COMMUNITY VERSUS MARKET VALUES OF LIFE

Robert Cooter* and David DePianto**

Abstract:

Individuals and communities make choices affecting the risk of accidental death. Individuals balance risk and cost in market choices, and communities develop social norms prescribing how much risk people may impose on others (and, in some instances, on themselves). In both cases, the balance between risk and the cost of reducing it implies a value of a statistical life or "VSL." Applying this novel distinction to the existing VSL literature, we find that community VSLs are significantly smaller in magnitude than market values: whereas market VSLs average roughly $7 million, community VSLs—those based on socially approved behaviors—average roughly $2-3 million. In terms of magnitude, community VSLs therefore fall between the values of life determined through tort litigation (which average under $1 million and vary widely) and those used in the regulatory context (which are derived from market VSLs and commonly range from $5-$7 million).

This paper argues that courts and regulators should base the legal value of a life on the community value. Adopting the community value would roughly double current tort awards and halve the cost of death in regulating safety. The legal value of a life should equal the community value for practical and theoretical reasons. The practical reasons include reliability and measurability. The community value is more reliable than unaided intuition of jurors and no harder to measure than the market value. The theoretical reasons are reasonableness and validity. The community value is more reasonable because social norms embody collective judgments over time, which are less susceptible to irrationality and cognitive bias than unaided intuition or market value. The community value is more valid because the strictness of the standard of care and the seriousness of the harm belong to the same calculation. In torts, the current standard of care is too high relative to damages caused by its violation. In making safety regulations, the value of a life is far too high relative to damages in torts. These misalignments distort incentives for care and activity. Adopting the community value as the legal value would potentially place torts and safety regulation on the same, valid foundation.

*Robert Cooter is Herman Selvin Professor of Law, University of California at Berkeley.
**David DePianto is an Associate Professor at the SMU Dedman School of Law.
Communities develop social norms about accidental harm to others, which prescribe how much people ought to sacrifice to reduce external risks. These prescriptions balance the cost of precaution and the reduction in the risk of harm, which implies a community valuation of the harm at risk. Similarly, individuals make market choices about the risks of accidental harm to themselves, which reveal their implicit valuations of risks to themselves. Our general term for the implicit valuations of harm revealed by social norms is “community damages.” Where the risks in question are fatal, social norms of precaution thus imply "community values of a statistical life" or “community VSLs.” Individual safety decisions, by contrast, imply "market VSLs.”

To date, the economic literature on damages and the value of life has ignored the important distinction between community valuations of life and their market counterparts. Merging the economics of damages with the study of social norms, this paper explores the theoretical differences between community and market VSLs and provides average dollar values for both. Ultimately, we endorse the use of community VSLs in legal contexts where the valuation of life is necessary, either for remedial purposes or the setting of precautionary/regulatory standards.

Our first observation is empirical. After reorganizing the existing VSL literature to account for the community/market distinction, we find a significant difference in magnitude between community and market VSLs. Based on the small pool of existing VSL studies that reflect community judgments about risk, we find that community VSLs average approximately $2-3 million. Market VSLs, by contrast, center around $7 million. In terms of magnitude, community VSLs thus fall between the values of life determined though tort litigation (which average under $1 million and vary widely) and those used in the regulatory context (which are derived from market VSLs and commonly range from $5-7 million).

After discussing the relative magnitudes of community and market VSLs, we make the theoretical case for community VSLs in the context of tort law, where it is most straightforward. In determining legal fault or “reasonable care,” courts often rely on the community standard of care. In determining legal damages, however, courts do not appear to rely on the community valuation of harm. Judge Hand’s famous equation \( B = P \times L \)\(^1\)

\(^1\) In the Hand Rule equation, “\(B\)” represents that marginal cost of precaution, “\(P\)” reflects the marginal reduction in the likelihood of injury given the investment in precaution, and “\(L\)” stands for the magnitude of harm. The full equation, discussed more fully in Section II, thus conveys the notion that reasonable precaution is that which is cost-
explicitly links, and balances, the costs of precaution and the expected harm associated with an activity. Though the rule is typically conceived as a way to compute the legal standard of care in the absence of an accepted community standard, the rule can also be used to estimate appropriate damages in the presence of a clear community standard. Community damages and community VSLs are the result of applying the Hand Rule in the latter fashion, with social norms supplying content to the “B” and “P” terms. For example, if social norms dictate that people should obey the speed limit, the cost and risk reduction associated with driving the speed limit could determine damages for injuries, including death, that the social norm is aimed at preventing.

Community damages would prove useful to courts for several reasons. First, because community damages rely exclusively on risk/money tradeoffs that are backed by well-accepted social norms, they fit seamlessly within the current rules on tort. The “reasonable person” takes her cues from the community, and where the community dictates certain precautions through social norms, it also provides an implicit valuation of the “goods” being protected. The more precaution the community requires, the greater the community’s valuation of the harm at risk, and vice versa.

Further, when courts determine negligence by reference to a community standard and determine compensation by community damages, “misalignments” are avoided and potential injurers receive clear signals about the consequences of their activities. Rationally self-interested actors would respond to community damages by conforming to community standards (or their quantitative equivalent). Conversely, legal damages justified given the expected harm.

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2 The name given to these types of damages in a prior, related paper was “Hand Rule Damages.” See Robert Cooter, Hand Rule Damages for Incompensable Losses, 40 SAN DIEGO L. REV. 1097 (2003); Robert Cooter and David DePianto, Incompensable Harms: Damages for Death and Serious Bodily Injury, in RESEARCH HANDBOOK ON THE ECONOMICS OF TORTS (2013, Jennifer Arlen ed.).

3 See, e.g., Restatement (Third) of Torts: Phys. & Emot. Harm § 13 (2010). Though custom is not dispositive on the issue of reasonable care, we discuss, in Section ___ why the norms that underlie community VSLs would likely be strong evidence of reasonable precaution.

4 Ariel Porat, Misalignments in Tort Law, 21 Yale L.J. 82 (2011). Porat analyzes misalignments between the risk of liability and the risk used to set the standard of care. He writes: misalignments occur when “the risks that are accounted for in setting the standard of care are different from the risks for which liability is imposed and damages are awarded.” We discuss the misalignment between the risks used to set the community standard of care and the damages imposed for accidents caused by its violation. In brief, we discuss the misalignment when different values are used in Hand’s equation to determine breach and damages.

5 See Section III, infra.
below community damages give injurers incentives to violate community standards, and legal damages above community damages give incentives to over-perform relative to community standards. Community damages thus create efficient safety incentives.

Aside from efficiency, many people think that fairness demands alignment between precautionary standards and damages. It seems fair for safety standards and liability for their violation to reflect the same values for harm. Conversely, it seems unfair for injurers to face low liability for violating serious social norms, or for injurers to face high liability for violating trivial social norms. Accordingly, either damage awards must be adjusted to align with social norms or social norms must be altered to be consistent with damages. Because social norms are already used in tort as guides for reasonable precaution, and because norms are more reliable than jury guesses as to the value of life, we suggest that damages conform to social norms rather than the reverse. Of course, if communities decide to alter social norms after observing the implicit value of life (and the damage awards) they imply, damages would be reduced accordingly. This educational aspect of community VSLs—their ability to publicly convey the implicit values of life associated with norms of precaution—is yet another reason to adopt community VSLs in tort.

Using community damages in the tort context would entail at least two noteworthy practical implications. First, by supplying a coherent rationale for estimating damages in wrongful death cases, community damages would make damages more uniform. Second, based on our empirical findings, using community VSLs would increase the value of life in the tort context by 2-3 times. Implementing community damages would therefore incentivize more care and/or less risky activity, leading to fewer fatal accidents.

The argument for community VSLs can be extended to the regulatory context, though a full defense of this point is beyond the scope of the paper. Like tort law, safety regulations impose standards of precaution on risky activities. We argue that the community’s value of non-pecuniary harms is more appropriate than the market value when making safety regulations. Replacing market values with community values would reduce the regulatory value of a statistical life significantly, from the commonly cited (market VSL) average of roughly $7 million to approximately $2-3 million. After this change, safety regulations would tolerate more fatal accidents—the opposite effect community damages would have in tort. If

\[6\] See Section II, infra.

community values were also accepted in the regulatory context, the standards of care in torts and safety regulations would converge; an economically desirable result, especially when tort liability and regulations apply to the same type of accident or activity. Conversely, awarding damages for tortious death of less than $2 million contradicts valuing a statistical life at over $6 million when setting the applicable regulatory standard.

The remainder of the paper is organized as follows. Part I provides background on the economic approach to tort damages. Part II gathers empirical estimates from the VSL literature and compares community values of life with market values of life. Part II also gives a detailed account of community damages and their relationship with social norms. Part III makes the economic case for the use of community damages – and thus community values of life – in cases of wrongful death and regulation. We conclude by offering some general thoughts on the source of the divergence in magnitude between community and market VSLs.

I. THE ECONOMICS OF TORT DAMAGES
(AND ITS INCOHERENCE AS APPLIED TO FATAL INJURIES)

From an economic perspective, making an injured party whole\(^8\) for economic losses is straightforward: simply award damages that reflect the market value lost due to the injury. Tortious behavior resulting in the destruction of a car, for example, would yield damages equal to the market value of the car. By forcing injurers to internalize the costs of their risky activities, compensatory damages that equal the market price of replaceable market goods generally gives injurers good incentives for precaution.\(^9\) Though certain types of economic damage are more difficult to calculate than others – for example, reductions in earning capacity and destruction of unique or sentimental items – the relative ease with which economic damages are calculated makes them, as a category, relatively uncontroversial.

\(^8\) Compensatory damages – the most common form of damages issued in tort cases, and the subject of this inquiry – are intended to restore the injured party, by way of monetary transfers, as closely as possible to their pre-loss state. There are various, alternative ways to express the compensatory ideal, most of which are used interchangeably by courts, lawyers, and scholars: to make the victim (or, in the case of wrongful death, the victim's estate) “whole,”\(^9\) to restore them to the status quo ante,\(^8\) or, in economic terms, to award an amount of money such that they are indifferent between no injury and injury-plus-damages.

The problem is far more complex, however, when the market does not supply any clear guidance regarding the value of the injury. Tort cases, of course, frequently involve injuries that are not easily expressible in terms of market value. Serious bodily injuries and death arising from negligence are commonplace, thus necessitating a method for calculating appropriate damages across a wide spectrum of physical impairment, not to mention pain, suffering, and death. Most people, however, have no idea what “compensation” means for death of a loved one or serious bodily injury. While compensation for economic harms makes perfect sense, compensation for non-economic harms makes little sense to most jurors.

Economics represents perfect compensation by using indifference curves or curves of constant utility. If two outcomes lie on the same curve, an individual is indifferent between them. The individual whose preferences are reflected in Figure 1, for example, would be indifferent between points \((H_0, W_0)\) and \((H_1, W_1)\), where \(W\) represents wealth and \(H\) represents another good such as health. Indifference curves are useful in representing damages because perfect compensation should, at least theoretically, make the injured party indifferent between their pre-injury state and their post-injury state. Thus, in Figure 1, an injury of magnitude \((H_0 - H_1)\) is perfectly compensated with a damage award of \((W_1 - W_0)\).

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Figure 1

- **Wealth**
  - \( w_0 \)
  - \( w_1 \)
  - Increase in wealth = damages

- **Health**
  - \( H_0 \)
  - \( H_1 \)
  - Decrease in health = injury

- **Indifference Curve**
  - Individual is indifferent between \((H_1, w_1)\) & \((H_0, w_0)\)
For a variety of reasons, however, indifference curves are inapplicable to the analysis of death and serious bodily injury. Indifference curves are inapplicable in such cases because preferences over death or serious injury are incomplete. Incomplete preferences mean that the some points are incomparable to others. When two points are incomparable, the person cannot say whether one is preferred to the other, or whether he is indifferent between them. Incomplete preferences would imply holes in the utility curves of Figure 1.

