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The Uneasy Case for Product Liability

A. Mitchell Polinsky and Steven Shavell*

We explain in this Article that the benefits of product liability may well be outweighed by its costs in a wide range of circumstances. One benefit is that the threat of liability may induce firms to improve product safety. However, this benefit is limited: even in the absence of product liability, firms would often be motivated by market forces to enhance product safety because their sales are likely to fall if their products harm consumers; moreover, their products must frequently conform to safety regulations. Consequently, product liability might not be expected to exert a significant additional influence on product safety — and the available empirical evidence suggests that such liability does not in fact have a measurable effect on the frequency of product accidents. A second benefit of product liability is that it causes product prices to increase to reflect the riskiness of products and thereby may improve consumer purchase decisions. But this benefit also involves a detriment, because product prices may rise excessively and undesirably chill purchases. A third benefit of product liability is that it compensates victims of product-related accidents for their losses. Yet this benefit is only partial, for accident victims are already often compensated by their insurers for some or all of their losses. Potentially offsetting the benefits of product liability are its costs, which are great. To transfer a dollar to a victim of a product accident requires more than a dollar on average in legal expenses. Given the limited benefits and the high costs of product liability, we conclude that it may be socially undesirable — especially for widely sold products, with respect to which market forces and regulation are relatively strong. This judgment is in tension both with the broad social endorsement of product liability and with proposals for its reform, which generally do not question its existence. Our more critical assessment of product liability stems from the fact that we engage in an analysis of its benefits and costs, whereas neither the proponents of product liability nor its reformers undertake to do so.

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I. Introduction

The liability of manufacturers of products for harms caused to consumers — product liability¹ — has great prominence in the United States. Tens of thousands of product liability cases are filed annually in state and federal courts, including some as class actions that involve hundreds of thousands or even millions of individuals as plaintiffs.² The legal bases for product liability suits are expansive, comprising liability for manufacturing defect, design defect, and failure to warn.³ Product liability cases receive significant attention from the media, especially when they concern widely sold products that harm many consumers.⁴ Moreover, product liability is of growing importance outside of the United States, particularly in the European Union and in Asia.⁵

¹ RESTATEMENT (THIRD) OF TORTS: PRODUCT LIABILITY § 1 (1998) (“One engaged in the business of selling or otherwise distributing products who sells or distributes a defective product is subject to liability for harm to persons or property caused by the defect.”); *id.* § 1 cmt. c (“The rule stated in this Section applies . . . to manufacturers and other commercial sellers and distributors”); *see also* RESTATEMENT (SECOND) OF TORTS § 402A (1965); DAN B. DOBBS, *THE LAW OF TORTS* § 352 (2000); DAVID G. OWEN, *PRODUCTS LIABILITY LAW* § 1.1 (2005).

² The most recent year for which relevant data are available is 2006. In this year, 6454 product liability cases were filed in nine states examined by the National Center for State Courts. NATIONAL CENTER FOR STATE COURTS, *EXAMINING THE WORK OF STATE COURTS, 2007: A NATIONAL PERSPECTIVE FROM THE COURT STATISTICS PROJECT 17-18* (2008), *available at* http://www.ncsconline.org/D_Research/csp/2007_files/Examining%20Final%20-%202007%20-%201%20-%20Whole%20Doc.pdf. Using population data from the U.S. Census Bureau to extrapolate from this number to the nation as a whole results in 29,163 state product liability cases in 2006. U.S. CENSUS BUREAU, *THE 2009 STATISTICAL ABSTRACT* (2009), *available at* <http://www.census.gov/compendia/statab/tables/09s0012.xls>. In fiscal year 2006, there were also 49,743 product liability cases filed in federal district court. ADMINISTRATIVE OFFICE OF THE U.S. COURTS, *2007 ANNUAL REPORT OF THE DIRECTOR: JUDICIAL BUSINESS OF THE UNITED STATES COURTS*, at tbl. S-10 (2008). Hence, the estimated number of state and federal product liability cases in 2006 is 78,906. For examples of class actions involving large numbers of individuals, see *Schwab v. Philip Morris, Inc.*, 449 F. Supp. 2d 992 (E.D.N.Y. 2006) (consisting of a class of tens of millions of smokers); *In re Diet Drugs*, 2000 WL 1222042 (E.D. Pa. 2000) (approving a settlement in favor of a class of approximately 6 million users of diet drugs); *see also* 1 WILLIAM B. RUBENSTEIN ET AL., *NEWBERG ON CLASS ACTIONS* § 3:5 (4th ed. 2002) (“Class actions under the amended Rule 23 have frequently involved classes numbering in the hundreds, or thousands, or even millions.”).

³ *See infra* text accompanying notes 57-60.

⁴ *See infra* Part IX.C.

⁵ *See generally* LOVELLS, *PRODUCT LIABILITY IN THE EUROPEAN UNION: A REPORT FOR THE EUROPEAN COMMISSION, FEBRUARY 2003*, at 31, 37 (“There has been a noticeable increase in the number of product liability claims in the EU in the last 10 years”); DAVID G. OWEN, *PRODUCTS LIABILITY LAW* § 1.4 (2005) (“[O]ver the last decade or two of the twentieth century, and the early years of the current century, modern products liability law and litigation has begun to spread its wings around the world.”); Thomas Leo Madden, *An Expansion of Japan’s Product Liability Law*, 5 PAC. RIM L. & POL’Y J. 299 (1996) (describing a 1994 law that enhanced the Japanese product liability regime); Mathias Reimann, *Liability for Defective Products at the Beginning of the Twenty-First Century: Emergence of a Worldwide Standard?*, 51 AM. J. COMP. L. 751, 756-60 (2003) (“[P]roduct liability has established

Perhaps surprisingly, no one to our knowledge has attempted to examine the question whether product liability as a whole is socially desirable, considering its major benefits and costs.⁶ We undertake this task here and come to the judgment that product liability may be socially undesirable in a broad range of circumstances. The essence of our argument is that the three beneficial effects of product liability — inducing firms to improve product safety, causing prices of products to reflect their risks, and providing compensation to injured consumers — are likely to be outweighed by the expenses of resolving product liability cases.⁷

We discuss the effect of product liability on product safety in Part II of the Article. We explain there that product liability might not significantly enhance product safety because, even in the absence of such liability, firms have an important reason to manufacture safe products. Namely, their sales will tend to fall if their products harm consumers or are viewed as unduly risky. As we describe, firms in fact experience substantial losses in sales when their products injure consumers, and consumers have access to considerable information about product risks, especially concerning widely sold products. Furthermore, safety regulation mandates that firms reduce the risks of injury associated with a broad range of products, including pharmaceuticals, food, automobiles, and household appliances. Against this background of market forces and regulation, one might question whether product liability would exert a significant additional influence on product safety, and our conclusion is that it is not likely to do so. Notably, the empirical literature on product liability does not find that it has had a measurable effect on product safety.

We address the second benefit of product liability, that it raises product prices and thus signals product risks to consumers, in Part III. We explain that this price signalling benefit is

itself in the vast majority of economically developed countries, that it is recognized as a special subject in many other parts of the world, and that there is a tendency for it to spread further. In short, it is fast becoming a global phenomenon.”); Craig S. Smith, *Chinese Discover Product-Liability Suits*, WALL ST. J., Nov. 13, 1997, at B1 (“In the three years since China’s consumer-rights laws took effect, liability lawsuits have risen to more than half a million annually.”).

⁶ See *infra* Part IX.B.

⁷ Our benefit-cost evaluation of product liability follows the utilitarian, or instrumental, analysis of tort law. For a prominent early example of the adoption of this framework, see GUIDO CALABRESI, *THE COSTS OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS* 24-33 (1970); see also WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF TORT LAW* (1987); STEVEN SHAVELL, *ECONOMIC ANALYSIS OF ACCIDENT LAW* (1987).

reduced to the extent that consumers already recognize product risks. We also discuss complicating factors that may enhance or diminish the price signalling benefit.

