18. Empirical analysis of tort damages

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1. THE ECONOMIC BASIS FOR TORT DAMAGES

The law and economics theory of damages for tort cases is much more abstract and less nuanced than the practice of setting the value of these awards. How awards are set and at what levels are both crucial determinants of the functioning of the tort liability system. Do tort damages in fact establish appropriate incentives for deterrence and provide the levels of insurance consistent with law and economics theory? Are there inadequacies in the levels of these damages that might warrant some kind of reform to the damages determination process? Have there been stark upward trends in amounts of damages that would suggest that the functioning of the tort system has changed in a perhaps unintended manner? This chapter reviews the different damages’ components and provides a general empirical review of their performance.1

Studies of tort liability constitute one of the most productive areas of law and economics theory.2 Given that the injurer has been found liable for the harm, the economic function of damages is twofold: to foster incentives for the injurer to take efficient levels of care and to provide optimal insurance for the party who is injured. Whether tort liability can accomplish both of these objectives depends on the nature of the harm.

The prototypical law and economics model focuses on the situation where losses are purely monetary and can be fully restored by financial payments to the victim. In a basic model, a risk-neutral injurer inflicts some harm \( d \) that has a monetary equivalent. Payment of the damages amount \( d \) after the injurer has been found liable will lead the injurer to take efficient levels of care once liability has been determined using either negligence or strict liability rules.3 Injured parties receiving a payment of \( d \) after an accident will be made whole. This payment level is also the optimal amount of compensation that a risk-averse person would choose if purchasing an insurance policy for the prospective accident, as it equates the marginal utility of income in the accident and no accident states of the world. A single monetary payment will lead to both efficient insurance and optimal deterrence (Shavell 1987).

However, even in this idealized situation of purely monetary losses, calculating optimal

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1 Punitive damages are discussed by Catherine Sharkey, Chapter 19, and the theory of damages is addressed by Robert Cooter and David DePianto in Chapter 17 of this volume and in Arlen (1985).


3 Even if the due care standard is set below efficient levels under a negligence standard, the discontinuous jump in liability at the standard may still lead to efficient levels of care (Kahan 1989).
damages is not trivial. Matters are often more complex than is suggested in the law and economics analyses of tort law, which usually treats the value of \( d \) as a fixed parameter that can be determined through an uncontroversial accounting exercise. In practice there is often considerable disagreement over how even the most rudimentary components of damages should be calculated. In some instances there are in fact no meaningful guidelines at all for setting the damages levels.

Most prominent tort cases involve personal injuries and deaths rather than monetary loss alone. The presence of adverse health impacts or death influences how one should conceptualize the appropriate damages payment. For these situations, the principles for setting optimal damages amounts are quite different than in the monetary loss case. When injuries affect welfare in a fundamental way and diminish the marginal utility of income, no financial payment can simultaneously achieve the objectives of optimal deterrence and efficient insurance. There is no clear-cut monetary loss counterpart for the value of personal injuries. Consider the situation of a wrongful death. What is the damages value \( d \) for such nonmonetary harms? There is no amount of money that would make the victim whole after a person’s death since the person no longer has a utility function. Even from the standpoint of the anticipation of a payment after death the valuation of the loss experienced is unclear since “make whole” compensation for one’s anticipated bequest could be inordinately large. Grappling with the value of damages even poses substantial challenges when the victim has not died but has simply experienced some nonmonetary loss in terms of pain and suffering, as this loss has no readily calculable monetary equivalent. Although money is readily transferable, pain and suffering is not. These theoretical indeterminacies contribute to the practical problems associated with setting damages levels for pain and suffering and nonmonetary losses.

The conceptual challenges posed by nonmonetary losses have led economists to observe that a single damages payment for personal injuries must strike some kind of tradeoff in terms of promoting the twin objectives of optimal insurance and optimal deterrence. In particular, if the accident reduces the marginal utility of income, the optimal deterrence amount will provide an excessive amount of insurance so that some tradeoff needs to be made. In the case of wrongful death, there are empirical estimates that often make it possible to ascertain the optimal deterrence amounts. With knowledge of individual utility functions and bequest functions, it would be possible to ascertain efficient insurance amounts. But determining how much deterrence should be sacrificed by payment of the more efficient insurance amount also requires determination of how responsive safety levels are to damages payments. We set such issues aside as they are not embodied in the damages approaches used in the courts.

In many situations, it might be feasible to improve on the performance of damages in promoting deterrence by also utilizing an additional policy instrument, notably punitive damages. One potential division of labor is to use compensatory damages to provide for optimal insurance coverage and, in situations in which deterrence is of paramount importance, levy appropriate punitive damages. In practice, a common approach has been to attempt to use a single compensatory damages payment to address both objectives.

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4 Spence (1977), Viscusi (1980), and Danzon (1984) present such models.
5 This approach is discussed and modeled in Hersch and Viscusi (2010).
simultaneously. For cases involving wrongful death, such damages using economists' estimates of the value of statistical life are often referred to as hedonic damages and are considered below.

Rather than combining compensatory damages with punitive damages to establish efficient levels of insurance and deterrence, one could couple an economic damages award with a fine paid to the state. This approach, which is suggested by Polinsky and Che (1991), could provide efficient levels of deterrence without excessive insurance. However, defendants can avoid the fine by settling out of court, in which case the plaintiff would receive some portion of the expected fine amount, thus eliminating the fine to the state and providing excessive insurance. Damages payments in excess of insurance are inappropriate for accidents arising in market contexts. The result of such damages levels is that marginal costs of producing and selling the product will rise, boosting the product price. The ultimate result is that customers will be forced to pay for insurance they do not value for the accident costs that customers will experience.

The different types of harms associated with personal injuries have also led to different damages components related to these harms. Promotion of efficient levels of insurance is feasible for financial harms, as these are replaceable losses. Damages payments for lost earnings, medical costs and rehabilitation expenses, and household services are examples of such losses. There are also damages components related to the nonmonetary losses, including any pain and suffering associated with the injury, grief caused by a death, and loss of the pleasures of life. These damages are directed toward harms that are difficult to measure and involve losses that are not replaceable. Money is often not a suitable substitute for these losses. What role such damages should play and how these damages should be determined remains controversial.

My discussion of damages addresses the conceptual basis for the awards as well as the empirical magnitudes of damages payments. However, one must temper this discussion with recognition that there are substantial litigation costs, which reduce the insurance value to the claimant and increase the deterrence value for the defendant. Under a typical contingent fee arrangement in which attorneys are paid one-third of the award or settlement, compensation that is restricted to the financial losses of the injury will provide inadequate insurance levels net of attorney fees. Compensation for noneconomic losses can potentially make the net damages payment more adequate as a form of insurance. Hersch and Viscusi (2007) document these costs for both parties using a large Texas sample of commercial claims. For all litigated claims, the ratio of transactions costs to the net payment to the claimant ranges from 0.76 for auto liability to 0.90 for other professional liability, with an average of 0.83 for all insurance lines. The comparable figures for all claims including settled cases range are lower, but still substantial. Auto liability claims have the lowest ratio of 0.64, while other professional liability claims have a ratio of 0.84, and the average is 0.75.

In the sections below I explore each of these damages components. Section 2 addresses the financial components of damages. How are the main components of economic damages, such as earnings loss, calculated, and what are the key matters of debate between opposing experts? Section 3 turns to noneconomic damages, chiefly pain and suffering compensation. What are the economic rationales for setting pain and suffering awards, and what guidance do jurors receive regarding these awards? In Section 4 I turn to the topic of hedonic damages, or compensation for the loss of enjoyment of life. This
damages component is both the most controversial and potentially the most substantial of the damages values. Section 5 provides an overview of damages trends. Section 6 provides a brief review of damages amounts in situations in which there are tort reforms for economic damages. Section 7 concludes.