Incomplete preferences sometimes result from inexperience. Most people have no opportunity to buy or sell non-market goods, so they do not think about their dollar value. Preferences for unfamiliar things are often completed when circumstances require choosing among them. Thus, incomplete preferences are sometimes completable. Most individuals, for example, can figure out how to rank mobile phones when they need to buy one. Similarly, if required to do so, many people could probably rank a life with slightly poorer vision against one with slightly poorer hearing, or even attach a dollar value to either of these physical impairments. Monetizing minor aspects of health, in other words, is possible for many people.

Serious bodily injury or death is different in two ways. First, experience is inevitably limited – no one experiences his own death twice and few people suffer severe injury multiple times. When confronted with impending death or serious injury, few people can buy their way out. Experience with one’s death or bodily harm is so rare that asking about dollar equivalents resembles asking a Bostonian whether she prefers woodpecker or woodchuck for dinner.

Second, besides lacking experience, many people refuse to engage in this line of thought. Many individuals will not contemplate choosing whether their eldest or youngest child dies. They focus on avoiding such a choice, not figuring out how to make it. Similarly, most people would be hard pressed to find a money-equivalent for the death of a child. They focus on avoiding circumstances where they would have to choose between money and life. In such cases, their preferences are incomplete. For many individuals, these preferences are incompletable, because completing them would violate a moral or religious taboo that prohibits the relevant tradeoff.

Whether the obstacle is inexperience, psychology, religion, or ethics,

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11 See Cook and Graham (1977)
14 According to psychologists, people erect boundaries between some categories of thought. When they do, they struggle to cross these boundaries of thought. Recent work in psychology, building on older traditions in sociology, suggests that different circumstances trigger different orientations towards the world. Some circumstances trigger the “intuitive
most people have incomplete preferences over death and bodily injury, meaning that do not know how to trade them off against money. Consequently, the compensation principles applied in tort litigation—which require juries to estimate damages so as to make the injured party “whole” or place them in a pre-injury position—are incoherent.

A. Damage Estimation in Court: The Current Process

Notwithstanding the above analysis, courts still appeal to unaided juror intuition and the concept of compensation when estimating damages for death and serious bodily injury. A juror faced with the challenge of assessing damages for wrongful death in California is, for example, asked to draw upon his “common sense” to arrive at an “amount in current dollars

scientist” inside of us, who “seek[s] causal understanding and predictive leverage.” Other circumstances trigger the “intuitive economist,” whose goal is “to maximize subjective utility.” People also act as “intuitive politicians” and “intuitive prosecutors.” (Tetlock, 2002).

The finding most relevant to incompensable harms is that some people act as “intuitive theologists.” This orientation forbids “taboo trade-offs”:

<quotation>Our commitments to other people require us to deny that we can compare certain things—in particular, things of finite value with things that we are normatively obligated to treat as infinitely important. To transgress this boundary, to attach a monetary value to one's friendships, children, or loyalty to one's country, is to disqualify oneself from the accompanying social roles. Constitutive incommensurability can thus be said to exist whenever comparing values subverts one of the values (the putatively infinitely significant value) in the trade-off calculus. Taboo trade-offs are, in this sense, morally corrosive (Tetlock et al., 2000, 854).</quotation>

The phrase “intuitive theologian” fits incompensable harms because some people have religious objections to comparing death or bodily injury to money. Attempts to reduce sacred values to money equivalents often cause indignation in people who assume the moralist-theological orientation. Asking them how much money they would need to accept death or serious injury resembles asking some Catholics how much they would charge to curse Saint Cecilia.

Like religion, some philosophies treat money as “incommensurable” with death or bodily injury (Radin, 1993; Sunstein, 1994). In philosophy, principles sometimes preclude prices. Philosophers have especially debated incommensurability as part of the clash between deontic and utilitarian ethics. Some philosophies object to reducing death or injury to money much like they object to reducing rights to utility. Joseph Raz, for example, addresses the issue through the concept of “constitutive incommensurability.” According to Raz, the monetization of values such as love leads to indignation because “incommensurability is itself a qualification for having certain relations” (Raz, 1986, 351). In other words, the act of reducing certain relations to money precludes our participation in them. That is why money cannot buy love.
paid at the time of judgment that will compensate” the estate for the loss, including the “reasonable value of household services” arising from the death.\(^\text{17}\) Missouri and Massachusetts fare no better in terms of clarity. Missouri charges its juries with the task of estimating “such sum as you believe will fairly and justly compensate plaintiff for any damages”\(^\text{18}\) sustained as a result of a wrongful death. Massachusetts's instructions ask jurors to “use [their] wisdom and judgment and [their] sense of basic justice to translate into dollars and cents the amount which will fully, fairly, and reasonably compensate the next of kin for the death of the decedent” (Sugarman & Yarashus, 2001).

New York expressly bars recovery for non-economic damages. Notwithstanding this limitation on recovery, New York jurors still face the daunting task of estimating, among other things, “the services that [the decedent] would have performed,” for the survivors, “the portion of (his, her) earnings that [the decedent] would have spent in the future for the care and support” of the family, and “the intellectual, moral, and physical training, guidance and assistance that [the decedent] would have given the children had (he, she) lived”.\(^\text{19}\) How should a juror monetize moral training? As this example shows, shifting the inquiry from non-economic terms to an expansive conception of economic terms simplifies the juror’s task modestly, if at all.

**B. Consequences of Incoherent Jury Instructions on Damages**

Perhaps not surprisingly, the jury instructions excerpted above, and others like them, lead to inconsistent damage awards. While factors such as injury severity and permanence do correlate positively with damage awards—meaning that, as a general matter, more serious injuries yield higher damages\(^\text{20}\)—awards for similar injuries are highly variable. The latter phenomenon is often referred to as “horizontal inequity.” One study of jury awards, drawing upon data from Florida and the Kansas City metropolitan area, concludes that the variation in awards for similar injuries is “enormous”:

Within an individual severity level, the highest valuation can be scores of times larger than the lowest. Awards for the most serious permanent injuries...range in value from a low

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\(^{17}\) (Judicial Council of California, 2010)

\(^{18}\) (Missouri Approved Jury Instructions, 2008),

\(^{19}\) (New York Pattern Jury Instructions, 2003; emphasis added)

of $147,000 to a high of $18,100,000. Even considering only the spread between the top and bottom quartiles, the range is great. All the awards in the top 25% of level 6 cases, for example, are at least six times larger than any of the bottom 25% (Bovbjerg et al., 1989, 923).

Damages for wrongful death also showed similar variability in the above study: the 75th percentile award was double the median award and some six times the magnitude of the 25th percentile award. Another recent survey study in which respondents were asked to estimate damages for hypothetical injuries reached a similar result: “A review of the awards for general damages for each injury revealed that the highest award for some injuries was more than five times as large as the second highest award.” Other empirical studies echo these conclusions regarding the inconsistency and horizontal inequity associated with damage awards.

The psychological literature on jury awards and decision-making suggests various reasons for horizontal inequity. First, as mentioned above, juries are not given detailed guidance on how to translate injuries into dollars. Indeed, jury instructions readily, and explicitly, concede that "there are no objective guidelines by which you can measure the money equivalent of this element of injury.” This lack of guidance is especially problematic when coupled with the open-ended nature of damage assessment; juries are asked to “scale without a modulus,” or determine appropriate compensation without any limit or predetermined range. Thus, even if jurors agree on the general level of injury severity, there is no uniform way to reduce the injury into dollars.

Absent a coherent guide for calculating damages, jurors appear to rely on various bits of available information—often irrelevant to the compensatory inquiry—to estimate damages. For example, damage awards are influenced, or “anchored,” by the initial, and presumably strategic, figures suggested by the parties’ lawyers. Jurors are also influenced by the type of defendant (corporate versus human), the reprehensibility of the underlying act, concerns about plaintiff’s attorney fees, and beliefs about

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22 See id.
24 (Leebron, 1989; Sugarman, 2005-06).
25 list of cites, including wissler saks and Kuehn
26 Pattern jury instructions; Wissler above.
27 Wissler saks & hart
the parties’ insurance coverage. Even the physical attractiveness of the parties, as well as their respective races and genders, can impact awards.

At best, the process of estimating noneconomic damages for serious injuries and death is inconsistent; at worst, it is meaningless. Accordingly, the damage estimation process and its results have led to controversy on all sides. Jurors are frustrated at the lack of guidance provided to them. Legal commentators frequently bemoan noneconomic damages as “one of the tort beast’s uglier heads.” Victims believe that the judicial system offers little more than “jackpot justice,” while injurers are unclear about their liability for risky activities. State governments, too, appear to have little faith in juries’ abilities to estimate damages, responding to the above concerns with caps on general damage awards.

II. COMMUNITY DAMAGES AND THE COMMUNITY VALUE OF LIFE

By asking judges or juries to find a sum of money that compensates for death or bodily injury, the law requires them to express preferences that most of them do not have. For these harms, “compensation” makes no sense. Besides being incoherent, asking jurors to compensate a family for the loss of a loved one may seem offensive. Accordingly, courts should not ask judges or jurors to find damages for death or serious bodily injury without telling them how to do it.

Economists generally approach the injury valuation problem by looking at the costs of mitigating risk. When people confront the trade-off between

\[ \text{\textsuperscript{28}} \text{See Wissler, Hart & Saks, supra note 23; Wissler, Kuehn & Saks, Instructing Jurors on General Damages in Personal Injury Cases: Problems and Possibilities, PSYCHOLOGY, PUBLIC POLICY, AND LAW (2000), VOL. 6, NO. 3, 712-742.} \]

\[ \text{\textsuperscript{29}} \text{See Zebrowitz & McDonald, The Impact of Litigants’ Baby-Facedness & Attractiveness on Adjudications in Small Claims Courts, Law and Human Behavior, 15(6) (1991).} \]


\[ \text{\textsuperscript{31}} \text{Steven P. Croley & Jon D. Hanson, The Nonpecuniary Costs of Accidents: Pain and Suffering Damages in Tort Law, 108, Harv. L. Rev. 1785 (1995).} \]

\[ \text{\textsuperscript{32}} \text{Timothy Lytton, Robert Rabin & Peter Schuck, Tort as Litigation Lottery: A Misconceived Metaphor, 52 B.C.L. Rev. 267 (2011).} \]

\[ \text{\textsuperscript{33}} \text{See id.} \]

risk and health in their everyday lives – for example, by investing in costly product safety features or taking a risky job for higher pay – they reveal something about the value of injuries (or, perhaps more accurately, the value of injury avoidance). To illustrate, if an individual pays $20 to reduce the risk of a head injury by 1/10,000, the implicit value of avoiding the entire injury would, under certain assumptions, be $200,000.\textsuperscript{35}

Valuations of life implied by trade-offs between health and wealth have a number of potential uses in law. In the regulatory context, for example, VSLs are used to determine if a proposed regulatory action is cost-justified. To illustrate, suppose that a clean water initiative would cost $100 million to implement and save 100 lives. Without some dollar value to associate with a (saved) life, determining whether the proposed regulation makes economic sense would be impossible. However, if the implicit value of life – as derived from a VSL analysis – suggests that a life is “worth” 2 million dollars, the above regulation would be cost-justified; the regulation would effectively buy 200 million dollars worth of lives for 100 million dollars.

This regulatory application of VSL figures is relatively well accepted among scholars\textsuperscript{36} and routinely used in practice. Indeed, OIRA is required to perform a cost benefit analysis of all proposed regulations, and uses VSL values to do so as a matter of course. Table 1 lists some illustrative values of life used by various regulatory agencies.