We evaluate the third benefit of product liability, that it compensates victims for their injuries, in Part IV. We emphasize that product liability promotes the compensation goal only incrementally, because insurance coverage (including public compensation programs) is widespread. In other words, individuals frequently would be compensated for some, possibly all, of their product-related losses even in the absence of the product liability system. We also explain that product liability actually tends to work counter to the compensation goal because, by including damages for pain and suffering, it effectively forces individuals to purchase insurance coverage for a category of losses for which they do not wish to be insured.

In Part V we discuss the legal and related costs of the product liability system. Studies demonstrate that for every dollar that victims of product accidents receive through the liability system, average legal expenses incurred exceed a dollar. In addition to these direct legal expenses of the product liability system, there are indirect costs generated by the effect of legal expenses on product prices. Specifically, because firms must raise the prices of their products to cover their legal costs, consumers are undesirably discouraged from purchasing goods.⁸

We come to the major conclusion of the Article in Part VI, that the benefits of product liability may well be outweighed by its costs. We suggest that product liability is most likely to be socially undesirable in the domain where its use is most prominent — for widely sold products such as drugs, automobiles, and consumer appliances. The main reason is that the influence of market forces and regulation on product safety should be relatively strong for products that are widely sold, because problems with these products tend to attract attention. For products that are not widely sold, however, the effect of market forces and regulation will be more weakly felt and, as a consequence, product liability could be socially advantageous.

In Part VII we observe that our analysis of product liability also applies to the liability of providers of services, such as physicians and accountants, because it does not matter to our logic that what is purchased is a service rather than a product. We conjecture, though, that the beneficial effect of market forces and regulation on risk reduction is often lower for services than for products, primarily because information about the quality of services generally is more

⁸ Additionally, we explain that compensation for nonmonetary losses further discourages consumption and results in consumer welfare losses.

difficult to obtain. Hence, the reasons we advance for skepticism about the desirability of product liability appear less strong in regard to service providers.

We consider in Part VIII an important difference between product liability and the liability of firms to strangers — that is, to individuals injured by firms who are not their customers (or employees). Examples of such victims are fishermen harmed by an oil spill or homeowners injured by an explosion at a chemical factory. Here market forces do not operate to punish firms for the harm that they do because it is not their customers who are the victims of the harm. Accordingly, the need for liability to induce firms to prevent harm is greater in the context of accidents involving strangers than in the context of product accidents involving customers.

In Part IX we discuss the contrast between our critical assessment of product liability and its widespread, though not universal, endorsement in judicial opinions, academic writing, and the media. The broadly favorable view of product liability held by others derives from the fact that product liability appears to satisfy basic notions of fairness and to yield significant product safety and compensation benefits. But this opinion is essentially conclusory: it does not recognize that the benefits of product liability are incremental in nature (only the enhancement to the level of product safety already generated by market forces and regulation, and only the addition to the level of compensation already yielded by insurance coverage, should be counted). Furthermore, the proponents of product liability generally ignore the high litigation costs that it generates. The critics of product liability, seeking to reform it, make similar errors in assessing its benefits and costs.

We conclude in Part X, summarizing our analysis and suggesting that, if our evaluation is correct, product liability should be strongly curtailed — or, more radically, eliminated — for widely sold products.

Before beginning our analysis, we want to emphasize that our skeptical view of product liability is not premised on a commonly encountered belief that juries and courts misapply the law or too liberally assess damages.⁹ Our analysis is consistent with the assumption that product

⁹ See PETER W. HUBER, *LIABILITY: THE LEGAL REVOLUTION AND ITS CONSEQUENCES* (1988) (arguing that unduly high awards in products liability cases, and tort cases more generally, chill innovation and overdeter socially desirable behavior); MICHAEL S. GREVE, *HARM-LESS LAWSUITS? WHAT'S WRONG WITH CONSUMER CLASS ACTIONS* (2005) (claiming that current the current products liability system results in double recoveries and excessive deterrence); ERIC HELLAND & ALEXANDER TABARROK, *JUDGE AND JURY: AMERICAN TORT LAW ON TRIAL* (2006) (maintaining that unwarranted awards are often given to plaintiffs, and that judges and juries often exhibit bias in making such awards).

liability law is applied in an unbiased manner and that damages are accurately measured. We nonetheless conclude that product liability is likely to be socially undesirable because, even if correctly implemented, it does not generate social benefits that are worth its costs.

II. The Safety Benefit of Product Liability

In this Part we first discuss how market forces and regulation might improve product safety. We then investigate the safety benefit of product liability, namely, the extent to which product liability adds to the level of safety generated by market forces and regulation.

A. Incentives to Reduce Product Risk Due to Market Forces

Market forces give firms an incentive to improve product safety, for when consumers believe that the risk of a product is high, they will either avoid buying the product or will not pay as much for it as they otherwise would. There are numerous instances in which consumers have dramatically reduced their purchases of a product after learning of substantial danger associated with its use. For example, Tylenol's market share fell from 37 percent to 7 percent in 1982 following the deaths of seven individuals who had ingested Tylenol capsules contaminated with cyanide.¹⁰ Similarly, Odwalla's sales of natural juices declined by 90 percent in 1996 after one person died and sixty were made ill from consuming some of its products containing E. Coli bacteria.¹¹ And Audi's automobile sales dropped by 69 percent after reports in the mid-1980s of problems of sudden acceleration in its vehicles.^{12,13}

¹⁰ See Eric Pace, *Rushing Into the Tylenol Gap*, N.Y. TIMES, Nov. 6, 1982, at A37.

¹¹ See Warren King, *Another Toddler Treated for E. Coli*, SEATTLE TIMES, Nov. 15, 1996, at B3; Brenda L. Moore, *Time May be Right to Take Bite of Odwalla*, WALL. ST. J., Aug. 19, 1998, at CA1.

¹² See A. Stertz Bradley, *U.S. Study Blames Drivers for Sudden Acceleration*, WALL ST. J., Feb. 2, 1989, at B1 ("Within the past three years, fears that Audis were prone to sudden acceleration cut U.S. sales of the models from an all-time high of 74,000 units in 1985 to just 22,943 last year.").

¹³ There are numerous other examples in which sales declined dramatically after consumers learned that a product was especially risky. See, e.g., RICHARD N.L. ANDREWS, *MANAGING THE ENVIRONMENT, MANAGING OURSELVES* 214 (2006) (sales of cranberries dropped by two thirds after discovery that some cranberries had been sprayed with a potentially toxic pesticide); GARY DAVIES ET. AL., *CORPORATE REPUTATION AND COMPETITIVENESS* 111 (2003) (noting that Perrier's U.K. market share fell from 32% to 17% in the month following an announcement of benzene contamination); RONALD D. MICHMAN & EDWARD M. MAZZE, *THE FOOD INDUSTRY WARS* 141 (1998) (noting that Gerber's market share declined from 72% to 52% in 1986 after regulators in several states found bits of glass in Gerber peaches); Val Brickates Kennedy, *Guidant Reports Lower Sales, Profits*, WALL ST. J. MARKETWATCH, Jan. 27, 2006 (sales of Guidant defibrillators fell 19% following product recalls); *Business Notes Autos*, TIME, Aug. 15, 1988 (reporting a 63% decline in sales of the Suzuki Samurai after a Consumer Reports

There are also many examples of consumers increasing their demand for a product, or of their paying more for it, in light of favorable information about its safety. Volvo has been able to charge a premium for its automobiles apparently because they have performed especially well in crash tests and have included safety features unavailable from other manufacturers.¹⁴ Cirrus Design became the best-selling manufacturer of four seat, single engine aircraft, in significant part because of its innovative provision of ballistic parachutes to lower its planes to safety in the event of loss of control.¹⁵ Sellers of bottled water are able to charge about 800 times more than the price of tap water¹⁶ because consumers perceive bottled water to be purer than tap water.¹⁷

Obviously, the degree to which consumers will punish manufacturers for unsafe products or reward them for safe products depends on the information that consumers have about product safety.¹⁸ One source of such information is the print media, which regularly carry stories about

article claimed that it was unsafe to drive); Stephen Foleyin, *Mattel Sales Hit by 'Toxic Toy' Recalls*, INDEPENDENT (London), Oct. 16, 2007, at 36 (reporting that Mattel suffered a 19% decline in sales associated with lead-tainted toys); Suresh Govindaraj et al., *Market Overreaction to Product Recall Revisited—The Case of Firestone Tires and the Ford Explorer*, 23 REV. QUANTITATIVE FIN. & ACCT. 31, 40 (2004) (noting an “immediate drop of 50 percent . . . in the worldwide sales of Firestone tires” in the wake of their recall); *Jack in the Box's Worst Nightmare*, N.Y. TIMES, Feb. 6, 1993, at S1 (reporting that Jack in the Box's sales dropped sharply after an E. Coli outbreak was linked to its food products).