2. ECONOMIC LOSS

In situations in which there is only financial loss, the overriding principal for determining damages is to ascertain the amount of money that will make the plaintiff’s situation the same as it would have been but for the injury that resulted from the wrongful conduct. In particular, what is the trajectory of economic and noneconomic benefits that the victim would have received, and how has this trajectory been affected by the injury? Assessing this amount provides a measure of the monetary harm over time due to the injury. My discussion focuses on the principal components of economic damages and abstracts from some factors, such as the deduction for state and federal income taxes, for which the rules vary by state.

The most straightforward damages component to estimate consists of what is generally termed economic loss. Designating the financial effects as economic loss is somewhat of a misnomer since all damages components, including nonmonetary losses such as pain and suffering, are economic losses in that they pertain to the calculation of the value of \( d \). The principal economic loss components of \( d \) generally consist of property damages, lost income, medical and rehabilitation expenses, and the value of household services. There also will be prejudgment interest for damages incurred before the trial. To the extent that these losses are contemporaneous, there is usually little difficulty in determining their value either based on the current market price or an expert appraisal.

For compensation paid for injuries arising from a market transaction, expected tort liability costs imposed on the seller will raise the market price to the extent that they alter marginal costs. In effect, consumers are paying \textit{ex ante} for the prospective tort liability payment. The price effect is the same for all consumers, but injured parties with greater income levels will receive higher levels of compensation if they are injured. Low-income consumers who purchase the products consequently cross-subsidize the more affluent consumers (Avraham 2006), as they are paying the same insurance price but receive less expected compensation.

Losses can be divided into those that have occurred before the trial and those that are expected to occur after the trial. For losses that have already occurred at the time of the trial, there is the additional matter of ascertaining the appropriate amount of the damages award given that there is some delay between the time when the losses occurred and the current time. Thus, the conceptualization of the loss pretrial for economic losses, such as income, is based on what income the person would have had if not injured, minus the value of income

\[\text{6 The economic loss component in torts cases can be viewed as a special case of economic loss generally. As a result, I emphasize the issues that are most salient in torts cases. The more general issues pertaining to the calculation of economic loss are the focus of Hall and Lazear (1994).}\]
that the person did receive. The pretrial damages also include the value of prejudgment interest to reflect the foregone opportunity cost associated with not having the funds.

How should the rate of interest be determined? Payment of the plaintiff using a riskless rate of return, such as an average U.S. Treasury bill rate, would provide appropriate levels of compensation for the time delay if the reference point is the rate of interest that a person could have earned on the funds. That is usually the rate of interest used in calculating the present value of future losses.

But the prejudgment interest situation may entail additional concerns. The rationales for providing prejudgment interest include proper compensation of plaintiffs and provision of an incentive for the parties to settle. Viewed from this vantage point, there are two possible rationales for a premium over the riskless rate of interest. A high interest rate induces defendants to resolve the case quickly rather than delaying the resolution of the case and making the ultimate damages payment. In addition, if plaintiffs are injured and must borrow funds, they must do so at rates that far exceed the government's riskless rate of interest. Thus, use of a higher rate of interest is a reflection of the actual opportunity cost of funds to the plaintiff who must borrow in order to meet the temporary financial loss. Consequently, this higher rate enables the calculated damages value to correspond to the actual damages incurred. Based on the plaintiff compensation objective, Knoll (1996) argues that the appropriate rate is the defendant's cost of unsecured borrowing, as that interest rate reflects the risk to the plaintiff if the defendant defaults on the obligation.

The actual practice of determining the interest rate is often not left to the discretion of the courts based on the testimony of opposing economics experts. Rather, states frequently specify the interest rates to be used in calculating prejudgment interest. These rates are usually specific numerical values rather than general references to published data series. Moreover, the specified level of the rates generally exceeds riskless rates of return.

For personal injury cases the main economic damages component consists of the present value of several categories of present and future economic loss. These losses include lost income, medical and rehabilitation expenses, and the value of household services. The income loss consists of the projected income level that the person would have had if the injury had not occurred minus the projected earnings that the person will have after the injury, where all these values are discounted appropriately to reflect the time period when they occur. The nature of the procedure and the types of issues that arise can be illustrated using, as an example, the present value of lost earnings for the situation of wrongful death, which simplifies calculations in that there is no post-injury income to net out to determine the net income loss.

Let \( y \) be the level of earnings in the base year 0. If the person currently works, the base earnings rate is known, but if not this value must be estimated based on the individual's personal characteristics such as education and job experience. In addition to a base earnings rate, the individual receives a series of fringe benefits, which is some fraction \( f \) of the base earnings. These fringe benefits include components such as medical insurance, pension contributions, social security contributions, and contributions to both workers' compensation and unemployment insurance.\(^7\) Care must be taken to exclude components

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\(^7\) The U.S. Chamber of Commerce (2008) provides annual breakdowns of these and other fringe benefit costs for different labor market groups.
for which there is double counting or which are not relevant because they are not losses to survivors. If, for example, the person is deceased, there is no lost value of private medical insurance coverage unless it also would have benefitted other family members.

After determining the level of income and fringe benefits at the base period, there must be some determination of the trajectory of lost earnings over time. First, how long would the person have worked but for the injury? I designate by $n$ years the number of years past the base year 0 that the person would have worked. The expected amount of future worklife will vary depending on the occupation, marital status, gender, age, and other factors.\footnote{An example of such worklife estimates is the U.S. Department of Labor (1986).} For any given year after the base period during this period of employment, what would the worker’s income level be? One approach that facilitates the analysis below is to assume a constant rate of growth $g$ over the life cycle, where the value of $g$ depends on the occupation. In particular, blue-collar jobs generally have a flatter earnings trajectory and consequently a lower value of $g$ than do white-collar jobs.

While it is possible to simply sum the various losses over time without doing any discounting of the future loss values, doing so will overstate the actual economic loss because the present value of future losses is less than their current value since these funds could be invested. Using $r$ to denote the riskless rate of interest, one can then divide the income loss in any period $i$ by $(1 + r)^i$ to convert these numbers into their present value. Thus, the overall formulation of the present value of the income loss is given by:

$$\sum_{i=0}^{n} y (1+f) \frac{(1+g)^i}{(1+r)^i} \quad (18.1)$$

For small values of $r$ and $g$, the value of this expression can be approximated by the value of

$$\sum_{i=0}^{n} y (1+f) \frac{1}{(1+r-g)^i} \quad (18.2)$$

As a practical matter, a key determinant of the present value of income is the value of the net discount rate, or the spread $(r - g)$ between the interest rate and the growth rate in earnings. If the earnings growth rate $g$ equals the value of $r$, determining the present value of income is equivalent to adding up the individual period losses without doing any discounting since the net discount rate is zero. Interest rates reflect overall opportunity costs of capital, including the productivity growth rates of both capital and labor. Thus, one would usually expect there to be some difference between the two values, leading to a positive net discount rate. Although changes in the discount rate by, for example 2 percent, may appear to be inconsequential, a 2 percent discount rate for payoffs 30 years away will reduce their present value by 45 percent given the mathematical structure of the present value calculation. Given the practical importance of the discount rate, there is often a considerable debate between opposing economic experts over the proper rate of discount and the growth rate in earnings.