\textsuperscript{35} But see, e.g., Frank Ackerman and Lisa Heinzerling, Priceless: On Knowing the Price of Everything and the Value of Nothing (2004).
**Table 1 – Value of Statistical Life Used in Various Administrative Rules**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Regulation &amp; Date</th>
<th>Agency</th>
<th>VSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Motor Vehicle Safety Standards; Roof Crush Resistance</td>
<td>75 FR 17605-01, 2010</td>
<td>National Highway Traffic Safety Administration</td>
<td>5.8M</td>
</tr>
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<td>Prevention of Salmonella Enteritidis in Shell Eggs During Production, Storage, and Transportation</td>
<td>74 FR 33030-01, 2009</td>
<td>DEPARTMENT OF HEALTH AND HUMAN SERVICES Food and Drug Administration</td>
<td>5M</td>
</tr>
<tr>
<td>Use of Materials Derived from Cattle in Medical Products Intended for Use in Humans and Drugs Intended for Use in Ruminants</td>
<td>72 FR 1582-01, 2007</td>
<td>DEPARTMENT OF HEALTH AND HUMAN SERVICES; Food and Drug Administration</td>
<td>5.8M</td>
</tr>
<tr>
<td>National Primary Drinking Water Regulations: Ground Water Rule</td>
<td>71 FR 65574-01, 2006</td>
<td>ENVIRONMENTAL PROTECTION AGENCY</td>
<td>7.4M</td>
</tr>
<tr>
<td>Control of Communicable Diseases</td>
<td>70 FR 71892-01, 2005</td>
<td>Centers for Disease Control and Prevention (CDC), Department of Health and Human Services</td>
<td>6.9M</td>
</tr>
<tr>
<td>National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule; National Primary and Secondary Drinking Water Regulations: Approval of Analytical Methods for Chemical Contaminants</td>
<td>68 FR 49548-01, 2003</td>
<td>Environmental Protection Agency</td>
<td>4.8M</td>
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Our central argument is that a particular type of VSL estimate should be used to determine reasonable compensation in tort cases. Before accidents occur, regulators use VSLs to determine standards of safety in the design and operation of dangerous activities. A cost-benefit analysis using VSL decides *ex ante* how much care is worth taking. The use of implicit values of life in the courtroom, to determine damages for death and serious injury, seems equally appropriate. In the judicial context, implicit values of life would be used not to decide, *ex ante*, whether an action is worth taking, but to provide *ex post* damages for individuals (or their estates) after an injury has occurred. For example, if reliable estimates of the implicit value of life center around 2 million dollars, damage awards for wrongful death would be 2 million dollars. We elaborate on the judicial use of VSLs in Section ____, after distinguishing market VSLs from community VSLs and reporting their respective magnitudes.

A. Measuring Community and Market Values of Life—Evidence from Empirical Studies

In this section, we provide illustrative statistical values of life from the empirical literature. We did not generate these data, but we organize them in a new way, making a critical distinction between community values of life and market values of life. After reporting the two collections of VSL figures—and, importantly, showing the sharp difference in magnitude

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37 Objections to the use of implicit values of life as damage awards are discussed in Section ____ below.

38 Importantly, the *ex ante* regulatory use of VSLs and the *ex post* remedial use of VSLs conceptually merges once one realizes that, from the perspective of potential injurers, standards of care in tort function much like regulations once they become enshrined in tort law. This point is taken up in further detail below, in Section ____. 
between market VSLs and community VSLs—we explain the community/market distinction in more detail and defend the use of community VSLs in tort and regulation.

Table 2 reflects a sampling of 29 market VSLs: values of life reflected in, or implied by, everyday decisions that are not dictated by social norms. More specifically, the entries in Table 2 are based on trade-offs between workplace risk and wages (or wage premiums). The range of estimates in Table 2 is $500,000 – $20.8 million, in 2000 dollars. Using the higher estimates where a range is provided, the average VSL in Table 1 is $8.48 million. Using the lowest estimate where a range is provided, the average is $6.63 million. The values represented in Table 2 align with previous estimates of average market VSLs, and, because most regulatory cost benefit analyses use wage premium or labor market studies, the mean values in Tables 1 and 2 are similar.

### Table 2.
**Market Values of Life**
*(Trade-Offs Not Dictated by Social Norms)*

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Sample</th>
<th>VSL ($2000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thaler and Rosen (1975)</td>
<td>Survey of Economic Opportunity 1967</td>
<td>1.0</td>
</tr>
<tr>
<td>Smith (1976)</td>
<td>CPS 1967, 1973</td>
<td>5.9</td>
</tr>
</tbody>
</table>


40 Viscusi: “Our median estimated VSL from Table 2 is about $7 million [in 2000 dollars], which is in line with the estimates from the studies that we regard as most reliable.” Also: “The wage-risk studies have utilized data from the United States as well as many other countries throughout the world. The primary implication of these results is that estimates of the value of life in the U.S. are clustered in the $4 million to $10 million range, with an average value of life in the vicinity of $7 million.” Also: “Controlling for measurement error, endogeneity, individual heterogeneity, and state dependence yields both a reasonable average level and narrow range for the estimated value of a statistical life of about $5.5–$7.5 million.”
<table>
<thead>
<tr>
<th>Author(s) and Year(s)</th>
<th>Source(s) and Description</th>
<th>Value(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arnould and Nichols (1983)</td>
<td>U.S. Census 1970</td>
<td>0.5, 1.3</td>
</tr>
<tr>
<td>Butler (1983)</td>
<td>S.C. Workers' Comp. Data 1940-69</td>
<td>1.3</td>
</tr>
<tr>
<td>Low and McPheeters (1983)</td>
<td>International City Mgmt. Association 1976 (police officer wages)</td>
<td>1.4</td>
</tr>
<tr>
<td>Dorsey and Walzer (1983)</td>
<td>CPS May 1978</td>
<td>11.8, 12.3</td>
</tr>
<tr>
<td>Smith and Gilbert (1984, 1985)</td>
<td>CPS 1978</td>
<td>0.9</td>
</tr>
<tr>
<td>Dillingham (1985)</td>
<td>QES 1977</td>
<td>1.2, 3.2 – 6.8</td>
</tr>
<tr>
<td>Moore and Viscusi (1988a)</td>
<td>PSID 1982</td>
<td>3.2, 9.4</td>
</tr>
<tr>
<td>Moore and Viscusi (1988b)</td>
<td>QES 1977</td>
<td>9.7</td>
</tr>
<tr>
<td>Viscusi and Moore (1989)</td>
<td>PSID 1982</td>
<td>10.0</td>
</tr>
<tr>
<td>Moore and Viscusi (1990b)</td>
<td>PSID 1982</td>
<td>20.8</td>
</tr>
<tr>
<td>Kniesner and Leeth (1991)</td>
<td>CPS 1978</td>
<td>0.7</td>
</tr>
<tr>
<td>Gegax, Gerking, and Schulze (1991)</td>
<td>Authors' mail survey 1984</td>
<td>2.1</td>
</tr>
<tr>
<td>Berger and Gabriel (1991)</td>
<td>US Census 1980</td>
<td>8.6, 10.9</td>
</tr>
<tr>
<td>Dorman and Hagstrom (1998)</td>
<td>PSID 1982</td>
<td>8.7 – 20.3</td>
</tr>
<tr>
<td>Lott and</td>
<td>CPS March 1971 and March 1985</td>
<td>1.5, 3.0 (2.0 – 7.0)</td>
</tr>
</tbody>
</table>
Table 3 reports various community values of life: VSL estimates for which the underlying trade-off is dictated by social norms. The average community VSL – using the lowest values where a range is provided without a preferred estimate, and including VSL values for children – is $1.65 million. Excluding values for children, and again using the lowest values where a range is given, yields an average community VSL of $1.92 million. The mean community VSL using the highest value where a range is given (and including VSL values for children) is $2.77 million. Finally, the mean community VSL excluding children and using the highest value from the reported ranges is $2.62 million.

Importantly, whichever Table 3 values one uses for comparison, the market values of a statistical life reflected in Table 2 are significantly larger – as much as 3 times larger – than the community values represented in Table 3.

**Table 3.**

**COMMUNITY VALUES OF LIFE**

*(TRADE-OFFS Dictated by Social Norms)*

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Activity/Trade-off Underlying VSL</th>
<th>Implicit Value of Life (in Millions of 2000 Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carlin &amp; Sandy</td>
<td>Child Car Seat Purchase</td>
<td>0.8[^1]</td>
</tr>
<tr>
<td>Blomquist <em>et al.</em></td>
<td>Seat Belt Usage</td>
<td>2.8 – 4.6 (average = 3.7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.7 – 6.0 (child under 5; average = 4.85)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.7 – 2.8[^2]</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Study</th>
<th>Topic</th>
<th>Estimate (Note)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blomquist 1979</td>
<td>Seat belt usage</td>
<td>1.0</td>
</tr>
<tr>
<td>Hakes &amp; Viscusi</td>
<td>Seat Belt Usage</td>
<td>2.32</td>
</tr>
<tr>
<td>Ashenfelter &amp; Greenstone</td>
<td>Speed Limits</td>
<td>1.7</td>
</tr>
<tr>
<td>Jenkins et al.</td>
<td>Bicycle Helmet Usage/Purchase</td>
<td>1.4 – 2.9 (age 5-9; average = 2.15)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2-2.8 (age 10-14; average = 2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.1-4.3 (age 20-59; average=3.2)</td>
</tr>
<tr>
<td>Van Benthem</td>
<td>Speed Limits</td>
<td>3.16 – 4.34 (average = 3.75)</td>
</tr>
<tr>
<td>Dardis (1980)</td>
<td>Smoke Detectors</td>
<td>0.77</td>
</tr>
<tr>
<td>Garbacz (1989)</td>
<td>Fatality risks w/o smoke detectors</td>
<td>2.56</td>
</tr>
<tr>
<td>Jondrow</td>
<td>Speed Limits</td>
<td>1.12 -1.84</td>
</tr>
</tbody>
</table>

**B. Explaining the Community/Market Distinction**

What distinguishes the studies and figures in Tables 2 and 3? In other
words, what makes the Table 3 studies community values of life rather than market values? More importantly, what aspects of community VSLs make them more appropriate for use in tort and the regulatory context? The remainder of this section addresses these questions.

In many cases, social norms dictate appropriate investments in precaution; community standards, in other words, often define reasonable care. Social norms are powerful, informal mechanisms that incentivize certain behaviors where formal sanctions are ineffective or entirely absent. Broadly speaking, social norms can be understood as regularities in the way people understand and react to social situations. A wide definition of norms would thus include conventions (such as driving on a certain side of the road), habits (like drinking coffee in the morning), descriptive norms (such as taking off one’s hat when it is hot), and injunctive norms (such as not littering in public spaces). Injunctive norms, the most important category to legal scholars, are thought to be more than accidental or convenient behavioral patterns. Rather, injunctive norms are often viewed as having a moral dimension – an “oughtness” – about them. Injunctive norms direct us towards what we ought to do, and their violation leads many to feel guilt. Unlike descriptive norms, injunctive norms have an internal dimension that is much discussed in jurisprudence. The construction of a person’s self-conception involves internalizing norms and taking them as guides:

Beyond affecting the content and intensity of numerous particular predispositions, social norms help form (and reform) the self, by profoundly influencing people’s identities, their world views, their views of themselves, the projects they undertake, and thus the people they seek to become.

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50 See, e.g., Yuval Feldman and Janice Nadler, The Law and Norms of File Sharing, 43 SAN DIEGO L. REV. 577, 598 (“descriptive norms are how most people would behave in comparable situations. Injunctive norms refer to the extent to which most people would approve of the target behavior”); Robert Cooter, Decentralized Law for a Complex Economy, 23 S.W. U. L. REV 443, 447 (1994)(“Taking off your hat to escape the heat is different from taking off your hat to satisfy an obligation. The former is a regularity and the latter is a norm”).