¹⁴ See Chuck Squatriglia, *Volvo Promises an Injury-Proof Car by 2020*, WIRED, May 2, 2008, available at <http://www.wired.com/autopia/2008/05/volvo-promises/> (“Volvo’s long been at the forefront of vehicle safety. It invented three-point safety belts and was the first to use crumple zones, side-impact airbags and rear-facing child seats. In a 2006 survey of 500 consumers conducted by Accenture, more than two-thirds of respondents ranked safety as the most important technology to include in their vehicles, 70 percent were willing to shell out extra for it. Volvo’s long been the best at marketing safety, and a recent poll by Consumer Reports found 77 percent of respondents consider Volvo the safest car on the road.”); William Boulding & Devavrat Purohit, *The Price of Safety*, 23 J. CONSUMER RES. 12, 24 (1996) (finding that Volvo is able to charge one of the highest premiums for its cars).

¹⁵ *Taking the Fear Out of Flying: Cirrus Sales Soaring to the Stratosphere*, NODAK NEIGHBOR, Nov.-Dec. 2005, at 4 (“The parachute innovation has Cirrus nipping at the tail wings of long-time industry leader Cessna.”); Austin Weber, *Cirrus Soars With Composites: Big Ideas Revolutionize Small Plane Production*, AEROSPACE ASSEMBLY, Sept. 1, 2008 (noting that the Cirrus SR22 is the “world’s best-selling aircraft,” in part because of its reputation for being, “safe and easy to fly” and in part because Cirrus “pioneered the unique concept of a plane with a parachute”).

¹⁶ *More Consumers Turn On To Tap Water to Trim Costs*, WALL ST. J., Jun. 18, 2008 (finding that a year’s worth of bottled water purchased from Costco would cost over \$400, while the same amount of tap water would cost \$0.51).

¹⁷ Branden B. Johnson, *Comparing Bottled Water and Tap Water: Experiments in Risk Communication*, 13 RISK: HEALTH, SAFETY & ENV’T 69, 81 (2002) (finding that 43% of respondents thought that bottled water was more safe than tap water, while only 3% of respondents thought the reverse).

¹⁸ The better is consumer information about product risks, the better will be the market incentives acting on manufacturers to improve safety. In principle, if consumers possess perfect information, any risk-reducing precaution whose cost is less than its value will be taken by a manufacturer. For instance, if consumers understand

risky products. In 2007, for example, the top ten newspapers in the United States, with a total paid circulation of close to ten million people, published an estimated 2,900 articles related to product safety.¹⁹ General news magazines, such as *Newsweek* and *U.S. News & World Report*, frequently include articles about product safety,²⁰ as do numerous specialized magazines, such as *Motor Trend* and *Guns & Ammo*.²¹ Moreover, *Consumer Reports* tests a broad range of products

that a \$25 safety guard for a chain saw will reduce accident losses by \$100, a manufacturer will include the safety guard with its chain saws; consumers will gladly pay an extra \$25 for the guard because it will reduce their losses by more. Of course, consumers are not perfectly informed in fact, so that market incentives generally will lead to less than optimal safety. A further reason that market forces may not operate ideally is due to the ownership of first-party accident insurance by consumers. To the extent that such insurance covers their losses, consumers will not value risk reduction and thus not reward manufacturers for it. This point was noted by CALABRESI, *supra* note 7, at 144-47, 248, and developed by Jon D. Hanson and Kyle D. Logue, *The First-Party Insurance Externality: An Economic Justification for Enterprise Liability*, 76 CORNELL L. REV. 129, 159-68 (1990).

¹⁹ The ten most widely read newspapers in 2007 had a total paid daily circulation of 9.56 million. In order of circulation, they were *USA Today*, *The Wall Street Journal*, *The New York Times*, *The Los Angeles Times*, *The New York Daily News*, *The New York Post*, *The Washington Post*, *The Chicago Tribune*, *The Houston Chronicle*, and *Newsday*. See Audit Bureau of Circulations, E-Circ Database of Newspapers, <http://abcas3.accessabc.com/ecirc/newsform.asp>. A LexisNexis search of these newspapers for the word “product” within five words of the words “safety,” “danger,” or “injure,” or the words “accident” or “defect” along with the words “injure,” “danger,” or “hurt” returned 1,458 articles published in the six month period between April 1, 2007, and September 30, 2007.

²⁰ LexisNexis search for the keywords “dangerous,” “consumer,” “product,” “safety,” and “injury” in *Newsweek* returned over 100 articles for the calendar year 2007, including articles on the danger of all terrain vehicles (ATVs), manufactured goods from China, and salt. See Jennifer Barrett, *Hold The Salt, Please*, NEWSWEEK, Dec. 24, 2007, at 62; Melinda Liu, *Unsafe at Any Speed: The Downside of China’s Manufacturing Boom: Deadly Goods Wreaking Havoc at Home and Abroad*, NEWSWEEK INT’L, July 16, 2007, at 18; Julie Scelfo, *Accidents Will Happen . . . : ATVs Are Cool to Ride, But Thousands of Kids Are Getting Hurt, and Some Are Dying.*, NEWSWEEK, May 14, 2007, at 59. A similar search in *U.S. News & World Report* also returned over 100 responses, including articles on the safety of supermarket food, medicines, and pet food. See Nancy Shute, *Are Your Drugs Safe?*, U.S. NEWS & WORLD REP., Oct. 15, 2007, at 61; Nancy Shute, *Better Safe Than Sorry*, U.S. NEWS & WORLD REP., May 28, 2007, at 67 (reporting on the dangers of certain supermarket foods); Adam Voiland, *A Human Connection?*, U.S. NEWS & WORLD REP., May 14, 2007, at 39 (reporting on contaminated pet food).