The calculation of other economic damages components is similar except that the
income term \( y \) is replaced by the pertinent economic cost component. In the case of medical and rehabilitation costs, the cost values are generally provided by consulting medical experts, and these costs can then be converted to a present value of the loss once the trajectory of expenditures has been determined. The value of household services will depend on the family structure and the kinds of services that were provided by the deceased. It is often possible to estimate the level of household services provided based on available time use data in situations in which there is not precise, credible information on the level of services provided by the deceased. Among the data sets that have been used to estimate the amount of household services across different demographic characteristics is the Panel Study of Income Dynamics.\(^9\) Time diary information is also included as part of the U.S. Bureau of Labor Statistics American Time Use Survey. Similarly, there is available information on the market value of different types of services, and this information can be used to establish a monetary loss for the services component.

3. NONECONOMIC DAMAGES

In addition to compensation for economic loss, damages payments in tort cases also include compensation for nonpecuniary losses. Depending on the particular jurisdiction, these categories include components such as pain and suffering of the person injured, grief experienced by survivors, loss of consortium, and loss of enjoyment of life. The loss of enjoyment of life component will be analyzed separately in Section 4 below.

Treatment of emotional harms of pain and suffering may involve both economic and noneconomic damages components. For example, there may be medical expenses associated with treatments to alleviate pain and suffering. There also may be psychiatric mitigation of pain and suffering, which in turn will affect the level of nonpecuniary harm that is experienced.\(^{10}\)

What is the appropriate level of compensation for noneconomic losses? What guiding principles should be used to set these damages values? Without a well-defined objective to be accomplished through such damages, it is not feasible to set such values. In an attempt to formulate an analytical basis for setting such compensation, I distinguish four possible approaches: restoring the victim to the level of utility the victim would have had but for the accident, efficient insurance compensation, optimal deterrence, and coverage of legal fees.

Following the “make whole” approach for economic damages, one approach would be to set the pain and suffering award equal to the amount of compensation that should make the person indifferent between being injured and not injured from a pain and suffering standpoint. The conceptualization of such an approach is indeterminate as it could take different temporal vantage points. One vantage point is to ask at the time of the injury how much the victim would need in compensation to be indifferent to incurring the pain and suffering associated with the accident. Let the utility function in year 0 be given by \( u(y, h) \), where \( y \) is the actual income in year 0 and \( h \) is the initial health status, which

\(^9\) See Brookshire and Gunderson (2000).
\(^{10}\) See Noah (2009).
we assume to be good health in the base period. Suppose that the post-accident income level is the same as \( y \) so that we can abstract from economic loss, which is addressed in a separate component of damages. Suppose that the actual health status after the accident \( h_0 \) is worse than the level of health \( h \) that the person would have if the injury had not occurred, or \( h_0 < h \). Then the make whole valuation of pain and suffering compensation \( p \) that is appropriate based on the thought experiment in which compensation is paid at the time of injury satisfies

\[
u(y, h) = u(y + p, h_0).
\]  

(18.3)

For permanent injuries and fatalities, achieving this equality may not even be feasible. Such injuries alter the marginal utility of income, which in the extreme case may lead to a zero marginal utility of income.

Temporary pain and suffering raises a different set of issues due to the timing of the payment. The compensation is actually paid after the injury and is not contemporaneous with the injury. For monetary losses in situations where it is possible to borrow and lend across time, the timing of the payment is not as great a concern, but pain and suffering involves nontransferable effects. The conceptualization instead might be how much money paid at the time of trial will give the person the same level of well-being over two periods as would have been the case had the injury not occurred. Let \( u(y, h) \) be the utility function in period 2 in which there is a within period income level \( y \), and no pain and suffering. The appropriate value of pain and suffering compensation \( p \) maintains the discounted value of utility over the two periods. Suppose the pain and suffering is temporary and occurs in the initial period. Thus, to be made whole, the discounted utility that the person would have received in the absence of injury should equal the discounted utility over the two periods given the injury and the provision of compensation, or

\[
u(y, h) + (1/(1 + r)) u(y, h) = u(y, h_0) + (1/(1 + r)) u(y + p, h).
\]  

(18.4)

This formulation highlights the temporal mismatch between the timing of pain and suffering award and when the pain and suffering loss occurred. The reduction in the victim’s utility occurs during the initial period and is not compensated in any way at the time of the pain and suffering. However, after the injury when the person’s within period well-being has been restored to what it would have been without the injury, there is compensation \( p \). Since there is no loss in income, there is no insurance rationale for payment in the second period, and people generally would not choose to purchase such insurance.

For injuries that involve permanent pain and suffering losses, the post-accident compensation \( p \) must address the utility loss from the drop in health status over two periods, or

\[
u(y, h) + (1/(1 + r)) u(y, h) = u(y, h_0) + (1/(1 + r)) u(y + p, h_0).
\]  

(18.5)

Thus, the compensation \( p \) after the injury will more than compensate for the within period pain and suffering loss in that period so as to compensate for the initial utility loss at a time when no compensation is provided. The victim is consequently over-compensated in period 2 to make up for the lack of compensation in period 1. Permanent pain and suffering losses associated with grave injuries present additional complications as well. In
the case of severe injuries, such as catastrophic burns, the compensation amounts paid long after the injury may be associated with a small effect on the person’s marginal utility irrespective of which period’s vantage point is being used.

The optimal insurance perspective is based on a thought experiment that inquires how much insurance people would choose to provide for pain and suffering if they were purchasing their own insurance policy. In general people do not purchase pain and suffering insurance, perhaps in part because the level of pain and suffering is difficult for insurers to monitor. The desirability of insurance depends on the effect of the injury on a person’s utility function and when the insurance is paid.

For simplicity, consider a single period model in which the pain and suffering and the insurance payment occur in the same period. If the injury has an effect on the utility function that is tantamount to an economic loss, then insurance of pain and suffering will be desirable for risk-averse individuals just as would insurance of income losses. Empirical evidence of consumers’ utility functions for injuries from household chemicals suggests that some minor health losses that do not alter the structure of utility functions and can be treated as monetary equivalents are consistent with this formulation.\(^{11}\) Thus, for minor temporary injuries, there is no change in the functional form of the utility function so that the marginal utility of income is unchanged. The injury affects utility in the same way as a drop in the amount of income \(y\). If the difference in the timing of the injury and the payment is ignored, the optimal insurance amount in this case is to fully compensate for the injury. Temporary hand burns from household chemicals are examples of injuries that are tantamount to monetary losses. Treatment of such health effects through pain and suffering compensation that in effect makes the victim whole is consequently appropriate.

Matters become quite different in the case of very serious injuries that reduce the marginal utility that a person derives from any given level of income. Do serious injuries raise or lower the marginal utility of income? Some commentators, such as Crolely and Hanson (1995), have hypothesized that serious injuries raise the marginal utility of income. For example, they observe that rehabilitation services and handicapped accessible vehicles may generate a high marginal utility. However, payment for these services is a standard economic damages component, as is medical care, and is not included as part of the pain and suffering award. Thus, their conjecture is based on a misunderstanding of current U.S. practices with respect to damages components. If there is not an insurance rationale for pain and suffering, that does not necessarily imply that people who have been seriously injured generally do not value financial resources. However, funds for medical expenses and rehabilitation expenses are a separate element of damages that should be addressed: appropriate compensation for these costs is a component of economic loss.

Another defense of pain and suffering awards is that of Rabin (2006), who observes that monetary damages alone will not make a victim “whole” and that pain and suffering awards have a long-standing tradition of being in line with compensation for intangible loss. But there never has been such a tradition. Pain and suffering awards have never been sufficiently great to make a person indifferent to being killed or becoming a quadriplegic. Moreover, unlike the situation of monetary losses, this “make whole” approach is

unrelated to either optimal insurance or optimal deterrence for pain and suffering. Money generally cannot replace what has been lost as a result of permanent physical harms.