52 Etzioni, supra note 28.
Individuals internalize social norms to varying degrees, as indicated by their commitment to obeying them. Sometimes a person’s commitment is less than the cost of observing a social norm, so the person is predisposed to violate the norm. In these circumstances, external pressures can tip the individual’s balance from violation to conformity. Informal sanctions supply some of this pressure. The threat of communal sanctions, in other words, can coerce individuals into complying with social norms. For example, individuals who choose not to vote are subject to mild forms of harassment by their politically-engaged friends. Similarly, smoking in certain contexts is met with scorn and confrontation; “litterbugs” are chastised by passersby; the reputations of businesspeople who behave unethically or opportunistically are tarnished; motorists who drive unsafely or fail to heed traffic signals are shamed by way of horn-honking and unsavory hand gestures.

Some social norms concern safety and precaution. Failure to wear a seat belt, for example, invites social opprobrium. Choosing not to buckle a child into an appropriate car seat, or not requiring them to wear a bicycle helmet, also falls below social standards and subjects non-compliers to informal social sanctions. Similarly, observing speed limits (within a reasonable range) is another example of a behavior subject to social scrutiny. Of course, many choices about safety are not constrained by social norms. For example, social norms do not dictate that everyone should buy automobiles with the best safety features, such as Volvos or Teslas. Further, social norms do not dictate whether to take a particularly risky job or not.

Community Damages (and community VSLs) use the content of social norms to infer damages. More specifically, community damages are generated through a variant of the famous \((B = P \times L)\) formula used by


\[56\] Personal Experience.


\[58\] Need specific examples of informal sanctions re car seat

\[59\] Need specific examples of informal sanctions re bike helmet

\[60\] A previous paper called these “Hand Rule Damages”; we change the term to community damages emphasize the distinction between decisions made by reference to communal norms and those made through an individual safety calculus.
Judge Learned Hand in *U.S. v. Caroll Towing*.\(^{62}\) The original goal of the Hand Rule was to identify a reasonable standard of care in the absence of community norms about precaution, which we call Hand Rule Negligence (HRN). According to Judge Hand, a reasonable person would invest in precaution until the costs of care (“B”) equal the expected harms associated with the activity in question (the likelihood of harm, “P,” multiplied by its magnitude, “L”). Where B equals or exceeds P \(\times\) L, the standard of care is met; where P \(\times\) L exceeds B, the behavior is negligent. *In other words, reasonable care entails all precautions that are cost-justified from a societal point of view.*\(^{63}\)

Community damages rely on the same three variables as Hand Rule Negligence, but rather than solving for a standard of care (“B”) in cases where the magnitude of harm and its likelihood (“L” and “P”) are known, community damages solve for “L” given “B” and “P.” In essence, Community damages capture the implicit community value of injuries by looking at community norms aimed at reducing the risk of such injuries. More specifically, community damages reduce qualitative community standards into costs and risk-reduction numbers to arrive at reasonable or community valuations of injuries.

For example, if social norms dictate that children should wear bicycle helmets, then the cost and risk reduction associated with using helmets would reveal appropriate damages for a child killed or injured by tortious activity. If the full cost of using a bicycle helmet, including both the cost and disutility of wearing it, is $100 per year, and the helmet reduces the risk of death by 1/10,000, community damages in the case of wrongful death would be $1M. Importantly, we are not suggesting that particular social norms—and the associated community values of life—are to be used to calculate damages for fatal accidents on a case-by-case basis. Rather, we are suggesting that the touchstone for the damage analysis be social norms more broadly. To encourage uniformity of damages, a large number of social norms could be examined and courts could use the average community value of life as a measure of damages.

To be useful in the calculation of damages under the Hand Rule, reasonable behavior must be translated from qualitative to quantitative terms. Specifically, the reasonable precaution level must be expressed as a marginal cost of precaution and a corresponding marginal reduction in risk. In Judge Hand’s notation, we need explicit values for “B” and “P.” Legislators or regulators could employ experts to determine the values of B and P in community standards of care. Using these values, a schedule of community damages could be constructed for various types of harm. Courts

\(^{62}\) *U.S. v. Carroll Towing*, 159 F.2d 169 (2d. Cir. 1947).

\(^{63}\) Note on marginal values versus total values.
could apply the schedule to award damages in trials.

Alternatively, instead of relying on the legislature, judges and juries could find community damages with the aid of experts. The court could hear expert testimony from both sides of a dispute regarding a range of community standards of care (including any specific norms applicable to the case at hand). The court would first determine liability by deciding whether the defendant’s breach of the community standard caused the plaintiff’s injury. After deciding liability, the court would move to the stage of determining the damages. To do so, the court would hear evidence on the marginal costs of precaution (B) and the associated marginal reductions in risk (P) associated with the community standards of care. B and P could be regarded as matters of fact that the court must determine from testimony. Once B and P are proved, the court can calculate damages by dividing B by P as required by the Hand Rule. Given the centrality of community standards and norms to legal liability in the tort context, computing community damages (or community values of life) appears to present no special problems that courts do not already face in such cases.

C. Social Norms as Ideal Behavior (and Guidepost for Damages)

The preceding section made an important distinction between individual precautionary behavior and behavior guided by social norms. Here, we elaborate on the distinction and discuss why a certain type of social norm is uniquely worthy of serving as the basis for damage calculations. In short, injunctive social norms reflect collective attitudes about public safety that are aspirational or idealized. Contrarily, individual market behavior often reflects self-interest and idiosyncratic preferences about risk, rather than community values. Individual market behavior concerning risk is also more susceptible to bias and error.

Much of the VSL literature, for example, derives values of life by looking at wage premiums for risky jobs. For example, if job A pays $30,000 and entails a 1/100,000 risk of death, while job B pays 30,100$ and entails a 1/50,000 chance of death (and is otherwise identical to job A), the implied VSL would be 10 million dollars. In other words, accepting $100 to assume an extra 1/100,000 chance of risk, or foregoing the same amount to avoid it, implies a VSL of $10M. However, such job choices are mostly matters of individual preferences and economic constraints rather than community norms. In other words, because one’s choice of a job—at least in terms of its riskiness—is not governed by social norms, the VSL implied by

64 Of course, the actual econometric methodologies used to derive VSL estimates are far more complex; the simplified example provided here is for illustrative purposes only.
wage premium studies is a market value rather than a community value.\textsuperscript{65} (We discuss the regulatory use of labor market studies, and their various shortcomings, in Section ___).

The social norms that we consider in this paper—and the only type on which community damages should plausibly be based—are injunctive social norms. As mentioned above, injunctive social norms prescribe actions that communities consider to be ideal, and behaviors that communities are willing to enforce through costly social sanctions. Such norms generally concern what people \textit{ought} to do, not what they \textit{actually} or \textit{regularly} do. Put differently, social norms concern approved behavior rather than average behavior.

As such, injunctive norms must be explained and justified in communal discourse. By shifting the terms of the discussion from individual strategy to public welfare and morality, social norms protect people against the folly of irresponsible people (or responsible people who lapse into irresponsibility). They also protect communities from rules that benefit one community sub-group at the expense of others:

Social norms evolve through a process of discussion, which often exposes evolutionary traps. Evolutionary traps often occur because the best strategy for each individual benefits him less than it harms other players….\textsuperscript{[A]} community will not develop social norms supporting strategies that harm its members. Once exposed, a strategy leading to an evolutionary trap may be censured by a community, or tolerated, but not encouraged. In other words, a consensus will not arise in the community that its member \textit{ought} to follow a strategy leading to an evolutionary trap.\textsuperscript{66}

The collective nature of norms has other benefits as well. First, there are good reasons to believe that injunctive norms reflect better information than individual choices. Because norms require some level of collective agreement, individual errors in reasoning will impact the resulting rule less than with individual decision-making.\textsuperscript{67} Even if the community is not especially intelligent or technically sophisticated, the mere fact \textit{that they are a group} can make their collective wisdom more dependable. This

\textsuperscript{65} We address the regulatory application of labor market studies – and propose an alternative – in section ___.


\textsuperscript{67} Condorcet jury theorem…but see polarization of crowds.
information dynamic bears a resemblance to the price-setting abilities of a market: partial information from many people results in a better rule than any individual could make, just like efficient markets combine the costs and benefits of many individuals into a better price than any individual could set. Reinforcing this process—and also the market metaphor—is the fact that norms are, implicitly or otherwise, under constant competition with alternative rules of conduct. When a superior alternative presents itself, the community can revise or abandon existing norms.68

To illustrate the distinction between injunctive and behavioral norms, consider the case of driving speeds. Most people drive over the speed limit on some occasions, and many may flagrantly violate the limit on rare occasions. In a sense, then, driving the speed limit is not the average behavior; the average would, of course, include flagrant violations of the speed limit. However, the injunctive social norm regarding speeds would not approve anomalous behavior such as flagrantly violating the speed limit—although flagrant speeding is sometimes observed, it is not ideal in the sense that community norms require. Communities, in other words, would never engage in costly enforcement of a norm that included or allowed such egregious behavior. In short, though individuals may sometimes “free ride” on the speeding norm—capturing the benefits of reduced speeds by others and also avoiding the costs of driving slow themselves—norm-violators cannot change the content of an injunctive norm through their individual actions.

Because non-trivial or flagrant violations of speed limits invite social scorn, the health/wealth tradeoffs reflected in “follow the speed limit” norms can be used to generate community VSLs. Three of the studies represented in Table 3 thus rely on VSLs derived from speed limits.69

68 See Ellickson Market for social norms; Posner; Cooter.
69 The driving speed studies reflect the ratio of cost to reduced death risk, where the cost is the extra time spent on the road due to reduced speed. Ashenfelter and Greenstone, (Ashenfelter, Orley and Michael Greenstone. (2002). “Using Mandated Speed Limits to Measure the Value of a Statistical Life,” National Bureau of Economic Research, Inc., NBER Working Paper 9094), for example, estimate an implied value of life by exploiting a change in speed limits in various states. In 1987, many states chose to increase the speed limit on rural interstate roads from 55 MPH to 65 MPH. Individuals were therefore free to drive faster than previously, and their change in average driving speeds indicates the way they trade off health and wealth. In this study, as well as the other driving speed studies, the cost of driving faster is the increase in the chance of fatality, which Ashenfelter and Greenstone estimate by examining data from the Fatal Accident Reporting System, which collects accident data on all fatal car crashes in the United States. The benefit of driving faster is the decreased driving time, which is valued at the average wage rate. The authors obtained data on actual driving speeds from various departments of transportation, and estimated average total miles driven from Federal Highway Administration data. From this, the authors derived an upper bound community VSL of $1.7 million.69
Another three of the community VSL studies in Table 3 rely on social norms governing seat belt use. Why is the resulting figure from the seat belt studies a community value of life rather than a market value of life? Again, the seat belt studies yield community values of life because the use of seat belts is governed by social norms. The essence of social norms is the willingness of community members to exert (costly) informal pressure on potential violators. Though seat belt use has not always been prevalent, Van Benthem’s analysis is similar to Ashenfelter and Greenstone’s study, but analyzes changes in speed limits from two points of view: that of a social planner and that of an individual. Like Greenstone’s analysis, the study revolves around the tradeoff between health and wealth, and the way this tradeoff manifests itself in driving speed decisions. However, Van Benthem’s analysis also accounts for non-fatal accidents, fuel costs, and the climate effects of driving speed. Van Benthem’s study yields a number of VSL figures ranging from $860,000 to $6.02 million. However, for our purposes, the most plausible range from the study is $735,000 – $3.16 million. The $735,000 estimate accounts for fatal and non-fatal accidents, fuel costs, climate damage associated with driving speed, and respiratory health of adults and infants. The $3.16 million dollar estimate accounts only for fatal and non-fatal accidents. The latter estimate is higher than the former because, the implied tradeoff is spread across on fewer variables; if one drives slowly only because of the risk of collision, the implied value of life will be higher than if one drives slowly for additional reasons, such as climate damage.