²¹ According to the Audit Bureau of Circulations, there are 40 specialized sports magazines (including *Ski Magazine*, *Scuba Diving*, and *Climbing*), 35 fishing or hunting magazines (including *American Hunter*, *Guns And Ammo*, and *Game and Fish Magazine*), 43 automotive magazines (including *Motor Trend* and *Car And Driver*), 11 boating or yachting magazines (including *Boating*), and 4 aviation magazines (including *Flying*) in regular circulation. See Audit Bureau of Circulations, E-Circ Database of Consumer Magazines, <http://abcas3.accessabc.com/ecirc/magform.asp> (last visited June 9, 2009). These magazines frequently include items concerning product safety, product malfunctions, and recalls. See, e.g., *Bailout Bottles*, SCUBA DIVING MAGAZINE, Oct. 19, 2006, <http://www.scubadiving.com/gear/bags/article2679> (rating several emergency air supply bottles for scuba divers); *Gear: Bindings*, SKI MAGAZINE, Sept. 2005, <http://www.skinet.com/skinet/gear/article/0,26908,1091807,00.html> (discussing safety features of ski bindings); *Smith & Wesson Issues Product Safety Warning and Recall Notice*, SHOOTING TIMES, Sept. 21, 2006, http://www.shootingtimes.com/swpr_092206/.

and evaluates their risks.²² The subscriber base of these magazines is about 47 million individuals.²³

Television and the Internet also are significant suppliers of information about product safety. Daily news programs report on major product defects and accidents, and feature news programs, such as *60 Minutes* and *20-20*, often include segments on product problems.²⁴ The combined viewership of the three network evening news programs, *Fox News*, and *CNN* exceeds 25 million people,²⁵ and that of *60 Minutes* and *20-20* was approximately 18 million.²⁶ The

²² For instance, a search of the print edition of *Consumer Reports* returned 141 articles containing the word “safety” in the calendar year 2007, including articles on the safety of medical devices, vaccines, and automobile tires. See *HPV Vaccines: Beyond the Hype*, CONSUMER REP., Oct. 2007, at 47 (evaluating the benefits and costs, including the safety, of the HPV drug Gardasil); *Medical Devices: Problems on the Rise*, CONSUMER REP., Dec. 2007, at 53 (noting increased incidence of hospitalizations associated with failed medical devices); *Tires: Big Grippers*, CONSUMER REP., Nov. 2007, at 58 (rating automobile tires where, “[o]verall scores in our Ratings are a weighted average for summer and all-season UHP tires emphasizing safety-related characteristics such as braking, handling, and hydroplaning.”).

²³ According to the Audit Bureau of Circulations, the total paid circulations for *Newsweek*, *U.S. News and World Report*, and *Time* during the six-month period ending December 31, 2008 were approximately 2.7 million, 1.58 million, and 3.36 million, respectively. *Motor Trend* had a total paid circulation of approximately 1.12 million, while *Guns & Ammo* had a total paid circulation of 447,945. The total circulation for the special interest magazine categories identified *supra* note 21 was approximately 33.57 million. See Audit Bureau of Circulations, E-Circ Database of Consumer Magazines, <<http://abcas3.accessabc.com/ecirc/magform.asp>> (last visited June 8, 2009). *Consumer Reports* magazine, ConsumerReports.org, and the newsletters *Consumer Reports on Health* and *Consumer Reports Money Adviser* have combined subscriptions of more than 8 million. See ConsumerReports.org, Our Mission, <http://www.consumerreports.org/cro/aboutus/mission/overview/index.htm> (last visited June 8, 2009). Of course, there is some overlap among the subscribers of the magazines discussed in this note.

²⁴ See, e.g., *Consumer Product Safety Commission Warns Parents to Beware of Dangerous Toys* (CBS television broadcast Nov. 20, 2007) (covering lead levels in popular toys, including Dora the Explorer and Spongebob Squarepants); *60 Minutes: Is Your Car Safe?* (CBS television broadcast June 11, 1978) (covering problems with the Ford Pinto’s gas tank); *60 Minutes: Testing, Testing, Testing; Weapons are the Only Manufactured Consumer Products Not Subject to Safety Inspections* (CBS television broadcast Mar. 20, 1994) (covering handgun safety); *20/20: After the Crash* (ABC television broadcast July 16, 1999) (reporting on automobile gas tanks exploding due to design defects); *20/20: Toys in Trouble?* (ABC television broadcast Nov. 13, 1998) (covering the presence of the possibly harmful chemical phthalate in soft plastic toys).

²⁵ In 2008, the viewership of the ABC evening news program averaged 8.1 million, that of CBS averaged 6.1 million; and that of NBC averaged 8.6 million. THE PROJECT FOR EXCELLENCE IN JOURNALISM, THE STATE OF THE NEWS MEDIA: AN ANNUAL REPORT ON AMERICAN JOURNALISM, <http://www.stateofthemediamedia.org/2009/index.htm> (follow “Network TV Audience” hyperlink) (last visited June 9, 2009). The average primetime audiences in 2008 of Fox News was 2.02 million and that of CNN was 1.05 million. THE PROJECT FOR EXCELLENCE IN JOURNALISM, THE STATE OF THE NEWS MEDIA: AN ANNUAL REPORT ON AMERICAN JOURNALISM, <http://www.stateofthemediamedia.org/2009/index.htm> (follow “Cable TV” hyperlink) (last visited June 9, 2009).

²⁶ In 2008, the audience of *60 Minutes* averaged 11.9 million, and that of *20-20* averaged 6.1 million. THE PROJECT FOR EXCELLENCE IN JOURNALISM, THE STATE OF THE NEWS MEDIA: AN ANNUAL REPORT ON AMERICAN JOURNALISM, <http://www.stateofthemediamedia.org/2009/index.htm> (follow “Network TV News Magazines” hyperlink) (last visited June 9, 2009).

Internet also allows consumers to easily locate evaluations of the safety of most widely sold products.²⁷

Additionally, many government agencies provide evaluations of product risks. For example, the National Highway Traffic Safety Administration (NHTSA), the Consumer Product Safety Commission (CPSC), and the Food and Drug Administration (FDA) furnish safety information to the public about a broad range of products.²⁸ Although we suspect that

²⁷ One way to find information about the safety of a particular product is to search for it using Google. For instance, a consumer can find data on the safety of the Toyota Tundra truck by entering the search terms, “safety toyota tundra 2008” into Google. The results include the Insurance Institute for Highway Safety’s test results for the Tundra. IIHS-HLDI: Toyota Tundra, <http://www.iihs.org/ratings/ratingsbyseries.aspx?id=444> (last visited Feb. 9, 2008). A Google search for “bike helmet safety” leads to, among other sites, the Bicycle Safety Helmet Institute, which provides ratings of bicycle helmets. Bicycle Helmet Safety Institute, <http://www.helmets.org> (last visited Feb. 9, 2008). Another way to obtain product safety information is to examine the web sites of organizations that address this topic. *See, e.g.*, Center For Science in the Public Interest, <http://www.cspinet.org/> (last visited Feb. 17, 2008) (evaluating food safety); ConsumerAffairs.com, <http://www.consumeraffairs.com/> (last visited Feb. 17, 2008) (supplying information about product recalls); Consumers Union, <http://www.consumersunion.org/> (last visited Feb. 17, 2008) (assessing the safety of automobiles, household appliances, and many other products); Flight Safety Foundation: Aviation Safety Network, <http://aviation-safety.net/database/> (last visited June 11, 2009) (providing aircraft safety incident data, including by aircraft type); Insurance Institute for Highway Safety, <http://www.iihs.org/> (last visited Feb. 17, 2008) (providing crash test ratings for vehicles); W.A.T.C.H. World Against Toys Causing Harm, <http://www.toysafety.org/index.html> (last visited Feb. 19, 2008) (reporting on toy safety).. Another source of safety information is websites of news outlets. *See, e.g.*, Consumer Watch – The Early Show News and Video at CBS.com, <<http://www.cbsnews.com/sections/earlyshow/living/ConsumerWatch/main500369.shtml>> (last visited Feb. 17, 2008) (providing advice on consumer products, including articles about product safety); Motor Trend Buyer’s Guide, New Car Safety & Crash Test Ratings, http://www.motortrend.com/new_cars/safety/ (last visited Feb. 17, 2008) (reporting vehicle safety and crash test ratings); New York Times Health News, <http://health.nytimes.com/pages/health/> (last visited Feb. 17, 2008) (supplying health care news, including articles on drug safety); Wall Street Journal Auto News, http://online.wsj.com/public/page/autos_main.html?mod=hpp_us_autos (last visited Feb. 17, 2008) (reviewing cars and motorcycles, including their safety). An additional source of safety information about products is the websites of specialty organizations and user groups. *See, e.g.*, Aircraft Owners and Pilots Association: Air Safety Foundation, http://www.aopa.org/asf/publications/subject_index.html#reviews (last visited June 11, 2009) (providing aircraft reviews); CarGurus.com, <http://www.cargurus.com/> (last visited Feb. 17, 2008) (evaluating new and used cars, including their safety); WebMD Health – Drug Index, <http://www.webmd.com/drugs/index-drugs.aspx?> (last visited Feb. 17, 2008) (supplying safety information for over the counter and prescription drugs).