The most reliable basis for determining the effect of serious injuries on the marginal utility of income is to analyze pertinent empirical evidence. Situations of death are an extreme case as the utility function becomes a bequest function, and empirical evidence indicates that people value bequests less than they value that income when they are alive.\textsuperscript{12} Other severe injuries such as paraplegia likewise alter the marginal utility of income. Empirical estimates of worker utility functions for job injuries indicate that full income replacement is not desirable after such injuries because the marginal utility of income has been reduced.\textsuperscript{13} Thus, in such contexts if there is any pain and suffering award it should not be at the level that brings the person back to the pre-accident level of utility because of the diminished utility value that such compensation provides.

Based on a contingent valuation survey, Calfee and Winston (1993) found that people are not willing to purchase insurance for pain and suffering losses from accidents and illnesses, though they did express a willingness to purchase coverage for losses in income and related economic losses.\textsuperscript{14} However, in an experimental study of people’s interest in purchasing insurance for pain and suffering losses, Avraham (2005) found that insurance for these losses was attractive, as was insurance for financial harms. The results in his student experiment found that there was a demand for pain and suffering coverage for both severe and minor injuries, and the demand for such insurance increases to the extent that there is a desire to send price signals to the manufacturer so that the experiment’s focus included deterrence as well as optimal insurance concerns.

In addition to a potential insurance function, pain and suffering awards could simultaneously serve a deterrence role. Deterrence more properly may be the function of a punitive damages award in a case in which providing economic incentives for the injurer to take care plays a fundamental role.\textsuperscript{15} How such damages should be set is considered below after reviewing the closely related hedonic damages component.

The American Law Institute (1991) summarized a series of categories of nonmonetary loss:

Pain and suffering is a term that actually covers a number of categories of non-pecuniary loss, the most important of which are the following:

(1) Tangible physiological pain suffered by the victim at the time of injury and during recuperation, a period that may be lengthy but that is more often brief.

(2) The anguish and terror felt in the face of impending injury or death, both before and after an accident. Claims for this kind of harm have now become staple fare in suits arising from airplane crashes.

(3) The immediate emotional distress and long-term loss of love and companionship resulting from the injury or death of a close family member.

(4) Most important, the enduring loss of enjoyment of life by the accident victim who is denied the pleasures of normal personal and social activities because of his permanent physical impairment, a loss of which may not be perceived by individuals who suffer brain damage.

\textsuperscript{12} Viscusi (1988) reviews empirical estimates on the value of bequests.

\textsuperscript{13} The welfare losses of serious job injuries alter the structure of utility functions, as shown in Viscusi and Evans (1990).

\textsuperscript{14} For a critical commentary on this article see Viscusi (1993).

\textsuperscript{15} Hersch and Viscusi (2010) describe this approach.
An example of jury instructions listing the various components of noneconomic loss is the suggested standard jury instruction for the state of Pennsylvania:16

The plaintiff has made a claim for a damage award for past and for future noneconomic loss. There are four items that make up a damage award for noneconomic loss, both past and future: (1) pain and suffering; (2) embarrassment and humiliation; (3) loss of ability to enjoy the pleasures of life; and (4) disfigurement.

Specifying these categories provides jurors with the list of damages components that should be considered but does not indicate how they should construct the values for these damages. The most elaborate instructions are for the pain and suffering component, but once again even the detailed description of the damages category does little to provide any practical guidance to jurors as to how to set these values and does not establish a coherent framework linked to any economic model of pain and suffering compensation:

First, the plaintiff must have experienced pain and suffering in order to be able to claim damage awards for past noneconomic loss and for future noneconomic loss. You are instructed that the plaintiff is entitled to be fairly and adequately compensated for all physical pain, mental anguish, discomfort, inconvenience, and distress that you find [he] [she] has endured from the time of the injury until today and that the plaintiff is also entitled to be fairly and adequately compensated for all physical pain, mental anguish, discomfort, inconvenience, and distress you find [he] [she] will endure in the future as a result of [his] [her] injuries.17

The vagueness of these instructions does not provide jurors with an operational basis to set pain and suffering awards. As a result, the setting of pain and suffering award amounts is susceptible to the influence of framing effects, which have been tested experimentally by McCaffery, Kahneman, and Spitzer (1995). Their study found that selling price and make whole values were quite different. In practice, plaintiff attorneys may ask jurors to value the pain and suffering for a small unit of time and then scale up this amount to obtain a total damages amount. This unit damages approach, which was popularized by attorney Melvin Belli, is not permitted in many states (Viscusi 1991). The linear extrapolation also lacks any sound economic foundation and will overstate the willingness-to-accept amount.

Noneconomic damages are not a minor adjunct to victim compensation amounts, but in some cases can be the dominant part of the award.18 Using closed claims medical malpractice data from Texas and Florida, Hersch, O’Connell, and Viscusi (2007) estimate the economic damages share by injury type and age group: 36 percent for nonfatal injuries to those under 18, 16 percent for nonfatal injuries to those age 18 and older, 35 percent for fatal injuries to those under age 18, and 25 percent for fatal injuries to those 18 and older. The share of compensation for noneconomic damages and exemplary damages consequently constitutes the majority of all compensation. For other insurance lines, the role of noneconomic damages is also substantial. For closed product liability claims, with positive bodily injury payments, the pain and suffering share ranges from 26 percent to 57

16 See Pennsylvania Supreme Court Committee (2011).
17 Ibid.
18 For a description of various tort liability data sets, see Helland, Klick, and Tabarrok (2005).


Table 18.1 Noneconomic damages for different types of tort cases, conditional on positive noneconomic damages Civil Justice Survey of State Courts data, 2005*

<table>
<thead>
<tr>
<th>Case Type</th>
<th>Mean</th>
<th>Median</th>
<th>Mean/Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor vehicle tort</td>
<td>483,380</td>
<td>15,000</td>
<td>32.23</td>
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<tr>
<td>Premises liability</td>
<td>665,120</td>
<td>125,000</td>
<td>5.32</td>
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<td>Products liability (asbestos)</td>
<td>2,936,200</td>
<td>1,250,000</td>
<td>2.35</td>
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<tr>
<td>Products liability (other)</td>
<td>7,794,600</td>
<td>368,240</td>
<td>21.17</td>
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<tr>
<td>Intentional tort</td>
<td>583,170</td>
<td>85,000</td>
<td>6.86</td>
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<td>Malpractice (medical/dental)</td>
<td>1,043,900</td>
<td>472,580</td>
<td>2.21</td>
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<tr>
<td>Malpractice (other professional)</td>
<td>1,050,000</td>
<td>1,050,000</td>
<td>1.00</td>
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<tr>
<td>Slander, libel, defamation</td>
<td>1,475,000</td>
<td>200,000</td>
<td>7.38</td>
</tr>
<tr>
<td>Animal attack</td>
<td>59,745</td>
<td>20,000</td>
<td>2.99</td>
</tr>
<tr>
<td>Conversion</td>
<td>34,933</td>
<td>25,000</td>
<td>1.40</td>
</tr>
<tr>
<td>False arrest/imprisonment</td>
<td>662,500</td>
<td>662,500</td>
<td>1.00</td>
</tr>
<tr>
<td>Other negligent act/unknown tort</td>
<td>612,250</td>
<td>202,500</td>
<td>3.02</td>
</tr>
<tr>
<td>All torts (total damages awarded)</td>
<td>675,360</td>
<td>40,000</td>
<td>16.88</td>
</tr>
</tbody>
</table>

Note: * Calculations by the author using CJSSC data are conditional on a positive compensatory damages award and positive noneconomic damages for the case type.

percent by injury type, and the share ranges from 58 percent to 69 percent for cases that also have positive pain and suffering awards (Viscusi 1988).