The appropriate estimate for our purposes is the one that most closely captures the motivation behind the social norm for driving at (or near) the speed limit. If the social norm for driving speeds is based only on the community’s concern over fatal and non-fatal accidents, the best estimate from Van Benthem is $3.16 million. If the social norm is based on other concerns, such as climate damage due to speeding and respiratory health, the most appropriate estimate is $735,000. Either seems plausible.

The study by Jondrow et al. (Jondrow, J., Bowes, M. & Levy, R. The Optimal Speed Limit. Economic Inquiry, 21, 325-336, 1983) estimates the private and social optima for speed limits by observing how fast individuals drive without speed limits. The optimum speed limit is derived by setting the private benefits of speeding to the social costs. The estimate presented in Table 2 is based on Ted Miller’s adjustments to Jondrow’s analysis. Miller adjusts the numbers to account for fatal and non-fatal injuries, and also updates a number of variables (such as average speed, fuel cost, and injury statistics) to arrive at a VSL range of $1.12 – $1.84 million.

Three of the ten studies included in Table 2 derive the value of life implied by the use of seat belts. The analyses in this category share a similar structure to the speed limit studies: the values of life are essentially the ratio of the cost of using seatbelts divided by the reduction in risk associated with their use. In algebraic terms:

\[ \text{Implied Value of Life} = \frac{\text{Total Cost of Seat Belt Use}}{\text{Reduction in Risk of Death}} \]

For the seat belt studies, the cost side of the equation comprises the discomfort of using a seatbelt and the time it takes to buckle up – time that could otherwise be spent earning money. Using information on the average number of car trips taken over a year, average wages, and the effectiveness of seat belts (in terms of reducing death), the authors of each study are able to determine the implied value of life associated with seatbelt use.
most people now bristle at the sight of a beltless driver, and many would be moved to say something to pressure the person to buckle up (especially for children). Further, there are numerous awareness campaigns about the dangers of driving without seatbelts; some portraying seat belt use as normal or cool, and others suggesting that failure to use a seatbelt is simply stupid. The fact that people who have no financial interest in the use or sale of seatbelts are willing to spend effort enforcing their use implies the presence of a social norm. The other studies represented in Table 3—which infer VSLs from the cost and risk reduction associated with the use of bicycle helmets, child car seats, and smoke alarms—count as community

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72 The remaining studies in Table 3 cover various safety-related consumption activities that are bound up with social norms. The Jenkins et al. study (Jenkins, R.R., N. Owens, and L.B. Wiggins. (2001). “Valuing Reduced Risks to Children: The Case of Bicycle Safety Helmets,” Contemporary Economic Policy 19(4), 397-408) estimates the implied value of life from the purchase and use of bicycle helmets for adults and children. The value of life implied by the purchase and use of bicycle helmets is the ratio of the annualized cost of the motorcycle helmet to the risk reduction it provides to users. To estimate the costs and the useful life of a bicycle helmet, the authors use data from Consumer Reports magazine. To estimate the risk reduction associated with helmet use, the authors use a combination of census data, telephone surveys on bicycle/helmet use, and data on bicycle deaths from the U.S. Centers for Disease Control and Prevention. Since bicycle helmets prevent both injury and death, the authors present two estimates: one assuming that the full cost of the bicycle helmet is aimed at preventing death and another (more realistic) estimate attributing half of the helmet cost to injury risk reduction and the other half to death risk reduction.

For the purposes of our analysis, the key feature of the Jenkins et al. study is that it captures the risk/money tradeoff inherent in a social norm: the social norm that encourages bicycle riders to use helmets. This encouragement comes in the form of social sanctions for violators of the norm, and costly efforts to raise awareness and promote the use of bicycle helmets. As mentioned above, the fact that social norms are a collective, community judgment about safety and the value of life means that the valuation of life inherent in the norm is a community value of life.

The Carlin & Sandy piece (Carlin, P.S. and R. Sandy. (1991). “Estimating the Implicit Value of a Young Child's Life,” Southern Economic Journal 58(1), 186-202) is similar in structure to the Jenkins piece. Carlin and Sandy derive the implied value of a child’s life from the purchase and use of child car safety seats by their parents. The data sources for the study come from The Program for Children's Automobile Safety at Riley Children's Hospital, which collected data on car seat usage in the State of Indiana. Follow up surveys were also performed to gather specific details on car seat usage. Data on the reduction in fatality risk associated with child car safety seats was obtained from previous scholarly studies. Average wage rates in the state of Indiana in 1985 were used as the value of time. Using these data, the authors estimate the value of a child’s to be $800,000 in 2000 dollars. Because a parent must use child safety seats for children to conform with social expectations, the trade-off between risk and money in this context is a community value of the life of a child.
VSLs for similar reasons.

That social norms and legal rules often overlap does not fundamentally change the analysis (or the distinction between community and market VSLs). Where legal rules and social norms govern the same set of activities, individuals are doubly pressured to conform. In the case of speed limits, for example, drivers face an expected fine when they choose not to buckle up, and they also face the possibility of social sanctions and guilt. Social norms merely add an extra incentive to comply, and can raise the compliance rate in cases where enforcement of the legal rule is incomplete.\(^75\)

(1) A Note on The Efficiency of Social Norms

Do social norms encourage economically efficient behavior, and does the answer to the efficiency question determine their appropriateness as a guidepost for damage awards? From a strict economic perspective, the latter question is uniformly answered in the affirmative: norms are desirable rules of social conduct only insofar as they are efficient, or at least tend towards efficiency vis-à-vis some relevant alternative (usually formal, legal rules). Accordingly, the question of norm efficiency has generated a rich and varied literature that can be broken into two broad camps: the norm “optimists” and norm “pessimists.” The optimistic view holds that social norms often evolve towards efficiency for many of the reasons supplied above: the collective wisdom of groups, the deliberative aspect of norm creation, and competition from alternative norms.\(^77\) The pessimists, on the other hand, claim that informational problems, externalities, and enforcement problems associated with social norms will often translate into inefficiency. Even where social norms do militate towards efficiency, some pessimists contend, the pace of social change is glacial.\(^78\) The answer to the first of the two questions presented above, then, is mixed.

A full account of the question of norm efficiency is beyond the scope of this paper and, in any event, largely beside the point of our claims. First, and most importantly, we are not concerned with norm efficiency per se. Our proposed use of social norms is to define the value of certain outcomes rather than to inquire whether a given norm would lead to efficiency given some range of outcomes whose value is already known. It makes little sense to inquire, simultaneously, whether a given norm of precaution maximizes

\(^75\) See, e.g., Sunstein, supra note ___.
\(^77\) See, e.g. Cooter (structural adjudication), supra note ___.
\(^78\) See Posner, Sanchirico, Hetcher
utility—or satisfies some other efficiency criterion—while using the content of the norm at issue to infer the value of life and limb. This is particularly the case where, as in tort, social norms are often used to determine the standard of care (irrespective of their efficiency). On pain of circularity, therefore, we cannot engage in the debate over the efficiency of norms.

Instead of looking at efficiency, we consider whether the process of norm creation carries certain indicia of reliability. More specifically, we ask whether injunctive social norms are, as a general matter, more reliable than the relevant legal alternative to damage estimation. In torts, the alternative method of estimating damages for death is the unaided intuition of jurors. For reasons discussed earlier, asking juries to provide “reasonable compensation” is incoherent at best, and offensive at worst. The wide variability of damages for similar injuries is evidence that such instructions are profoundly flawed. Our modest claim is that, in light of the collective, deliberative, and iterative process by which social norms are created, the implicit values of life contained in such community judgments are superior than jury guesses about the value of a life.79

Even if the conclusions of the norm pessimists can be recast as statements about the general reliability of social norms, rather than about their efficiency per se, the arguments still miss the mark for several reasons. For example, a close examination of the literature on norm efficiency reveals that the pessimists use a definition of norms that looks closer to “behavioral regularity” than “community ideal.” Stephen Hetcher’s recent analysis of social norms and the use of custom in tort law is illustrative.80 Among other things, the article claims that courts do not (and should not) rely on custom as a matter of course in light of efficiency concerns. However, many of his examples reveal that, by “social norm,” the author refers to judicial notions of custom or “average conduct.”

When conformity is used defensively, the injurer in effect asks: “How could I have done wrong, as I was simply doing what others do in similar situations? How could all the conformers to this widespread social custom be negligent?....“[O]rdinary usage” amounts to a basically statistical notion, the “average.” Average people are by definition doing what most others are doing; that is, conforming to widespread customs."81

79 (Later, in Section ___ we discuss the (relative) desirability of social norms vis-à-vis the regulatory alternative: individual market VSLs.)
81 Id.
The contrast between our view of injunctive social norms and Hetcher’s definition is reinforced in his discussion of speeding practices. There, Hetcher observes:

In the example of speeding in automobiles...failure to solve the collective action problem leads to a dangerous situation because—as public service ads are fond of saying—speed kills. The world we live in is one in which this collective action problem goes largely unsolved; people speed with frequency and others are injured or die because of it.82

Under this conception of norms, the fact that people often speed makes such behavior a norm. As stated above, however, community VSLs concern injunctive social norms—ideal behaviors and attitudes rather than averages or patterns.

Paul Mahoney and Chris Sanchirico’s game-theoretic analysis of norm-efficiency is similar to Hetcher’s insofar as it characterizes norms as behavioral patterns that emerge from individual rationality rather than deliberative, communal commitments that respond to and correct for individual rationality.83 Accordingly, their analysis of precaution in tort—as represented in a “stag hunt” economic game—amounts to a statement that people will not take efficient levels of precaution because it is costly.84 The game-theoretic solution presented in this case, though, does not appear to take into account the informal costs that might be imposed on drivers through social sanctions, nor does it acknowledge that norms are more than behavioral patterns. In this sense, the game-theoretic models used in the paper describe the problems that social norms are meant to solve rather than describing how norms might, in fact, solve those problems.

Another analysis by Eric Posner applies a broader definition of norms than the above authors,85 but reaches a similar conclusion: “under a variety

82 Id. at ___.
83 See Paul G. Mahoney & Chris Sanchirico, Competing Social Norms and Social Evolution: Is the Fittest Norm Efficient? 149 PA L. Rev. 2027 (2001). Though they appreciate that norms are more than behavioral regularities -- “rules of conduct that constrain self-interested behavior and that are adopted and enforced in an informal, decentralized setting” – they model norms as the product of individual strategy.
84 Id. at ___ (“the efficient action entails an expenditure or opportunity cost while the inefficient action does not.”)
85 See Eric Posner, Law, Economics, & Inefficient Norms, 144 U. PA. L. Rev. 1697 (1996). Importantly, Posner avoids defining norms as behavioral patterns that emerge from individual rationality: “A norm can be understood as a rule that distinguishes desirable and undesirable behavior and gives a third party the authority to punish a person who engages
of plausible conditions...norms are likely to be inefficient, in the sense of failing to enable group members to exploit the full surplus of collective action.”

The cited reasons for norm inefficiency include informational problems, inter-group externalities, and strategic behavior by norm-producers and enforcers. While many of these problems could conceivably plague the evolution and enforcement of social norms in certain contexts, the problems observed by Posner are not fatal to our argument.

First, Posner’s notion of efficiency is relative; his task is to compare social norms and legal rules on efficiency terms. Again, this differs fundamentally from the goal of our project, which is to compare collective judgments about safety to individual judgments (or jury guesses) about the value of life. Secondly, most of the norms that form the basis for community VSLs are coterminous with—indeed, explicitly dependent on—the content of legal rules. For example, the norm encouraging the use of seat belts is backed by a legal sanction, as is the norm that commands drivers to, at least roughly, follow speed limits. The same can be said of the norms that dictate the use of child car-seats, smoke alarms, and bicycle helmets. Accordingly, Posner’s concern that legal rules are more responsive to changes in culture and technology than social norms loses much of its force in the context of this argument. In these cases, norms piggyback directly on substantive legal rules. What makes them social norms, though—and what makes them a reliable guide to damages—is the fact that people are willing to engage in costly enforcement of the rules.