²⁸ *See* Food and Drug Administration Medical Product Safety Information, <http://www.fda.gov/medwatch/safety.htm> (last visited Nov. 30, 2008) (supplying safety information about drugs approved by the FDA, as well as a list of medical device recalls); National Highway Traffic Safety Administration, <http://www.safercar.gov/> (last visited Nov. 30, 2008) (providing ratings of tire safety, crash test results, rollover ratings, and a database of recalls); U.S. Consumer Product Safety Commission, CPSC Publications, http://www.cpsc.gov/cpscpub/pubs/pub_idx.html (last visited Feb. 18, 2008) (offering safety assessments of numerous products, including bicycles, children’s furniture, and power equipment).

consumers do not make frequent reference to this information,²⁹ they do benefit from it indirectly because it is used by other entities, such as *Consumer Reports*.³⁰

While these many sources of information about product risks seem significant, we recognize that the actual extent and accuracy of consumer information about product risks will be imperfect. Given the constraints on their time, consumers will only be exposed to a subset of the information in practice. Furthermore, even if individuals are aware of information about product risks, they might not evaluate it appropriately because of cognitive biases.³¹

Consumers should have a relatively good assessment, however, of the risks of products sold by large corporations. One reason is that the media and regulators have naturally strong incentives to identify and publicize such risks. If there is a safety problem with a popular drug or an automobile, tens of thousands of individuals could be affected, which the media would be eager to report — as our examples of Tylenol and Audi automobiles illustrate³² — and which would probably attract the attention of regulators.

²⁹ This may change as a result of an effort by the Consumer Product Safety Commission to collect information from consumers about safety risks and make it easily accessible through a website. See 15 USC § 2055a (requiring the CPSC to develop a searchable online database on the safety of consumer products within two years of August, 2008); Editorial, *The President and Product Safety*, N.Y. TIMES, Aug. 5, 2008, at A18, available at http://www.nytimes.com/2008/08/05/opinion/05tue2.html?_r=1&ex=1218600000&en=173ad8317c479f81&ei=5070&emc=eta1 (describing proposal to create a public database that would let consumers report problems with products and read other consumers' complaints).

³⁰ See, e.g., *Fatal TV Tip-Overs: The CPSC Reports a Troubling Increase in Tip-Over-Related Deaths*, CONSUMER REP., Sept. 2006, available at http://www.consumerreports.org/cro/home-garden/news/september-2006/fatal-tv-tip-overs-cpsc-reports-increase-in-tip-over-related-deaths-9-06/overview/0609_fatal-tip-overs.htm (last visited Feb. 18, 2006).

³¹ See, e.g., Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 (1998) (discussing common cognitive biases); Matthew Rabin, *Psychology and Economics*, 36 J. ECON. LITERATURE 11, 24-31 (1998) (same). See generally, DANIEL KAHNEMAN, PAUL SLOVIC, & AMOS TVERSKY, *JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* (1982). When individuals misperceive risks, they sometimes underestimate and sometimes overestimate them. See, e.g., Sarah Lichtenstein et al., *Judged Frequency of Lethal Events*, 4 J. EXPERIMENTAL PSYCHOL. 551 (1978) (finding that individuals systematically overestimate the frequency of death from unlikely events and underestimate the frequency of death from likely causes); Paul Slovic, Baruch Fischhoff & Sarah Lichtenstein, *Facts and Fears: Understanding Perceived Risk*, in *SOCIETAL RISK ASSESSMENT: HOW SAFE IS SAFE ENOUGH?* (Richard Schwing & Walter Albers eds., 1980) (finding that individuals accurately predicted the number of annual fatalities due to home appliances, under-reported those due to X-rays, and over-reported the danger of vaccinations); Michael Wogalter, Douglas Brems & Elaine Martin, *Risk Perception of Common Consumer Products: Judgments of Accident Frequency and Precautionary Intent*, 24 J. SAFETY RES. 97, 100 (1993) (reporting that individuals overestimate low-probability product risks and overestimate high-probability product risks).

³² See *supra* notes 10 and 12.

Hence, the influence of market forces on product safety is likely to be particularly important for products sold by large corporations. Moreover, such firms, with high sales, have more to lose if consumers think that their products are dangerous and more to gain if consumers believe that their products are safe. Additionally, large firms tend to be especially concerned about their reputation for safety because they often offer multiple product lines and have long time horizons.

Conversely, market forces should be less important for small companies because media and regulatory interest in their products will be of a lower order. For instance, problems with space heaters made by a local manufacturer and sold in limited volume would be unlikely to receive more than brief mention by the media or to be noticed by regulators. Hence, consumer knowledge about the risks of products made by small companies might be relatively poor, in which case such companies would have a weak incentive due to market forces to increase the safety of their products.

B. Regulation of Product Risk

In addition to market forces, government regulation enhances the safety of a wide range of products.³³

Automobiles. Automobile safety regulations are extensive in nature and include, for example, requirements regarding seat-belts, crashworthiness, fuel tank construction, and windshield and tire strength.³⁴ These requirements are primarily enforced by the National Highway Traffic Safety Administration,³⁵ whose annual budget exceeds \$830 million.³⁶ Firms

³³ See generally STEPHEN BREYER, *REGULATION AND ITS REFORM* (1982); CASS R. SUNSTEIN, *RISK AND REASON* (2002); W. KIP VISCUSI ET AL., *ECONOMICS OF REGULATION AND ANTITRUST* 789-826 (4th ed. 2005).

³⁴ See ROBERT W. CRANDALL ET AL., *REGULATING THE AUTOMOBILE* (1986); Murray L. Weidenbaum, *Regulation of the Automobile: Extensive and Growing*, EXECUTIVE SPEECHES, Dec. 1998, at 14. On the specific requirements mentioned in the text, see 49 C.F.R. §§ 571.101-.135 (crash avoidance), § 571.109 (tire strength, endurance, and dimensions), §§ 571.201-.224 (crashworthiness, including seat belt and windshield mounting requirements), and §§ 571.301-.304 (fuel system integrity and fire prevention).

³⁵ 49 U.S.C. §§ 322, 30111 (granting Secretary of Transportation power to prescribe motor vehicle safety standards); 49 C.F.R. § 1.50 (delegating authority to NHTSA administrator); see also 49 U.S.C. § 30166 (granting authority to conduct inspections and investigations as necessary to enforce motor vehicle safety regulations). For a detailed account of the development of NHTSA, see JERRY L. MASHAW & DAVID L. HARFST, *THE STRUGGLE FOR AUTO SAFETY* (1990).

³⁶ National Highway Traffic Safety Administration, NHTSA Budget Overview: FY 2007, available at <http://www.dot.gov/bib2008/bibpart07nhtsa.htm>.

are subject to sanctions for violating automobile safety regulations³⁷ and executives are potentially subject to criminal liability.³⁸

Pharmaceuticals. Pharmaceutical products must satisfy rigorous testing and labeling requirements that are overseen by the Food and Drug Administration.³⁹ The FDA's Center for Drug Evaluation and Research has a staff of approximately 3,000 employees⁴⁰ and an annual budget of about \$1.7 billion.⁴¹ New pharmaceuticals generally are subject to four phases of clinical trials to ensure that they are safe and effective.⁴² Prescription drugs must satisfy FDA labeling requirements and include information about their proper use.⁴³ Significant violations of FDA drug regulations are subject to fines and imprisonment.⁴⁴

Aircraft. Stringent aircraft safety standards, set by the Federal Aviation Administration (FAA), govern the manufacture,⁴⁵ maintenance,⁴⁶ and airworthiness⁴⁷ of all aircraft. Every

³⁷ 49 U.S.C. § 30165(a)(1) (authorizing financial penalties of up to \$5,000 per violation).