Tables 18.1 and 18.2 present the mean and median levels of noneconomic damages awards for different tort groups in the 2005 Civil Justice Survey of State Courts (CJSSC) data.

While the levels of noneconomic damages in these tables pertain to court verdicts, the patterns of pain and suffering for settled cases are similar to tried cases in that more severe injuries command greater pain and suffering amounts. The cases included in Table 18.1 are restricted to those with positive awards for noneconomic damages, while Table 18.2 includes all cases with positive compensatory damages awards even if the level of noneconomic damages is zero. Here I focus on Table 18.1 as these estimates do not include the large number of zero values that are apparent in Table 18.2. There is substantial heterogeneity in the awards both within and across case types. For all torts, the mean noneconomic damages award of $675,360 is over an order of magnitude greater than the median value. Similar but not as extreme disparities in mean and median values are displayed within particular case types. Motor vehicle tort cases generate much lower noneconomic damages award levels than do products liability and medical malpractice cases, which no doubt contributes to the much lower profile of auto liability cases within the general context of all targeted tort reforms.

Econometric analysis of pain and suffering awards for a large sample of closed product

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19 Viscusi (1988) provides an analysis of closed product liability claims including cases tried to verdict, dropped cases, and settled cases.
### Table 18.2 Noneconomic damages for different types of tort cases Civil Justice Survey of State Courts data, 2005*

<table>
<thead>
<tr>
<th>Case Type</th>
<th>Mean</th>
<th>Median</th>
<th>Mean/Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor vehicle tort</td>
<td>206,240</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>Premises liability</td>
<td>382,950</td>
<td>12,000</td>
<td>31.91</td>
</tr>
<tr>
<td>Products liability (asbestos)</td>
<td>1,404,300</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>Products liability (other)</td>
<td>2,063,300</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>Intentional tort</td>
<td>286,640</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>Malpractice (medical/dental)</td>
<td>774,710</td>
<td>248,000</td>
<td>3.12</td>
</tr>
<tr>
<td>Malpractice (other professional)</td>
<td>67,742</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>Slander, libel, defamation</td>
<td>414,840</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>Animal attack</td>
<td>23,471</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>Conversion</td>
<td>2,496</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>False arrest/imprisonment</td>
<td>220,830</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>Other negligent act/unknown tort</td>
<td>265,550</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>All torts (total damages awarded)</td>
<td>307,160</td>
<td>0</td>
<td>NA</td>
</tr>
</tbody>
</table>

*Note:* Calculations by the author using CJSSC data are conditional on a positive compensatory damages award for the case type.

Noneconomic damages in tort cases reveal many systematic patterns. Injuries with large financial losses also receive higher pain and suffering awards. However, there is not a simple mark-up of economic damages because the awards vary with injury type as amputations, bruises, and cancer receive more pain and suffering compensation, while fractures receive less. Pain and suffering awards also vary with other aspects of the case, including premiums for strict liability and negligence claims as well as lower payment levels when the victim has received collateral payments.

The patterns of awards for different injury types in the U.S. have many parallels with those in other countries. Using data from 19 European nations, Sugarman (2006) finds that the highest award categories based on predictions by tort damages experts in those countries are for catastrophic injuries such as quadriplegia and blindness. The overall structure of the damages award distribution by injury type is similar to that in the U.S. in that the most severe physical injuries receive high levels of compensation. However, the median pain and suffering awards for the different injury categories in the U.S. dwarf those levels in Europe. For example, U.S. pain and suffering awards are more than ten times European awards in cases of blindness and quadriplegia. Note that loss of enjoyment of life is not a separate damages component in Europe, which may contribute to this result. The presence of substantial noneconomic damages for fatalities differs from practices in European countries such as the Netherlands and Belgium where such compensation is zero or very low.

To assess the reasonableness of pain and suffering awards, Vidmar and Rice (1993) ran an experiment in which both people waiting in line for jury duty and licensed arbitrators were asked to rate the severity of different harms, such as severe and painful burns. They

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20 The results reported in Viscusi (1988) equate noneconomic damages with pain and suffering.
found a close relationship between the awards by the two groups, but smaller awards and less variability for the awards specified by the arbitrators.

4. HEDONIC DAMAGES

In many states, such as New Mexico, one element of damages in personal injury cases is for the loss of enjoyment of life. Translating this damages component into an economics formula is not feasible. Moreover, the jury instructions for this damages component provide little practical guidance for approaching the task of establishing these damages values. One of the more specific instructions with respect to the criteria that should be considered is that provided by the state of Louisiana:

Plaintiff has claimed as a part of his damages that he has suffered loss of enjoyment of life in addition to the other physical and mental damages that he asserts. As with all other aspects of damages claims, you have much discretion as to whether any such damages should be awarded, and in what amounts. In this connection, you may take into account plaintiff’s interests and way of life and the extent to which he may have suffered damage with respect to it which is separate from his other physical and mental damage.21

Translating this guidance into a concrete procedure of assessing damages is not feasible. Indeed, how these instructions relate to an economic formulation is never indicated.

In an effort to fill this void, some economists have advocated the use of the value of statistical life (VSL) as a measure of the loss of enjoyment of life. The VSL is a measure of the money-risk tradeoff for very small risks of death. Thus, if a person is willing to work on a job that poses an annual death risk of 1/10,000 for extra compensation of $900 per year, the VSL is $9 million (i.e., $900/(1/10,000)). Or, viewed somewhat differently, if there were 10,000 people each of whom faced a risk of death of 1/10,000, so that among these workers there would be one expected death, the required compensation to attract them to the job would be $9 million. These valuation amounts should reflect the person’s anticipation of all the financial losses and nonfinancial losses, including the pain and suffering associated with the death and the person’s anticipation of the value of the grief experienced by survivors. This valuation includes economic loss so that also adding economic damages will result in double counting.

Estimates of the VSL based on labor market studies are routinely used by U.S. government agencies to value risk reduction benefits as part of regulatory impact analyses. There has been considerable discussion in the literature of the pros and cons of using the value of statistical life to set levels of hedonic damages, with much of it written by economists who testify either for or against this approach.22 One legitimate use of these VSL estimates in the tort liability context is to use these values to determine whether companies are negligent.23 Thus, for example, if an alternative automobile design increased the price

21 See Johnson (2001).
23 There is, of course, the additional issue of whether one should use a willingness-to-pay (WTP) measure or a willingness-to-accept (WTA) measure. Arlen (2000) correctly suggests that
of the car but across the entire model saved lives at a cost that did not exceed $9 million per expected life saved, the company should be found negligent if it did not adopt that improvement. Use of the VSL to assess liability is appropriate. However, as a measure of damages, the VSL will generally provide excessive levels of insurance because people typically will not choose to transfer that much money to their estates. The VSL does, however, provide a pertinent measure of punitive damages in situations where the objective is to identify a damages value that will establish efficient levels of deterrence.\textsuperscript{24}

The common attempts to use hedonic damages measures of the VSL have been with respect to compensatory damages rather than punitive damages. A minority of jurisdictions have permitted the presentation of VSL evidence to provide guidance to jurors in determining the value of the loss of enjoyment of life.\textsuperscript{25} Even if the damages are permitted, the question then becomes how they relate to the specific case. The $9 million figure cited above is a median estimate based on labor market studies, which reflect the preferences of the workers included in these analyses. This value is not a natural constant and will differ for other groups with quite different preferences. The VSL reflected in people’s decisions varies based on age, gender, wealth, and a variety of other factors. To the extent that plaintiff experts adopt a one-size-fits-all approach to hedonic damages, the use of the VSL will not be pertinent to the facts of the specific case. Thus, in addition to being an inappropriate basis for establishing levels of compensation, the damages values do not pertain to the loss of enjoyment of life for the specific person injured.