Posner also observes that social norms can be inefficient “when they support activities that injure third parties.” Here, Posner has in mind norms that arise in smaller, more insular, communities and redound to the benefit of that group while imposing negative externalities on the larger community. An example of this—the only example in the paper that specifically addresses tort law—revolves around medical industry norms:

in the undesirable behavior. Thus, a norm constrains attempts by people to satisfy their preferences.”

86 Law, Economics, and Inefficient Norms.
87 Table 3 also includes norms that encourage the use of bicycle helmets,
88 Find laws on all of the above topics!
89 “Information lag is a simple reason why judges and legislators may produce better rules than groups. No doubt it takes time for information to reach legislators and judges, just as it takes time for information to reach members of a group. Nonetheless, legislators and judges are specialists at obtaining and processing information; further, they have the means and the motive to establish institutions that obtain and process information.”
90 Of course, not all injunctive social norms bear this type of relationship with legal rules. Where social norms do not rely on the content of legal rules, though, community judgments about precaution are still more reliable than jury guesses.
A useful example comes from the problem of assigning liability to medical practitioners after an operation that tortiously injures the patient. As is well known, powerful norms dictate that none of those present at the operation disclose the identity of the tortfeasor. The norms benefit all members of the group, even the innocent members, as long as there is a chance that anyone could commit a tort in any given operation.\textsuperscript{91}

As this type of problem makes clear, an important condition for efficiency is symmetry among people with respect to benefits and costs. With symmetry, the same people expect to absorb the benefits and the costs of an activity, whereas with asymmetry, the people who expect the benefits are different from the people who expect the costs. When discussing a norm regarding speeding, for example, people can easily imagine being in the position of someone who wants to speed or being in the position of someone endangered by a speeder. Each of us who drives bears the collective risks from speeding. A similar argument can be made for all of the social norms reflected in Table 3.

We agree with Posner, and others, that courts should reject norms that are created asymmetrically, say by sellers who are not buyers of a risky product. We should, for example, be critical towards the norms of manufacturers of swimming pools because they sell many and buy few for themselves. With asymmetry, a community norm—if it can be properly called that—should be viewed critically, rather than enjoying deference. Thus courts should defer to symmetrical community standards when they exist, but courts should apply HRN to decide whether to enforce asymmetrical community standards.

In sum, the economic literature suggesting that social norms are inefficient and, by extension, undesirable as a means of social control, is unpersuasive as applied to our argument. The norm pessimists rely on a different notion of norms than we do, compare norms to legal alternatives that are irrelevant to our inquiry, and focus on efficiency rather than a more general sense of reliability.

III. THE ECONOMIC CASE FOR USING COMMUNITY VSLS AS DAMAGES

According to the above analysis, using community VSLs makes sense

\textsuperscript{91} Posner, Law Econ & Inefficient Norms
for two reasons: because the community standard of care is more reliable than the alternative and also because the standard of care should be commensurate with a community valuation of the harm arising from its violation. Linking reasonable precaution and liability in this way has two desirable economic effects: optimal deterrence and the avoidance of misalignments.

Damage awards optimally deter when they force potential injurers to internalize all of the expected social costs associated with their risky activities. Using community VSLs to determine damage awards would create efficient incentives for potential injurers, because community standards for liability are linked to community valuations of the underlying harms. For example, suppose a social norm requires individuals to install smoke alarms in their houses. If the total cost of the smoke alarms is $50 and their use reduces the risk of fatalities by 1/40,000, the community value of life – and the appropriate amount of damages – would be $2 million. If courts adopted community VSLs as damages for wrongful death, homeowners would face the following choice: either install the smoke alarm for $50, or face an expected liability of $2 million/40,000, which equals $50. This simple example shows that using community VSLs as damages for wrongful death leads potential injurers to fully internalize the costs of their risky behavior in cases where they do not internalize the social norm. Put another way, using community values of life as wrongful death awards would deter potential injurers to an efficient extent.

It is important to note that social norms can be used to calculate community damages even where the injurer is not strictly required to follow any particular norm. For example, a norm (or set of norms) might pertain to the victim’s behavior rather than the injurer, and the tradeoff embodied within the norm implies the value that the community places on the victim’s life. To illustrate, consider the social norm requiring the use of bicycle helmets; using the same numbers (from the smoke alarm example) for the cost and risk reduction of helmet use, we arrive, again, at a community VSL of $2 million. In this case, though, the social norm requiring helmet use does not apply to potential injurers (presumably car drivers); it makes no sense to require the injurer to wear a helmet. The helmet norm and associated community VSL nonetheless signal the community value of life. Consequently, they also define the amount of precaution the injurer needs to take. In light of the social norm—or the universe of social norms in a community—drivers and other potential injurers of bicyclists need to take precaution that reflects the $2 million valuation of life. If the tradeoff embodied in reduced speeds or the purchase of antilock brakes, for

92 Since the costs of litigation and risk aversion are not included in this example, rational homeowners will choose to install smoke alarms.
example, implied a value of life equal to $2 million, such precaution would be appropriate. 93 The point here is that community damages do not always lead injurers to follow existing norms; however, they do incentivize them to follow courses of action that value human life in ways that are quantitatively consistent with social norms of precaution.

A corollary of the above analysis is that failure to use community VSLs in tort cases causes “misalignments,” or inconsistencies between the community standard of care and the level of damages. 94 When courts use community standards to establish liability, as they often do, failure to back such liability up with community VSL awards sends mixed signals to potential injurers. It tells them that the community’s standard of care is high (higher than justified by the damages imposed for harm caused by omitted care), whereas liability for accidents is low (lower than community’s valuation of the harm caused by omitted care).

A high standard coupled with low liability leads to underdeterrence. Expected damages are cheaper than norm-compliance, so rational injurers would thus choose to violate the norm. This is especially true if injurers can buy liability insurance with premiums only slightly higher than their expected claims. For example, if social norms suggest that people should drive the speed limit (or approximately the speed limit), and doing so implies a value of life at $2 million, failure to back this precautionary standard up with $2 million damages would not encourage compliance with the community norm. Specifically, failure to use VSL for damages makes liability insurance too cheap. Drivers in this case would be too willing to take risks of accidents when the harm courts price the harm too low.

Besides being inefficient, misalignments also imply a lack of proportionality between the standard of care and the sanction for its violation. Stringent standards backed by mild liability, or lax standards backed by harsh liability, will seem unfair to many people. 95 In contrast, standards aligned with liability will seem fair, which increases the willingness of people to conform the norms or laws. The use of community VSLs could still apply where there is no established norm of behavior for the injurer or the victim. In such cases, courts would look at precautionary social norms generally to see what they imply, on average, about the value of life. The goal, in other words, is not to set context dependent community values of life; rather, it is to look at the range of social norms, see what they collectively imply about the value of life, and apply it to courts. Approaching community damages this way – as a way to reduce the universe of norms into a sort of average community VSL – would have two important effects: (1) it would make damages more uniform; and (2) it would also push social norms that are far away from the mean (in terms of their implied VSL) closer to the average, thus making precautionary norms more uniform.

93 Strictly speaking, community VSLs could still apply where there is no established norm of behavior for the injurer or the victim. In such cases, courts would look at precautionary social norms generally to see what they imply, on average, about the value of life. The goal, in other words, is not to set context dependent community values of life; rather, it is to look at the range of social norms, see what they collectively imply about the value of life, and apply it to courts. Approaching community damages this way – as a way to reduce the universe of norms into a sort of average community VSL – would have two important effects: (1) it would make damages more uniform; and (2) it would also push social norms that are far away from the mean (in terms of their implied VSL) closer to the average, thus making precautionary norms more uniform.

94 See Porat, supra note ___.
95 Tyler; Why people Obey the Law.
VSLs as damages would encourage civic participation in so far as individuals conform to rules from perceived fairness, not just from self-interest.96

Table 4 illustrates this dynamic. Included in the Table are the results of 3 recent studies of wrongful death awards. For purposes of comparison to community and market VSLs, the table also includes information on maximum wrongful awards in 5 states, as established by damage caps on wrongful death claims. Based on the three studies included in the table, the median wrongful death award is under $1 million. Further, the damage caps for wrongful death are in the range of $250K – $1M. This suggests that using community VSLs as damages in wrongful death cases would result in significantly higher (and more uniform) damage awards. However, the increase in damage awards from using community VSLs would be far less dramatic than it would if market VSLs were used in court. This latter fact is important, since (as discussed more fully below), the reluctance to use VSLs in court revolves, at least in part, around the belief that they are simply too large.

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TABLE 4.  
WRONGFUL DEATH AWARDS, DAMAGE CAPS, AND CORRESPONDING SPEED NORMS

<table>
<thead>
<tr>
<th>Author/State</th>
<th>Data Source</th>
<th>Mean Award</th>
<th>Median Award</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posner &amp; Sunstein:</td>
<td>JVS</td>
<td>3.1 M A.</td>
<td>1.1M</td>
<td></td>
</tr>
<tr>
<td>Vidmar et al. (NY)</td>
<td></td>
<td>2.2 (award)</td>
<td>1.1 (award)</td>
<td>600K (actual recovery)</td>
</tr>
<tr>
<td>Vidmar et al. (FLA)</td>
<td></td>
<td>1.2 (award)</td>
<td>774K (award)</td>
<td>731K (actual recovery)</td>
</tr>
<tr>
<td>Vidmar et al. (CA)</td>
<td></td>
<td>680K (award)</td>
<td>391K (award)</td>
<td>332 (actual recovery)</td>
</tr>
<tr>
<td>Cross &amp; Silver (2006)</td>
<td></td>
<td>601K</td>
<td>291K</td>
<td>Settlement values as reported from Insurance database</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>895.04.</td>
<td>Damage Cap: 350K (Adult) 500K (minor)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virginia</td>
<td>§8.01-195.3</td>
<td>Damage Cap: 1.0M</td>
<td>Applies to Actions accruing after July 1, 2011 - $1,000,000 cap or maximum insurance coverage, whichever is greater.</td>
<td></td>
</tr>
<tr>
<td>Alaska</td>
<td>§ 09.17.010.</td>
<td>Damage Cap: 400K</td>
<td>Limits noneconomic damages</td>
<td></td>
</tr>
</tbody>
</table>
B. Theoretical Challenges to the Use of VSL Estimates as Damages

The use of VSL figures to determine damage awards has been proposed by, among others, Eric Posner and Cass Sunstein, but remains more controversial than the regulatory use of VSLs. Some of the arguments against using VSL figures as wrongful death awards are broad and theoretical, others more focused on whether the judicial use of VSLs satisfies the traditional economic criteria for optimal damages: deterrence and risk-spreading. We address each argument in turn.

It is useful to note, from the outset of this section, that the discussion surrounding the use of VSLs in court has not, to date, distinguished between market and community VSLs. To the extent that the existing arguments against using VSLs as damages rely on the sheer size of market VSLs—and their tendency to inflate damage awards to excessive levels—therefore, such arguments are misguided as applied to community values of life. Put another way, we agree with commentators who claim that market VSLs, if used in court to determine damage awards, would lead to overdeterrence and over-insurance. The arguments below concern the use of community VSLs as damages in wrongful death cases, which we endorse.