³⁸ *Id.* § 30170(a) (authorizing an imprisonment sentence of up to fifteen years for falsifying or withholding information relating to motor vehicle safety violations that cause death or serious bodily injury).

³⁹ See FDA REGULATORY AFFAIRS: A GUIDE FOR PRESCRIPTION DRUGS, MEDICAL DEVICES, AND BIOLOGICS (Douglas J. Pisano & David Mantus eds., 2003); SUZANNE PARISIAN, FDA INSIDE AND OUT (2001); U.S. Food & Drug Safety Administration, Legislation, <http://www.fda.gov/opacom/laws/> (last visited June 1, 2009); see also ARTHUR A. DAEMMRICH, PHARMACOPOLITICS: DRUG REGULATION IN THE UNITED STATES AND GERMANY (2004).

⁴⁰ U.S. FOOD & DRUG ADMIN., FISCAL YEAR 2010 CONGRESSIONAL JUSTIFICATION 77 (2009), available at <http://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Reports/BudgetReports/UCM153508.pdf>.

⁴¹ *Id.*

⁴² See BERT SPILKER, GUIDE TO CLINICAL TRIALS xxii-xxiii (1984); National Institute of Health, FAQ: ClinicalTrials.gov – Clinical Trial Phases, <http://0-www.nlm.nih.gov.catalog.llu.edu/services/ctphases.html>; see also Brian Vastag, *New Clinical Trials Policy at FDA*, NATURE BIOTECHNOLOGY, Sept. 2006, at 1043.

⁴³ See, e.g., Requirements on Content and Format of Labeling for Human Prescription Drug and Biological Products, 71 Fed. Reg. 3922 (Jan. 24, 2006) (reviewing and amending FDA regulations governing labeling requirements for prescription drug products) (now codified at 21 C.F.R. pts. 201, 314 & 601).

⁴⁴ 21 U.S.C. § 333(b) (authorizing fines ranging from \$250,000 to \$1,000,000 and imprisonment for up to ten years).

⁴⁵ 14 C.F.R. § 21.6 (requiring manufacturers of aircraft, aircraft engines, or propellers to obtain a special “type certificate”); *id.* §§ 21.121-.165 (requiring manufactures operating under type or production certificates to set up inspection, quality control, and testing systems).

⁴⁶ 14 C.F.R. §§ 43.1-.17 (requiring detailed inspection and maintenance records and that inspection and maintenance operations be performed by FAA-certified mechanics, repairmen, or air carrier operators).

accident involving a civil aircraft is investigated at the initiative of the National Transportation Safety Board.⁴⁸ Violations of aircraft regulations may result in seizure of noncompliant aircraft, civil penalties, and criminal sanctions.⁴⁹

Consumer products. Safety standards apply to numerous consumer products, such as toys, cigarette lighters, baby cribs, and household chemicals. These standards are developed and enforced by the Consumer Product Safety Commission, which is responsible for protecting the public against “unreasonable risks of injuries associated with consumer products.”⁵⁰ In addition to imposing civil fines for violations,⁵¹ the CPSC has the authority to order the recall of unsafe products.⁵²

Safety regulations of the type just reviewed have been found to have beneficially affected product safety. For example, automobile safety standards have been determined to have significantly reduced the number of deaths due to collisions.⁵³ Similarly, the declining accident

⁴⁷ 14 C.F.R. §§ 23.1-39.27 (setting out detailed airworthiness requirements, including provisions for structure, weight distribution, speed, performance, roll and stability, force and torque limits, mechanics, and control systems); *see also* Federal Aviation Administration, Airworthiness Directives, <http://rgl.faa.gov/> (follow “Airworthiness Directives” hyperlink) (last visited June 1, 2009) (collecting airworthiness directives requiring special provisions for particular aircraft and parts).

⁴⁸ 49 U.S.C. § 1132(a)(1) (requiring NTSB to investigate each accident involving civil aircraft); National Transportation Safety Board, History and Mission, http://www.nts.gov/Abt_NTSB/history.htm (last visited June 1, 2009) (noting NTSB’s mission to investigate all U.S. civil aviation accidents). *See generally* U.S. GOV’T ACCOUNTABILITY OFFICE, REPORT TO CONGRESSIONAL REQUESTERS: NATIONAL TRANSPORTATION SAFETY BOARD 32-44 (Nov. 2006).

⁴⁹ 14 C.F.R. §§ 13.1-29 (providing various enforcement measures for violations of FAA regulations).

⁵⁰ Consumer Product Safety Act, Pub. L. No. 92-573, §2(b)(1), 86 Stat. 1207 (codified at 15 U.S.C. § 2051(b)(2)) (establishing Consumer Product Safety Commission to protect the public “against unreasonable risks of injury associated with consumer products”). For a list of more than 15,000 consumer products regulated by the CPSC, *see* U.S. Consumer Product Safety Commission, Regulated Products, <http://www.cpsc.gov/businfo/reg1.html>.

⁵¹ 15 U.S.C. § 2069 (providing for civil penalties).

⁵² 15 U.S.C. § 2071 (providing for injunctive enforcement and seizure upon action brought by the Commission).

⁵³ *See, e.g.,* ROBERT W. CRANDALL ET AL., REGULATING THE AUTOMOBILE 55-68 (1986) (conducting both time-series and cross-sectional statistical analyses and finding “a very large effect of the improved safety design of automobiles since 1966 upon occupant death rates”); John D. Graham, *Product Liability and Motor Vehicle Safety*, in THE LIABILITY MAZE: THE IMPACT OF LIABILITY LAW ON SAFETY AND INNOVATION 120, 182-83 (Peter W. Huber & Robert E. Litan eds., 1991) [hereinafter THE LIABILITY MAZE] (finding NHTSA regulation to be a main factor contributing to decrease in motor vehicle fatalities); Lloyd D. Orr, *The Effectiveness of Automobile Safety Regulation: Evidence from the FARS Data*, 74 AM. J. PUB. HEALTH 1384 (1984) (analyzing data from the Fatal

rate involving general aviation aircraft has been attributed in large part to FAA safety requirements.⁵⁴ There is evidence that safety regulation has been effective in reducing risk in many other areas as well.⁵⁵

Safety regulation is likely to be more effective for widely sold products, such as automobiles, pharmaceuticals, and aircraft, than for products whose distribution is limited. One reason is that regulators will naturally be more concerned about the risks of products sold in high volume, as noted in the previous section, and thus will tend to invest substantial effort in their regulation. A second reason is that regulators will obtain more information about a product's problems if many members of the public are using the product and suffering from its defects.

Of course, regulation will be far from perfect due to the imperfect knowledge of regulators, their budgetary constraints, and the possibility that they may be captured by the firms that they are responsible for overseeing.⁵⁶ Our point is not that regulation will cure most product safety problems, but rather that it is likely to contribute in a significant way to reducing many product risks.

C. Risk Reduction Accomplished by Product Liability

As previously noted, product liability is applied through three primary doctrines.⁵⁷ Under the design defect doctrine, a firm can be held liable for accidents caused by its product if the design of the product was defective, meaning, essentially, that a different design could have

Accident Reporting System for the years 1975 to 1978 and concluding that between 3,000 and 9,500 lives were saved by new automobile regulations).

⁵⁴ See U.S. GEN. ACCOUNTING OFFICE, GENERAL AVIATION: STATUS OF THE INDUSTRY, RELATED INFRASTRUCTURE, AND SAFETY ISSUES 8-9, 56-61 (2001) (reviewing numerous FAA initiatives that improve general aviation safety); Aircraft Owners and Pilots Association, *Is It Safe? GA's Safety Record*, <http://flighttraining.aopa.org/learntofly/safety/> (last visited June 11, 2009) (attributing an 86 percent decline in the accident rate per flying hour since 1950 largely to FAA regulations).