Some legal scholars have expressed an alternative point of view and support a damages regime in which hedonic damages play a central role. In particular, Posner and Sunstein (2005, 590) strongly advocate the provision of hedonic damages as a compensation component: “What cannot be defended is the total exclusion of hedonic damages in wrongful death actions.” Posner and Sunstein subsequently specify a formula for how hedonic damages should enter the assessment of economic damages as well as the procedure for identifying the pertinent VSL estimate to be used in setting the hecconic damages amount. Their formula includes three components: i) the provision of hedonic damages, ii) coverage of nonmonetary losses to survivors such as grief, and iii) the financial loss experienced by survivors.\textsuperscript{26}

It is useful to consider the different components of their measure of compensatory damages. The first component is what they term the “hedonic loss of the victim.” In their view, this value could be determined in two different ways. One approach is to simply ask the jury to determine a “value of life’s pleasures lost by the victim.” However, they view this approach as being too abstract. And, following the same line of reasoning that I indicated above, how does one even conceptualize the value of life’s pleasures? Framing jury instructions in this manner begs the question of what the damages value should be.

\textsuperscript{24} See Hersch and Viscusi (2010).
\textsuperscript{25} For a review of some of these cases, see Ireland (2000).
\textsuperscript{26} A detailed discussion of their approach is in Viscusi (2007).
Their second approach for setting the value is to use the VSL. This value, in their view, could come from the victim's VSL based on the amount the victim requires to face a small risk of death. However, such data are rarely available for the risk-taking experiences of any individual. Labor market studies of VSL estimate average values across broad populations of workers and do not identify the VSL amounts linked to any specific workers. One might want to construct such estimates by engaging in the thought experiment of what would the person's willingness to bear risk be. However, ex post, the victim who was killed faced a risk of 1.0 so that the influence of hindsight bias will intrude on any such calculation.

Recognizing the possible difficulties with this approach, Posner and Sunstein suggest that jurors could be provided with VSL evidence such as the “standard $6 million figure.” (587) However, there is nothing particularly standard about VSL estimates as government agencies use different estimates of VSL in their regulatory impact analyses. Indeed, even within the U.S. Environmental Protection Agency there have been differences in the VSL number that is applied. Even if one could produce a consensus estimate of the VSL, applying such an estimate in an individual case is not appropriate because the circumstances of different cases vary. This uniformity is less of a problem for government agencies since an average VSL is being used to value regulations that affect broad population groups rather than linking the value to a specific person. Moreover, the government only uses the VSL for policy benefit assessments. It is not used for compensation purposes in situations in which government agencies are defendants, as when survivors of airplane crash victims are suing the Federal Aviation Administration.

The next two components of the Posner-Sunstein compensation formula are for the monetary and nonmonetary losses to survivors. These components follow conventional practices. However, the inclusion of these components in the Posner-Sunstein framework has a major shortcoming. These losses are already subsumed in the value of hedonic damages, which will already include the individual's assessment of the likely consequences of his or her death. Thus, there is a problem of double counting or duplicative provision for the same loss. In addition, the use of VSL in their first component of damages already leads to excessive compensation, as this value is a deterrence amount rather than an optimal insurance value.

Complicating any assessment of the loss of enjoyment of life is that the losses associated with severe injuries may not be permanent. As Bagenstos and Schlanger (2007) observe for disabilities, there is often adaptation to the injury over time so that disabilities do not lead to the same degree of loss of enjoyment of life as one might initially expect. Similarly, Sunstein (2008) argues that people tend to overestimate hedonic losses because of failure to anticipate adaptation, and that this tendency leads to excessive jury awards. Use of the VSL, which involves a permanent event—death—consequently does not correspond to the duration of most pain and suffering effects.

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28 Sloan et al. (1998) document such an effect for multiple sclerosis (MS) as people with MS are less willing to risk death for a cure than are healthy people being asked what they could do if they had MS. Brain injuries likewise often show a recovery pattern that makes the long-term losses less than the initial harm (Doidge 2007).
5. DAMAGES TRENDS

Table 18.3 provides an overview of the trends in mean levels of compensatory damages awards based on data from the Civil Justice Surveys of State Courts (CJSSC) in 1992, 1996, 2001, and 2005. These data are from national samples of state courts that disproportionately represent the largest counties. Data for other intervening years and years after 2005 are not available. The data include both bench trials and jury trials except in 1992, when only jury trials are included. Because the data are restricted to completed trials, out of court settlements are not represented so that the case mix in the CJSSC is not representative of the mix of all such tort cases. Cases in federal courts are also excluded from the CJSSC data.

The cases included in my tabulations are restricted to those with positive compensatory damages award values. The mean compensatory damages award values in Table 18.3 are in real 2005 dollars so that all awards are in constant dollar amounts based on the CPI-U. The inflation-adjusted award levels increased by 30 percent for tort liability generally, but not all categories exhibited an increase. However, the exceptions involve case types with relatively small number of cases in the sample—intentional torts and professional malpractice.

The different rows in Table 18.3 indicate the average award levels for different categories of tort cases. Over the four different survey years, the category with the lowest level of

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor vehicle torts</td>
<td>285,207</td>
<td>263,441</td>
<td>241,491</td>
<td>379,960</td>
</tr>
<tr>
<td>Premises liability</td>
<td>388,479</td>
<td>443,972</td>
<td>799,673</td>
<td>765,560</td>
</tr>
<tr>
<td>Products liability</td>
<td>993,707</td>
<td>975,596</td>
<td>3,600,642</td>
<td>4,304,400</td>
</tr>
<tr>
<td>Intentional torts</td>
<td>560,739</td>
<td>407,714</td>
<td>497,980</td>
<td>539,110</td>
</tr>
<tr>
<td>Medical malpractice</td>
<td>1,751,554</td>
<td>1,735,361</td>
<td>2,143,182</td>
<td>1,954,200</td>
</tr>
<tr>
<td>Professional malpractice</td>
<td>1,341,832</td>
<td>349,860</td>
<td>899,620</td>
<td>1,028,600</td>
</tr>
<tr>
<td>Slander/libel</td>
<td>262,643</td>
<td>350,420</td>
<td>491,650</td>
<td>1,660,200</td>
</tr>
<tr>
<td>All torts</td>
<td>541,404</td>
<td>473,845</td>
<td>615,487</td>
<td>701,900</td>
</tr>
</tbody>
</table>

Note: * Calculations by the author using CJSSC data are conditional on a positive compensatory damages award. The 1992 CJSSC data pertain only to jury trials. One large award outlier in 1996 is excluded. Award levels are in 2005 dollars using the CPI-U.

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29 For 1992 and 1996 the data include multiple case type labels. The categorizations are based on the first case type listed.
30 Descriptions of the data are presented in U.S. Department of Justice (2001, 2009).
31 One source of the damages increase is the substantial increase in medical prices in excess of inflation rates generally. This has been a longer term phenomenon for several decades. Viscusi (1991) presents analysis of award trends and various inflation rates, including the relatively high medical price inflation rates.
awards is automobile torts. These cases tend to be fairly routine accident cases and have not been linked to any claims of a possible tort liability crisis, though auto insurance rates and all other insurance rates have fluctuated substantially as part of the underwriting cycle in response to changes in interest rates. Two classes of cases that have received substantial attention from the standpoint of rising tort costs are products liability and medical malpractice. These cases experienced substantial increases in mean award levels over these survey periods, with average awards in 2005 exceeding $4 million for products liability and averaging almost $2 million for medical malpractice.\footnote{The professional malpractice and slander/libel categories also have high average award levels, especially in 2005, but the number of cases in these groups is relatively small so that comparisons are less meaningful.} The large stakes involved in these cases no doubt have contributed to the focus of tort liability reform efforts on these case groups.