1. The “Mismatch” Argument: Small Risks Versus Entire Lives

One general argument against using values of a statistical life in court – whether such values are community values or market values – revolves around the magnitude of the risks implicated by VSL studies. VSL estimates are inappropriate for compensation purposes, the argument goes, because they are not ex post measures of the value of an entire life; rather, they reflect the value that individuals place on reducing small fatality risks. This argument doubles as a justification for the use of VSLs in the regulatory context, where the small risks valued by the VSL are spread

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97 Dollars and Death; Posner & Sunstein
across the entire population. In short, VSLs measure the way people trade off small risks and, in the context of regulation, the use of VSLs determines whether they will be exposed to small risks. Because valuation of small risks bears little relation to the valuation of an entire life (or certain death), there is allegedly a “fundamental mismatch” between the theory underlying VSLs and the compensatory aim of tort awards.98

The above argument, however, ignores the fact that damage awards act in precisely the same fashion as regulations from the point of view of potential (as opposed to actual) injurers. When a victim sues an injurer, the damage award sends a deterrence signal to other, similarly-situated, potential injurers: obey the standard of care or be subject to damages. The standard of care and the damage awards, of course, jointly determine the level of risk that the law will allow potential injurers to impose on potential victims. This is the essence of ex ante regulation—to specify the appropriate levels of risk that the law will tolerate. Though tort litigation forces small numbers of actual injurers to pay damages, its more important role is to send a deterrence message to the larger class of potential injurers and effectively regulate their behavior. Because a central role of tort law is the management of risks, it makes perfect sense to use VSLs—a measure of community approaches to risk—as a measure of damages.

Put another way, the arguments against using VSLs in court take the notion of compensation too seriously in a context where it is incoherent. As explained in section __, no amount of money can make a dead person “whole” and the same may be true of serious bodily injury. Some commentators have interpreted this fact to suggest that full compensatory damages for death would be infinite;99 conversely, some courts respond to this problem by refusing to award damages for a life at all, opting instead to limit wrongful death awards to economic damages.100 The better approach is to discard the idea of compensation in the context of serious injury and death. Since damages cannot, in principle, compensate for some injuries, it makes sense to analyze the incentive effects that VSL damages would provide. The standard economic framework for damages revolves around the twin goals of deterrence and risk spreading, discussed below.

99 Posner & Sunstein: Dollars and Death: (asking “How should we think about valuing the loss of life? One thought is that the loss of life should be valued at infinity because most people would not accept any amount of money in exchange for their lives.”)
100 String cite of courts using wage measures as wrongful death damages.
2. Deterrence

The principal reasons for adopting community VSLs as damage awards in cases of death are efficiency and fairness. Community VSLs set liability equal to the social cost of risky behavior, as inferred from social norms of precaution. In doing so, it provides incentives for rational injurers to follow social norms of precaution (or their equivalent). In the preceding section, we provided a pair of examples showing that community VSLs, by linking the community standard of care with damage awards, leads to optimal deterrence and avoids misalignments.

Kip Viscusi – a prolific scholar in the area of risk regulation and empirical VSL studies – is, perhaps, the most vocal critic of the use of VSL estimates in court. One of his principal arguments is that the use of VSL estimates in tort would lead to overdeterrence because damages are not the only sources of accident deterrence:

For risks involving a market exchange these [additional sources of deterrence] will be effects of accidents on people’s willingness to buy dangerous products or work on risky jobs. Accidents involving strangers, such as most auto accidents, may lead to revision of a driver’s insurance rates after an accident. For accidents involving strangers as well as those involving market exchanges, there are often incentives provided by government regulations, ranging from traffic tickets to regulatory sanctions. Accordingly, the view that VSLs would provide optimal deterrence is unduly “tort-centric” and incomplete.

Ultimately, though, the argument that insurance rate adjustments, regulatory sanctions, and price effects (in the case of products liability) are reliable sources of deterrence is unpersuasive for several reasons. First, and most importantly, all of the intermediate institutions cited by Viscusi as sources of deterrence presuppose damages that adequately capture the relevant losses. It is unclear how, for example, insurance rates could properly adjust if the rates do not reflect the underlying losses. The same can be said of prices in the context of strict liability: markets for potentially dangerous products will properly price risk only when (among other things) the value of the underlying losses is internalized by the producer/injurer. As with insurance rates, if the valuation of harm arising from risky products is

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101 See, e.g. Viscusi (Flawed Hedonic) supra note ___; Viscusi, The value of Life in Legal Contexts: Survey and Critique.
102 See Viscusi, supra note ___.
inadequate, the deterrence signal will be similarly inadequate; as a result, uninformed consumers will continue buying the (improperly priced) product to an inefficient extent.

Relying on regulations for deterrence is misguided for other reasons, the chief one being that regulatory sanctions are largely unavailable in many contexts covered by tort law. Car accidents, for example, are among the largest source of tortious injuries, and individual drivers are not subject to regulatory sanctions. Further, even when regulatory sanctions are available, they bear no necessary relation to the harm caused. Rather, regulatory sanctions often come in the form of fines or injunctions.\textsuperscript{103}

In Viscusi’s words, the appropriateness of VSL figures in the regulatory context flows precisely from their ability to “establish efficient levels of health and safety risks based on one’s own attitude toward bearing these risks.”\textsuperscript{104} In fact, Viscusi endorses the use of VSL numbers in the judicial context to determine precautionary standards (but not damages) for this very reason. In our view, the standard of care cannot be separated from the level of damages without causing misalignments and giving mixed signals to potential injurers. Thus, the appropriateness of community VSLs in the tort context flows from precisely the same considerations cited by Viscusi – their ability to “establish efficient levels of health and safety risks based on one’s own attitude toward bearing these risks.”

3. Insurance and Optimal Risk Spreading

Viscusi also claims that the use of VSL numbers in court would provide excessive insurance to accident victims.\textsuperscript{105} Since people would never purchase a level of insurance that would yield a post-injury payout similar to the prevailing VSL estimates, the argument goes, the tort system should not make such insurance compulsory. In large part, Viscusi’s argument about excessive insurance centers on the economic role of insurance and the marginal utility of wealth in pre- and post-injury states:


\textsuperscript{104} See Viscusi (misuses and proper uses). “From an economic standpoint, compensating people according to the value-of-life estimates will provide too much insurance and this will be inefficient generally. Moreover, in situations in which there are market transactions for hazardous products or risky jobs, this high level of compensation will also generate burdens on consumers and workers who will be in effect purchasing too much insurance through the higher prices they pay and the lower wages they receive because of these excessive damages levels.”
[I]t would not be rational for an individual to buy an insurance policy in which he or she in effect transferred income from the healthy state to the injured state because doing so would transfer income from the state in which the marginal utility of income was high to the state where the marginal utility of income was low. Thus, if the object is insurance and this is the only concern, then there is no rationale for pain and suffering whatsoever.106 (emphasis ours)

In light of the above, Viscusi concludes that VSL numbers, while appropriate for regulatory use, are undesirable as a measure of damages for wrongful death.

For a number of reasons, however, the arguments against using implied values of life in court are unconvincing. First, it bears repeating that the arguments about excessive insurance challenge the use of market VSLs rather than community VSLs. As mentioned above (and further detailed below, in Section ___), market values of a statistical life are significantly larger than community values of life – as much as 3 times larger. This fact alone takes much of the force out of the excessive insurance argument.

Second, it is not entirely clear that the level of insurance associated with VSL damages would be irrational – particularly with respect to community VSLs. Responding to similar “excessive insurance” arguments in the context of non-economic damages, a number of commentators have noted that individuals might, in fact, desire higher levels of insurance for pain and suffering if the market were well-equipped to provide it.107 Individuals' inability fully envision a post-injury life,108 along with the informational problems that would likely be associated with pain and suffering insurance,109 may better explain its absence in the marketplace than a lack of desire on the part of potential consumers. Moreover, the lack of demand for pain and suffering insurance may be attributable to the availability of such damages in tort:

[F]rom the potential buyers' perspective, informed consumers know that pain and suffering is compensable in

106 Viscusi, Misuses and Proper Uses of Hedonic Values of Life, supra note ___.
108 See Smith Pryor, supra note 36.
109 See Croely & Hanson, supra note 36.
tort cases....Given that they thus have a limited need for such coverage, its absence is not proof of its lack of value.\[^{110}\]

Finally, and most importantly, Viscusi’s view that damages for death and serious injury should be calculated with insurance concerns at the forefront is debatable. As he and others have noted, it is likely impossible to award damages for death and serious bodily injury that are optimal from both an insurance and deterrence point of view.\[^{111}\] Viscusi chooses to focus on the insurance function of damages because “courts focus in a retrospective manner and, in the setting of damages, also have a compensation orientation.” In doing so, Viscusi equates insurance and damages: “if the question being posed by the court is how much should the survivors be compensated for the death of the person, that is a question pertaining to insurance.” As mentioned above, however, the concept of compensation is virtually useless in the case of death and serious bodily injury.

C. Regulatory Use of Community VSLs

Above, we make a case for the use of community VSLs in the tort context. The arguments revolve around two broad themes: validity and internal consistency. Community VSLs are valid—as a measure of the implicit value of life—because they are derived from social norms, which embody the collective preferences and ideals of communities over time. Community VSLs offer internal consistency in tort because they are inherently linked with the standards already used by courts to determine reasonable precaution. At a minimum, they are better guides to the value of life and limb than the unaided intuitions of jurors.

In this section, we extend the argument for community VSLs to the regulatory context. The section is brief, as many of the arguments mirror those made in previous sections. As in tort, the reasons for using community VSLs as inputs to regulatory cost-benefit analyses are validity and consistency. With respect to validity, community VSLs are more reliable guides to the implicit value of life than the “market” VSLs currently used in the regulatory context. Further, the implicit values of life used in the regulatory context should be consistent with the values used in other areas of law that regulate risks, such as tort. We address the validity and consistency issues in turn.

\[^{110}\] See Bovbjerg et al., supra note 15.

\[^{111}\]
1. Validity:

The regulatory use of VSLs appears, on its face, to be quite different than the role we envision for VSLs in tort. In the regulatory context, VSLs serve as *ex ante* inputs to a regulatory cost-benefit analysis; in tort, they would serve as *ex post* guides to compensation. However, both applications of VSLs advance a common purpose—establishing prospective safety standards for potential injurers engaging in risky activities. Put another way, tort litigation and regulation, despite their various differences, are both commonly understood as deterrence mechanisms.

The shared (deterrence) goal of these two areas of law requires a method of valuing life, and doing so accurately. Regulators already use VSLs as a matter of course, but they appear to rely chiefly on market VSLs rather than community VSLs. In particular, regulatory agencies commonly use results from labor market or “wage premium” studies to establish the operational VSLs for their rules. For example, the EPA has relied on a series of studies by Viscusi—and more recently meta-analyses by Mrozek and Taylor, Kochi *et al.*, and Viscusi and Aldy—to inform its analyses. All of these empirical analyses focus on labor market studies, meaning that the underlying figures are what we call market VSLs rather than community VSLs. Based on these studies, the EPA recommends using a VSL of $7.4 million (or $6.3 in year 2000 dollars).\footnote{See Lisa Robinson, *How US Government Agencies Value Mortality Risk Reductions*, Review of Environmental Economics and Policy, volume 1, issue 2, summer 2007, pp. 283–299. See also, US Environmental Protection Agency (EPA). 1997. *The benefits and costs of the Clean Air Act, 1970 to 1990.* EPA 410-R-97-002.} Similarly, the FAA recommends a VSL value of $5.8 million, using the same studies cited by the EPA. The range of VSLs used by the FDA appears to center around $5 million, though recent cost-benefit analyses have used VSL values that are significantly higher ($7.9 & $6.4 million).\footnote{http://www.fda.gov/downloads/food/ingredientspackaginglabeling/ucm249276.pdf; http://www.fda.gov/downloads/food/guidanceregulation/guidancedocumentsregulatoryinformation/labelingnutrition/ucm385669.pdf}