⁵⁵ See generally U.S. Consumer Product Safety Commission, Success Stories Index, <http://www.cpsc.gov/cpscpub/pubs/success/index.html> (last visited Mar. 28, 2009) (describing the safety benefits of regulation concerning, for example, cigarette lighters, cribs, hair dryers, and bicycles).

⁵⁶ See, e.g., Michael E. Levine, *Regulatory Capture*, in 3 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 267 (Peter Newman ed., 1998); Richard A. Posner, *Theories of Economic Regulation*, 5 BELL. J. ECON. MAN. SCI. 335 (1974) (reviewing versions of capture theory); Robert D. Tollison, *Regulation and Interest Groups*, in REGULATION: ECONOMIC THEORY AND HISTORY 59 (Jack C. High ed., 1991).

⁵⁷ See generally RESTATEMENT (THIRD) OF TORTS: PRODUCTS LIABILITY § 2 (1998); DAVID G. OWEN, PRODUCTS LIABILITY LAW §§ 1.3, 7.1-5 (2005); DOBBS, *supra* note 1, § 355.

been employed that was safer and not excessively costly.⁵⁸ Under the manufacturing defect doctrine, a firm can be held liable for an accident if the particular unit that caused the accident was not manufactured according to the intended design.⁵⁹ Under the failure to warn doctrine, a firm can be held liable if it failed to provide a reasonable warning about the riskiness of the product.⁶⁰

Even though product liability presumably would lower product risk in the absence of market forces and regulation, it will turn out to be superfluous if a desirable safety precaution has already been taken because of these two factors. Consider, for example, electronic stability control in automobiles, a feature that can reduce the risk of skidding and rollovers. Market pressures could lead to adoption of this feature if consumers appreciate its value. Alternatively, a regulator might require it. Hence, product liability might not be necessary to induce automobile manufacturers to adopt electronic stability control — and, indeed, market forces seem actually to have stimulated this improvement.⁶¹

⁵⁸ Design defect occurs when “the manufacturer’s design specifications . . . themselves create unreasonable risks. . . . [T]he test is whether a reasonable alternative design would, at a reasonable cost, have reduced the foreseeable risks of harm posed by the product” RESTATEMENT (THIRD OF TORTS: PRODUCTS LIABILITY) § 2 cmt. D (1998); *see also* RESTATEMENT (SECOND) OF TORTS § 398 (1965) (manufacturer is liable “for physical harm caused by his failure to exercise reasonable care in the adoption of a safe plan or design”). A “design defect occurs when the intended design of the product line itself is inadequate and needlessly dangerous.” DOBBS, *supra* note __, § 355, at 980. Because design defect cases concern an entire product line, if a defect is found, then “every unit in the same product line is potentially defective” and the manufacturer is liable for all harms caused by all products in the line. *Id.*

⁵⁹ The Restatement (Third) defines a manufacturing defect as “a depart[ure] from [the product’s] intended design even though all possible care was exercised in the preparation and marketing of the product.” RESTATEMENT (THIRD) OF TORTS: PRODUCT LIABILITY § 2 (1998); *see also* RESTATEMENT (SECOND) OF TORTS § 395 (1965) (“A manufacturer who fails to exercise reasonable care in the manufacture of a chattel . . . is subject to liability for physical harm caused to [those who are injured] by its lawful use in a manner and for a purpose for which it is supplied.”). Common examples include “products that are physically flawed, damaged, or incorrectly assembled.” RESTATEMENT (THIRD) OF TORTS: PRODUCT LIABILITY § 2 cmt. C (1998). A manufacturing defect is a “flaw in the manufacturing process, resulting in a product that differs from the manufacturer’s intended result.” *Brown v. Superior Court*, 751 P.2d 470, 474 (Cal. 1988). Unlike a design defect, a manufacturing defect “is a random failing or imperfection.” DOBBS, *supra* note 1, § 355, at 979.

⁶⁰ A product is deemed “defective because of inadequate instructions or warnings when the foreseeable risks of harm posed by the product could have been reduced or avoided by the provision of reasonable instructions or warnings by the seller or other distributor . . . and the omission of the instructions or warnings renders the product not reasonably safe.” RESTATEMENT (THIRD) OF TORTS: PRODUCT LIABILITY § 2(c) (1998); *see also* RESTATEMENT (SECOND) OF TORTS § 388 (1965) (holding manufacturers liable for “fail[ing] to exercise reasonable care to inform [those for whose use the chattel is supplied] of its dangerous conditions or of the facts which make it likely to be dangerous”).

⁶¹ *See* Joseph B. White, *Car-Accident Deaths Fell in '08*, WALL ST. J., Feb. 10, 2009, at D8 (“More recently, auto makers have been going beyond what the law requires, because that is what consumers are

It may happen, of course, that neither market forces nor regulation results in a beneficial reduction of risk, in which case product liability may be efficacious. Consider a shield on a lawnmower that could prevent stones from being ejected by its cutting blades. Market forces would not induce manufacturers to employ the shield if consumers do not understand its benefits, and regulators might not require the shield for similar reasons. But the prospect of being found liable for a defectively designed lawnmower might induce manufacturers to include the shield.⁶²

Another reason that product liability could be effective is indirect, that product liability litigation may result in publicity about product problems and thereby enhance market forces and spur regulation. If adverse reactions to a drug would not come to the attention of the media or to regulators unless product liability suits were brought, then product liability could be responsible for lower sales of the drug and regulatory action to remedy its dangers.

The degree to which product liability reduces product risk is therefore ultimately an empirical question. We have surveyed the empirical evidence on this issue, and it suggests that product liability has had little influence on product safety. Notably, George Priest examined accident statistics during the 1970s and 1980s, a period during which product liability law and litigation significantly increased in importance, but found no discernable effect of the enhanced product liability activity on accident rates.⁶³ A qualification to his conclusion, however, stems from the fact that the accident rates he considered were total accident rates rather than the rates due solely to accidents caused by product defects; hence, a small decline in the latter accident rates might not have been revealed by his data. Don Dewees, David Duff, and Michael Trebilcock reviewed literature on the effect of product liability on product safety and concluded that product liability has not led to a decrease in product-related accidents, though they noted

demanding. The increasing use of stability controls and antirollover systems is an example. Electronic stability controls will be mandated on new vehicles by 2012, but many new vehicles have this technology today.”).

⁶² Yet product liability will not necessarily be successful in taking up the slack left by market forces and regulation. Notably, in a product liability lawsuit a court might not recognize a safety precaution that is in fact cost effective, such as the shield for lawnmowers. This possibility is plausible because what would often lead the market and regulators to fail to recognize the value of a safety precaution — lack of information about its risk-reducing effects — might also lead a court to fail to recognize its value.

⁶³ See George L. Priest, *Products Liability Law and the Accident Rate*, in *LIABILITY: PERSPECTIVES AND POLICY* 184, 187-94 (Robert E. Litan & Clifford L. Winston eds., 1988).

some limitations of the data.⁶⁴ In two subsequent surveys of empirical research on product liability, Mark Geistfeld, and Daniel Kessler and Daniel Rubinfeld, came to essentially the same conclusion.⁶⁵

Similarly, several studies of the effect of product liability in particular industries, which we review below, also conclude that it has had no noticeable impact on product safety. These studies generally rely on the approach taken by George Priest, which is to examine whether product liability affected accident rates during the period when the volume of product liability litigation increased in a marked way.

*General aviation aircraft.*⁶⁶ In separate investigations, Andrew Craig and Robert Martin assessed the influence of product liability on the safety of general aviation aircraft.⁶⁷ They observed that the liability and defense expenditures of manufacturers of these aircraft rose sharply from the 1970s to the 1980s, growing approximately ten-fold.⁶⁸ However, the rate of fatal accidents did not display a decline that could be linked to the sharp increase in liability. The accident rate had been falling for many years, and in the years during and following the

⁶⁴ DONALD N. DEWEES, DAVID DUFF & MICHAEL TREBILCOCK, EXPLORING THE DOMAIN OF ACCIDENT LAW: TAKING THE FACTS SERIOUSLY 202-05 (1996).