Two caveats should be kept in mind when analyzing these and other tort damages trends. First, not all injured parties receive compensation. Indeed, most instances of medical error do not lead to successful medical malpractice claims (Studdert et al. 2006). Second, award levels often do not reflect the payments received as the award may be subject to a “haircut,” especially when the award amount exceeds insurance policy limits (Hyman et al. 2007).

Evidence from the RAND civil jury verdict data likewise indicates that jury awards in tort cases have risen over time.\footnote{See Seabury, Pace, and Revill (2004).} The RAND studies of jury verdicts in San Francisco County and Cook County span a 40-year period beginning in 1960. Average awards have increased at rates exceeding the rate of inflation. However, they note that the rate of increase is less than the growth rate of GDP. The growth rate in total GDP is not an ideal reference point for assessing the reasonableness of the growth in average individual awards levels as the GDP reflects increases in the size of the economy. A growing population alone will boost the total GDP without implying that there should be any upward trend in average award levels. Thus, the comparison of an average award per trial with the total level of GDP is mismatched in terms of the nature of the comparison.\footnote{A parallel comparison with the growth in GDP would be the growth rate in total tort damages awards in the economy, not the growth in the average size of an individual award.} For the time period reflected in my Table 18.3 above, there is a real per capita GDP growth rate of 3.3 percent from 1992 to 2005, which is very similar to the growth rate in average awards.\footnote{This rate is calculated using current dollar GDP figures from the U.S. Dept. of Commerce, Bureau of Economic Analysis and inflation data from the Bureau of Labor Statistics.}

Some of the most extreme claims regarding the poor performance of the tort liability system may be overstated. Galanter (1996) provides a review and critique of such assertions as whether there has been an explosion in tort cases and whether there has been any major increase in plaintiff success rates in tort cases. As documented in Viscusi (1991), much of the increase is attributable to the emergence of asbestos litigation rather than a surge in litigation generally.

The average level of compensatory damages awards for different types of personal injuries follows the rough patterns one would expect from a well-functioning liability
Table 18.4  Compensatory damages for different types of injuries in tort cases Civil Justice Survey of State Courts data, 2005*

<table>
<thead>
<tr>
<th>Type of Injury</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lacerations</td>
<td>436,190</td>
<td>37,500</td>
</tr>
<tr>
<td>Lesions</td>
<td>149,630</td>
<td>137,500</td>
</tr>
<tr>
<td>Hemiation</td>
<td>156,980</td>
<td>17,500</td>
</tr>
<tr>
<td>Concussion</td>
<td>51,563</td>
<td>48,750</td>
</tr>
<tr>
<td>Damaged muscle, tendon, ligament</td>
<td>76,607</td>
<td>18,112</td>
</tr>
<tr>
<td>Broken bone(s)</td>
<td>742,060</td>
<td>98,197</td>
</tr>
<tr>
<td>Nerve damage, no paralysis</td>
<td>533,750</td>
<td>24,000</td>
</tr>
<tr>
<td>Facial scars</td>
<td>447,920</td>
<td>58,800</td>
</tr>
<tr>
<td>Chronic pain</td>
<td>103,960</td>
<td>14,130</td>
</tr>
<tr>
<td>Burn(s)</td>
<td>617,980</td>
<td>161,210</td>
</tr>
<tr>
<td>Bleeding</td>
<td>957,540</td>
<td>547,130</td>
</tr>
<tr>
<td>Infection</td>
<td>911,410</td>
<td>689,760</td>
</tr>
<tr>
<td>Loss/replacement</td>
<td>225,990</td>
<td>210,000</td>
</tr>
<tr>
<td>Loss of limb(s)</td>
<td>1,717,500</td>
<td>1,660,200</td>
</tr>
<tr>
<td>Loss of hearing</td>
<td>35,284</td>
<td>35,284</td>
</tr>
<tr>
<td>Loss of sight</td>
<td>1,720,400</td>
<td>250,000</td>
</tr>
<tr>
<td>Loss or impairment of function/ability</td>
<td>2,381,700</td>
<td>215,000</td>
</tr>
<tr>
<td>Paralysis</td>
<td>7,417,500</td>
<td>1,115,500</td>
</tr>
<tr>
<td>Cancer</td>
<td>3,318,800</td>
<td>810,000</td>
</tr>
<tr>
<td>Stroke</td>
<td>400,000</td>
<td>400,000</td>
</tr>
<tr>
<td>Other</td>
<td>1,856,600</td>
<td>287,500</td>
</tr>
</tbody>
</table>

Note:  * Calculations by the author using CJSSC data are conditional on a positive compensatory damages award for the injury type.

system. From the standpoint of insurance of monetary harms, the principal financial losses consist of the present value of lost earnings and medical expenses. Each of these components will tend to be greater for more severe injuries. Likewise, one might also expect awards for pain and suffering to be greater for injury categories involving greater and more permanent physical harm. Table 18.4 presents mean and median compensatory damages data from the 2005 CJSSC.36

For each injury category, the cases considered include only those cases with positive compensatory damages award levels. Injury types that most would regard as potentially catastrophic from the standpoint of individual welfare receive the most substantial awards. These include paralysis, loss of limb(s), loss of sight, and cancer. There is less compensation for injuries that are not life threatening and, in many instances, are temporary, such as damaged muscles, tendons, or ligaments. Despite possible inadequacies in current damages practices, the overall pattern in Table 18.4 reflects many elements of

36 The mean and median estimates are identical for two categories—stroke, which has one observation, and loss of hearing, which has two observations. The median was set equal to the midpoint of these two values. Other cells are not as thin.
reasonableness with respect to the variation in the levels of the awards with the different types of injuries.

6. TORT REFORMS OF NONECONOMIC DAMAGES

The most prevalent type of tort reform pertaining to economic damages pertains to caps on pain and suffering or on noneconomic damages generally. Usually such caps are in terms of specific numerical limits, such as a $250,000 cap on pain and suffering payments. The potential rationales for such limits are that i) the noneconomic damages awards are believed to be more variable and unpredictable; ii) the level of such awards is often very high, imposing substantial economic costs; and iii) there is usually no insurance rationale for these awards. There have also been suggestions that pain and suffering awards are subject to deep pocket effects. Whether there is a deep pocket effect that influences the level of pain and suffering awards in torts cases has long been a matter of speculation. Based on an experimental survey for medical malpractice case scenarios, Vidmar (1993) found no evidence of a deep pocket effect.

I will not provide an assessment of these various rationales and the empirical performance of these reforms as these matters are described in detail elsewhere.\(^{37}\) One principal deficiency of pain and suffering caps is that they generate inequities. Large stakes claims are more affected than smaller claims. There are also differential effects by injury type, with para/quadriplegia, brain damage, and cancer being the most prominent injury categories that are affected by pain and suffering caps.\(^{38}\)

It is instructive to assess the pluses and minuses of limits on pain and suffering from the standpoint of having award levels that provide optimal levels of insurance to the victim. Suppose that the victim has retained an attorney on a contingency fee basis, as is the norm, and that the contingency fee share is one-third of the award amount. Consider a personal injury case in which there is an economic damages amount of $750,000 coupled with an award of $750,000 for pain and suffering, leading to a total award of $1.5 million. The attorney will receive a payment of $500,000, leaving the victim with full coverage of economic loss and an additional $250,000 for pain and suffering. If, however, there is a $250,000 pain and suffering cap, the total award is reduced to $1 million, of which $333,000 is for attorney fees so that the victim will not be able to cover the total economic losses in the presence of a hard pain and suffering cap coupled with large economic losses. Tort compensation will consequently fall short of providing optimal insurance for economic damages given the presence of legal expenses coupled with limits on noneconomic damages components.