For a variety of reasons, community VSLs are superior to market VSLs as a measure of the value that we place on life. As discussed in Section ____, community values are derived from injunctive social norms: rules of social conduct that are refined over time by communities rather than individuals. Social norms are also aspirational in nature, meaning that individual lapses in behavior do not change them. In short, social norms are ideal behaviors rather than average behaviors. The collective and deliberative nature of social norms therefore provides a check against extreme, imprudent, uninformed, or unduly selfish behaviors.
By contrast, market VSLs are imperfect expressions of individual preferences in imperfect markets. As catalogued by the behavioral economics literature, individuals have finite cognitive capacities, exhibit inconsistent preferences, and suffer from various biases that undermine the reliability of our market behavior.\footnote{See, e.g., Camerer, Colin F., Issacharoff, Samuel, Loewenstein, George F., O’Donoghue, Ted and Rabin, Matthew, Regulation for Conservatives: Behavioral Economics and the Case for 'Asymmetric Paternalism' (April 2003). University of Pennsylvania Law Review, June 2003; Christine Jolls et al., A Behavioral Approach to Law and Economics, 50 STAN. L. REV. 1471, 1545 (1998); Russell B. Korobkin & Thomas S. Ulen, Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics, 88 CAL. L. REV. 1051, 1059 (2000).} For example, in the context of labor market VSL studies—the studies underlying what we call market VSLs—individuals facing the health/wealth trade-off may not understand the risks they face:

\[
\text{[T]he relevant [VSL] numbers deserve respect only if they do not result from bounded rationality or an absence of information on the part of the people whose choices generate them. Suppose, for example, that workers do not know the risks that they face or that their decisions are products of the availability heuristic or optimistic bias. In either case, regulators should not use, for purposes of policy, a finding that workers are paid $60 to run a risk of 1/100,000; by hypothesis, that number does not reflect a rational tradeoff by informed workers’}.\footnote{Sunstein – A plea for disaggregation.}
\]

Just as individuals depart from perfect rationality, markets depart from the ideal of perfect competition.\footnote{Dollars and Death: “Current practice is based on an assumption, not that all or even most workers make informed choices, but that market processes ensure the right "price" for various degrees of safety”} For example, segmentation in labor markets limits the mobility of workers, potentially rendering their precaution choices, or risk-money trade-offs, less meaningful.\footnote{117 See Hersch, J., & Viscusi, W. K. (2009). Immigrant status and the value of statistical life. Vanderbilt Law and Economics Working Paper SSRN 1394360, forthcoming in Journal of Human Resources (finding evidence of labor market segmentation due to differences in language skills).}

Empirical scholars from within the VSL literature have voiced concerns about the reliability of commonly reported market VSL estimates. Interestingly, when statistical “best practices” are used—including better accounting for the source of risk, and variables that account for individual risk perceptions—the value of VSLs are significantly lower. A meta-
analysis by Mrozek and Taylor, for example, analyzes 40 VSL studies and finds a “plausible” VSL range of $1.58 million to $2.64 million (year 2000 dollars) when best practice assumptions are applied.\footnote{Mrozek, J. R. and Taylor, L. O. (2002), What determines the value of life? a meta-analysis. J. Pol. Anal. Manage., 21: 253–270. doi: 10.1002/pam.10026} A similar analysis by Miller finds a range of $2.98—$3.13 million (again, year 2000 dollars).\footnote{See Miller, supra note ___} Another recent study finds that that range of market VSLs used in the regulatory context are inflated insofar as they do not take into account publication bias.\footnote{Are estimates of the value of a statistical life exaggerated? Chris Doucouliagos, T D Stanley, Margaret J. Giles.} When all VSL studies are analyzed, the authors find an average market VSL of $2.74 million (in year 2000 dollars).

All of the above estimates resemble the average community VSL, as reflected in Table 3, and provide some support for the notion that community VSLs merge with market VSLs when the decisions underlying individual market choices are well-informed. Practically speaking, then, the adoption of community VSLs in the regulatory context would have the same effect as adopting what many believe are the most reliable market VSL estimates.

2. Consistency:

In our arguments concerning the use of community VSLs in tort, the meaning of “consistency” was internal: precautionary standards should match, or align with, damages. Since norms are often used as guideposts for reasonable precaution, we argue, damages should be measured by the implicit value of life contained in norms. Doing so would prevent misalignments and send clear deterrence signals to potential injurers.

In this context, we use the concept of consistency in a different way. Specifically, we are concerned with consistency across areas of law that engage in risk regulation. Because tort law and regulation are both aimed at establishing tolerable behaviors and levels of risk, tort and regulation should value life consistently.\footnote{Sunstein and Posner – Dollars and Death: “According to standard wisdom in law and economics, tort law and regulatory law have redundant functions: both deter cost-unjustified behavior.”} Failure to value life consistently across tort and regulation can cause two types of distortion. One type of distortion occurs when actors are subject both to regulations and tort litigation, and another type of distortion occurs when “two activities that are partial (or full) substitutes are regulated by different systems that rely on different
valuations.\textsuperscript{122}

In the former case, actors subject to both systems will be confused as to the required behavior, and may ultimately end up conforming to the more stringent (but not necessarily more desirable) requirements. For example, suppose regulations require an actor to take specific \textit{ex ante} precautions based on a market VSL of $5M. Suppose further that tort law values life erratically, and the upper end of the distribution of tort awards for wrongful death reaches well above $5M. Uncertain of whether regulatory compliance will shield him from tort liability, the actor, in addition to spending money to clarify this preemption issue, might choose to engage in extra precaution. In this case, the (upper) tail of the tort damage distribution “wags the dog” of precaution. Unless we assume that the high end of the distribution of tort awards is optimal, the actor in this case will be spending too many resources on precaution.

In the latter situation, the inconsistent valuations of life by across tort and regulation will distort the market for various activities. Posner and Sunstein provide an illustration:

Consider, for example, automobile travel, which is mainly but not entirely regulated by the tort system (regulations affect the design of cars and highways, too) and short-haul air travel, which is mainly but not entirely regulated by agencies (tort law also matters, of course). Suppose that agencies and tort law use reasonable but different life valuations….If tort law values victims less than regulatory law, then—all else equal—driving will be cheaper than flying. So some people who would otherwise prefer to fly will drive instead….\textsuperscript{123}[It] would be better if they both use the same valuation

The case for consistency across regulation and tort is not fundamentally different from the case for consistency within tort and within regulation.

The case for consistent valuation of life across tort and regulation, importantly, avoids the larger debate about the relative merits of the two systems in addressing certain types of problems. To be sure, the two areas of law have certain comparative advantages in the regulation of risky activities. We make no claims about the range of activities that should (or shouldn’t) be subject to regulation or tort, nor do we make any claims about preemption. Our narrow contention is that, when each of these two areas of law do operate, they should value life in a consistent manner.

\textsuperscript{122} Posner & Sunstein, Dollars and Death

\textsuperscript{123} Id.
CONCLUSION

In the regulatory context and in tort, placing a dollar value on life is necessary. Currently, the tort system relies on the intuitions of jurors to determine the effective value of life while the regulatory system relies on individual judgments made in the labor market. We contend that community judgments about safety—as reflected in precautionary social norms—are superior guides to the implicit value that we place on life. This conclusion is based on a particular conception of norms: one that is more about idealized community commitments than it is about behavioral patterns or average conduct.

Adopting community VSLs in tort would make damages more uniform and also align damages with standards of precaution (which, themselves, are often derived from social norms). If adopted in tort, community VSLs should also be used in determining the regulatory value of life; doing so would send clear, rather than confusing, deterrence signals to potential injurers whose activities are governed by both areas of law.

Based on the limited pool of empirical estimates that would count, under our definition, as community VSLs, adopting community VSLs in tort would approximately double current damage awards. Adopting community VSLs in the regulatory context would reduce regulatory values of life by about two-thirds. As more empirical studies on community values of life emerge, these numbers could, of course, change. Nonetheless, the theory behind our claims—that communities are better suited to make such judgments than individuals or jury members—remains.

If, on the other hand, our empirical findings concerning the relative magnitude of community and market VSLs hold up in future studies, this result calls for an explanation. Why are the market VSLs so much larger than community VSLs? This result is somewhat unexpected, since intuition might lead us to the opposite conclusion: that communities are more cautious than individuals. We conclude by briefly outlining several possible explanations that might be taken up in future work in the area.

A. Social Norms as Minimum (and Costly) Standards

One plausible reason why community values of life may be different than market behavior revolves around the nature of social norms—in particular, the consensus they embody and the enforcement costs required to maintain them. Regarding the former, social norms carve out a minimum standard of civility, rather than a maximal standard. Thus, it makes sense that community values of life implied by social norms are smaller than
“average values” in some cases. Everyone can agree that certain precautions need to be taken, but as the cost goes up, there is more disagreement and a social norm may be hard to form.

The “social norms as minimal standards” argument makes even more sense when we consider the fact that norms are costly to enforce. Lowering the community standard of care means less violations, which lowers the cost of enforcement. However, lowering the community standard of care also reduces the community’s value of a life revealed by it. Social norms therefore balance the need to reduce communal risks with the costs of enforcing the desired behavior.

Conversely, market choices are free, not enforced. With no enforcement costs, individuals can spend more to reduce risk, which increases the value of a statistical life as revealed by markets. In brief, the revealed value of a statistical life is reduced by enforcement costs for social norms, but not for market prices. Hence the paradox: average values of life, as expressed in individual market decisions, are higher than community values. In fact, we should give much the same weight to costs to ourselves and others, but the standard of care must be lowered in community standards relative to market prices because norms cost us a lot to enforce.

### B. WTA/WTP Gaps

The divergence in community and market VSLs might be partially explained by “willingness to accept/willingness to pay gaps.” WTA/WTP gaps terms refer to disparities between the amount of money that individuals are willing to accept to endure a certain state of affairs or part with a good (“WTA”) and the amount of money that people are willing to spend to obtain that same state of affairs or set of goods (“WTP”). Most of the VSL figures that we use as examples of community VSLs are WTP (“willingness-to-pay”) values, whereas most of the values we deem market VSLs are WTA (“Willingness to accept”) values. For example, the implied value of life derived from people’s willingness to purchase and wear bicycle helmets is a WTP value because the baseline state of affairs is higher risk that can be mitigated through a purchase. Conversely, labor market studies yield WTA values because workers are asked whether they would accept

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126 WTA-WTP gaps have been experimentally observed across a wide variety of goods: environmental entitlements like clean air and visibility, tangible goods such as chocolates, pens, and mugs, and a strange collection of other items including lottery tickets, health and safety risks, nuclear waste, foul-tasting liquids, and pathogen-contaminated sandwiches. The size of the WTA-WTP gaps observed in the literature, moreover, appears to vary widely. One recent meta-analysis of over forty studies, for example, found WTA/WTP ratios ranging from 0.74 to 113 – meaning that, in some cases, individuals valued goods over 100 times more when they owned them than when they didn’t.
more money to increase workplace fatality risks. Since WTP values are consistently less than WTA values, this may explain, in part, why community VSLs are smaller than market VSLs.

This explanation appears incomplete, though, as several market VSLs align with the (Table 2) wage premium studies despite the fact that they are WTP values. For example, Atkinson and Halvorson’s study of automobile pricing and safety features finds a VSL of $5.13 million. This figure is a WTP value, since the consumer must pay to reduce risks; however, the figure counts as a market VSL since social norms do not dictate which safety features we choose on cars—such choices are individual. A similar analysis by Dreyfus and Viscusi—also concerning car safety features and pricing—finds a VSL in the range of $3.8-$5.4 million. These examples provide at least some evidence that the divergence in magnitude between market and community VSLs is owed to reasons other than a WTA/WTP gap.

C. Mean Risk Levels

Finally, differences in the mean risk levels used in the market and community VSL studies may also be partially responsible for the divergence. Several scholars have observed that preferences over fatal risks are not linear. To illustrate with an extreme example, someone would pay far more to reduce a certain risk of death by 1/10,000 (from a probability of 1.0 to .9999) than they would to reduce a 1/5,000 risk of death by the same amount (from 1/5,000 to 1/10,000). A full accounting of the impact of mean risk levels across community and market studies may reveal that the divergence in magnitudes is an artifact of this variable.

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