled at sums greater than the economic losses involved,²⁰⁵ with more serious injuries settled at amounts less than their economic loss.²⁰⁶

Notwithstanding the high frequency of claims settlement, tort compensation is also likely to entail considerable delays in initiating a flow of compensation to meet pecuniary losses as they accrue and to facilitate prompt initiatives toward rehabilitation. In part, this is because of the lump-sum method of payment that “requires bodily injuries to be stabilized before settlement or trial can realistically be considered”²⁰⁷ and encourages claimants to delay rehabilitation until compensation is determined.²⁰⁸ In part, it is due to the adversarial nature of the tort system, which encourages third-party insurers to deny liability until its extent is known and to employ the threat of delay as a bargaining tactic in settling claims.²⁰⁹ Further, as long as tort recovery is based on liability for negligence, many claims will involve delays occasioned by the need to evaluate the facts of the case and to establish the defendant’s fault.

Finally, third-party liability insurance is likely to involve significantly higher administrative costs than first-party systems of loss distribution. In addition to the costs of judges and courts (externalized to the taxpaying public), tort compensation involves additional costs to prove liability as well as loss and to settle claims between parties adverse in interest. For injured claimants, this implies the frequent involvement of lawyers.²¹⁰ Furthermore, while many first-party plans make use of payment schedules to minimize expensive assessments of precise losses, tort compensation is based on highly individualized determinations of actual and expected