Such difficulties are not an inherent aspect of tort reforms directed at limiting noneconomic damages amounts. For example, if the cap were set in terms of some proportional basis, such as noneconomic loss not exceeding economic damages, then this problem would not arise. But such limits could create difficulties as well for cases involving severe harms but few economic losses.

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\(^{37}\) See Sloan and Chepke (2008), and Born, Viscusi, and Baker (2009).

\(^{38}\) These results are from Viscusi (1988) for products claims.
An inventive solution to addressing the economic losses of claimants and attorney fees is Jeffrey O’Connell’s (1976) early offer proposal, which attempts to apply no-fault principles more broadly. Under the early offer regime, a defendant would have the option of settling the claim for economic loss plus the value of reasonable attorney fees. If the claimant did not accept the offer, the liability standard would be raised. For medical malpractice cases, the liability standard would become gross negligence if claimants refused a settlement offer. Using medical malpractice claims data from Texas, Hersch, O’Connell, and Viscusi (2007) calculate the substantial reduction in defendant costs that would result from this approach. Reduced defendant costs imply lower compensation levels for claimants, but such effects can be diminished if legal fees are limited under such proposals.

An alternative to pain and suffering caps that has received considerable discussion in the literature is to establish pain and suffering schedules. Thus, jurors would be presented with guidelines regarding the appropriate levels of pain and suffering awards, usually based on past cases. The Reporters’ Study by the American Law Institute (1991) advocated a similar approach. The advantage of all such schedules is that they will reduce the variability associated with awards by providing juries with more concrete guidelines than they would have based on the quite open-ended jury instructions. A question raised by the scheduling proposals is where the schedules would come from and, if the schedules simply are averages of current awards, the main effect might be to reduce the variability of the awards, but not the level. Replicating current award patterns will lead to potential overcompensation of less severe harms and under-compensation of more severe harms.

To avoid a pain and suffering approach that imposes uniform scheduling of awards, Bovbjerg, Sloan, and Blumstein (1989) specify three alternative approaches that might be used. First, jurors could be presented with a matrix of award levels in which the damages amount varies based on the injury severity and the age of the victim. The award levels shown would be based on previous jury awards, and the authors selected age as a determining variable since it is observable, though possibly not always correlated, with the pain and suffering experienced. Second, jurors could be presented with various scenarios for injuries with different levels of severity and the associated award levels for each, and they can use these scenarios to establish benchmarks for what the appropriate award should be. Third, there could be a system of flexible floors and a ceiling for the awards where, as with the pain and suffering matrix, these values would depend on the victim’s age and injury severity.

Irrespective of the specific approach taken, any scheduling system will produce anchoring effects in jury decision making. Schedules will not be neutral, and they will usually establish a starting point for jury deliberations. That there may be anchoring effects is not necessarily undesirable if the values of the anchors are more in line with what the pain and suffering award should be given the nature of the injury. Because of this likely influence, the construction of the pain and suffering scheduling approach is important.

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39 For an extensive discussion of these proposed approaches and an update on their desirability, see Avraham (2006).
40 The potential utilization of victim age in setting pain and suffering awards is also a feature of some other pain and suffering proposals as well. For example, Avraham (2006) suggests that pain and suffering amounts be determined by using age-adjusted multipliers applied to medical costs.
Another remedy for setting of pain and suffering damages advocated by Calfee and Rubin (1992) is to use a contractual approach in which the contract would specify the amount of pain and suffering damages should an injury occur.\textsuperscript{41} This approach would internalize the pain and suffering insurance premium as part of the purchase price so that consumers would be able to purchase the amount of pain and suffering coverage that they desire and the overall economic cost of the pain and suffering coverage would be known to the consumer and not treated as a free economic good. However, as Geistfeld (1994) and Arlen (2010) point out, such contractual approaches can lead to inefficiencies. Other proposals to impose greater structure on tort damages awards include the development of a reporting system for damages awards that might have precedential value for future awards and replacing current lump sum damages payments with service contracts that provide for the necessary care of the injured party.\textsuperscript{42}

The awards for pain and suffering ideally should be based on the nature of the injury rather than the cause of the injury. Using two hypothetical experiments, Wissler et al. (1997) find that people are more responsive to the nature and welfare consequences of the harm than they were to the cause of the injury. Another approach to establishing the pain and suffering compensation is to elicit public valuations. Ubel and Loewenstein (2008) suggest a procedure whereby i) citizens would rank injuries by order of severity, ii) legislation would set the appropriate and maximum pain and suffering values for each injury category, and iii) juries would select the appropriate ranking of the injury from this roster.

Solutions to the establishment of a more systematic approach to pain and suffering involve potential tradeoffs. Chief among these is that imposing greater uniformity on awards will reduce their variability and substantial uncertainties in the level of pain and suffering payments. However, such uniformity will decrease the ability of pain and suffering awards to be targeted at the individualized aspects of the particular case.\textsuperscript{43}

Limits on noneconomic damages have been very common tort reforms. As of 2005, there were ten states that had such caps in place.\textsuperscript{44} A meaningful procedure to assess the effect of noneconomic damages caps is to analyze the effect of these caps based on a multivariate statistical analysis. The series of papers that I have written with Patricia Born have utilized data by firm and by state on all medical malpractice insurance losses. This approach captures trials, settled cases, influence of "haircuts" on the amounts paid, and possible jury reactions to caps by increasing damages components that are not capped. In contrast, the most restrictive approach is that of analyses considering jury trials alone, as such studies are subject to case selection effects and levels of damages payments below the amounts of court verdicts.

Our papers considered both medical malpractice and general liability and addressed a wide variety of reforms, including those pertaining to collateral source rules, punitive

\textsuperscript{41} In situations where a contractual approach is not feasible, they suggest that use of a negligence approach to determining liability is superior to strict liability.


\textsuperscript{43} This tradeoff and ways to mitigate the adverse consequences of pain and suffering proposals is discussed by Blumstein (2005).

\textsuperscript{44} These states were Montana, North Dakota, South Dakota, Maine, Mississippi, Ohio, Oklahoma, Texas, Florida, and Wisconsin. See Avraham and Bustos (2010).
damages, and noneconomic damages. The most consistently influential reforms are those pertaining to noneconomic damages. For both medical malpractice and general liability insurance, noneconomic damages reforms have a consistent negative effect on insurer losses and loss ratios (i.e., losses/premiums), which is an inverse measure of firm profitability. The incidence of the reform effects across the insurance market varies quite systematically. For both general liability and medical malpractice lines of insurance, the greatest benefit of damages caps is through reducing the loss ratios of those firms that would otherwise be the least profitable (Born and Viscusi 1998; Viscusi and Born 1995, 2005; Born, Viscusi, and Baker 2009).

7. CONCLUSION

Although damages in tort cases are usually treated in theoretical models as readily determined values, in practice there are considerable controversies. For economic damages components, the economic methodology for what damages should be is closely aligned with the legal principles for determining damages. There will continue to be matters for debate, but the battle lines for these controversies, such as the choice of the appropriate discount rate, are sharply delineated.

Noneconomic damages have evoked much greater controversy, as there continues to be a debate over the proper role of such damages as well as the legitimacy of including components such as hedonic damages for the loss of enjoyment of life. Chief among the inherent problems of noneconomic damages is that there is no economic damages conceptual model that can be used to set these damages. This shortcoming is manifested as well in the typical jury instructions for pain and suffering, which fail to provide precise or even useful guidance for setting these awards. So long as noneconomic damages remain ill defined there will continue to be wide variation in their assessment and an impetus for a variety of alternative reform proposals.

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