⁶⁵ Mark Geistfeld, *Products Liability*, in 1 ENCYCLOPEDIA OF LAW AND ECONOMICS § 11.11 (Michael Faure ed., 2d ed. 2009); Daniel P. Kessler & Daniel L. Rubinfeld, *Empirical Study of the Civil Justice System*, in 1 HANDBOOK OF LAW AND ECONOMICS 343 (A. Mitchell Polinsky & Steven Shavell eds., 2007); see also Richard S. Higgins, *Producers' Liability and Product Related Accidents*, 7 J. LEGAL STUD. 299, 320 (1978) (finding that product liability increases the home accident fatality rate in states with high levels of education, but reduces it in states with low levels of education); Paul Rubin & Joanna Shepherd, *Tort Reform and Accidental Deaths*, 50 J.L. & ECON. 221 (2007) (estimating that product liability has increased accidental deaths by raising the prices of safety-enhancing goods and services).

⁶⁶ General aviation aircraft are aircraft with a maximum seating capacity of fewer than twenty passengers and not engaged in regularly scheduled airline operations. General Aviation Revitalization Act of 1994, Pub. L. No. 103-298, § 2(c), 108 Stat. 1552. There were 231,607 general aviation aircraft in 2007. GEN. AVIATION MFR. ASS'N, 2008 GENERAL AVIATION STATISTICAL DATABOOK & INDUSTRY OUTLOOK 28, 30, 31 (2008), available at http://www.gama.aero/files/2008_general_aviation_statistical_databook_indust_499b0dc37b.pdf. They accounted for approximately 46% of all aviation fatalities in the United States. National Transportation Safety Board, Aviation Accident Statistics, <http://www.ntsb.gov/aviation/stats.htm>, at tbl.1 (last visited Oct. 18, 2008).

⁶⁷ Andrew Craig, *Product Liability and Safety in General Aviation*, in THE LIABILITY MAZE: THE IMPACT OF LIABILITY LAW ON SAFETY AND INNOVATION 456-77 (Peter W. Huber & Robert E. Litan eds., 1991); Robert Martin, *General Aviation Manufacturing: An Industry Under Siege*, in THE LIABILITY MAZE: THE IMPACT OF LIABILITY LAW ON SAFETY AND INNOVATION 478-99 (Peter W. Huber & Robert E. Litan eds., 1991).

⁶⁸ Craig, *supra* note 67, at 457 (reporting that liability costs per fatality rose from about \$17,000 in 1977 to about \$223,600 in 1985); Martin, *supra* note 67, at 484-85 (reporting that aviation industry's costs for defending against and paying product liability claims rose from \$24 million in 1976 to \$210 million in 1986).

increase in liability, the accident rate did not decline more steeply; it actually fell less steeply.⁶⁹ Craig and Martin both concluded that the heightened liability did not seem to have reduced general aviation aircraft fatalities.⁷⁰

One reason that product liability might not be expected to affect the safety of general aviation aircraft very much is obvious — purchasers of aircraft have a pronounced incentive to obtain information about the safety records of the planes they will be flying. Hence, market forces would be likely to play a significant role in inducing aircraft manufacturers to provide safe airplanes. A second reason that product liability might result in little improvement to the safety of aircraft is that FAA regulation is extensive, as mentioned above.

Motor vehicles. John Graham employed statistical regression analysis to determine whether product liability reduced motor vehicle fatalities during the period 1950-1988.⁷¹ He found essentially no effect and concluded that if there is a beneficial influence of product liability on motor vehicle accidents, it is too small to be detected using aggregate data.⁷²

Graham also undertook five case studies of specific safety problems in motor vehicles and came to similar conclusions. The studies concerned defects related to the fuel tank of the Ford Pinto,⁷³ gears in Ford vehicles,⁷⁴ the roll bar of the Jeep CJ,⁷⁵ airbags and seat belts,⁷⁶ and

⁶⁹ Martin used linear regression analysis to estimate the trend in fatal accident rates for general aviation from 1950-1969, before these accidents were subject to strict liability, and from 1970-1989, when a strict liability regime was in place. During the 20 years before strict liability, the fatality rate per 100,000 flying hours fell from 5.1 to 3.5, a decline of 1.6. During the 20 years after, the trend line was significantly flatter, showing a change from 2.55 to 1.4, a decline of 1.15. In other words, during the period of much greater liability, general aviation safety improved at a significantly slower rate. Martin, *supra* note 67, at 493-94. Craig performs a nearly identical analysis, concluding that “the aggregate accident and liability cost data do not support the view that liability litigation has enhanced safety in this industry.” Craig, *supra* note 67, at 457-58.

⁷⁰ Martin, *supra* note 67, at 493 (“These data indicate that strict liability has demonstrated no tendency to promote the safety of flight . . .”); Craig, *supra* note 67, at 457 (“Clearly, therefore, the aggregate accident and liability cost data do not support the view that liability litigation has enhanced safety in this industry.”). See also Randy A. Nelson & James N. Drews, *Strict Liability and Product Safety: Evidence from the General Aviation Market*, 46 ECON. INQUIRY 425 (2008) (finding that strict product liability actually increased the accident rate of general aviation aircraft because it depressed sales of new planes and led individuals to fly older and more dangerous planes).

⁷¹ Graham, *supra* note 53, at 182, 186-87.

⁷² To be precise, Graham found a positive association between liability and the accident rate (higher liability was associated with a higher accident rate), but the effect was not statistically significant. *Id.* at 182-83.

⁷³ *Id.* at 128-37.

⁷⁴ *Id.* at 137-44.

all-terrain vehicles.⁷⁷ Graham found that when safety problems arose, manufacturers responded primarily because of a concern about their reputations with consumers and because of pressure from regulators.⁷⁸ For example, after fuel tank explosions in the Ford Pinto were widely publicized, Ford voluntarily altered its fuel tank design and also made changes in response to increased regulatory requirements of NHTSA.⁷⁹ Significantly, Graham found that in all of the case studies product liability was not necessary for the stimulation of the specific safety improvements that were adopted.⁸⁰

Childhood vaccines. Richard Manning studied the effect of product liability on the diphtheria, pertussis, and tetanus (DPT) vaccine. He found that the liability risk borne by manufacturers of DPT increased dramatically from the late 1970s to the late 1980s. Notably, the number of suits filed against such manufacturers in the four years 1978-1981 averaged three per year, whereas in the last three years of his data, 1985-1987, the average number of suits was 217. The safety of the DPT vaccine, however, did not change during this period.⁸¹

The foregoing is a synopsis of the best empirical evidence that we could find concerning the effect of product liability on product safety. Although this evidence is comprised of a relatively limited literature, it suggests that product liability has had only a marginal influence on

⁷⁵ *Id.* at 144-55.

⁷⁶ *Id.* at 155-68.

⁷⁷ *Id.* at 168-80.

⁷⁸ *Id.* at 135-37, 144, 155, 163-64, 166, 178-80.

⁷⁹ Pinto-related injuries received significant media attention and negative publicity for Ford. *Id.* at 132, 136. After learning about the Pinto problems, NHTSA opened a formal investigation, *id.* at 132-34, and in 1977 it instituted stricter fuel tank standards, *id.* at 136. Ford also voluntarily modified the fuel tanks of pre-1977 Pintos not covered by the new requirements, and did so despite the fact that such behavior might be seen as an admission of guilt and could lead to greater liability, suggesting that its safety improvements were motivated by factors other than the threat of tort liability. *Id.* at 135-36.

⁸⁰ *Id.* at 180 (“In no case did we conclude that liability considerations were necessary to stimulate a specific safety improvement. In other words, other factors would eventually have led to the safety improvements.”); *id.* at 181 tbl.4-3. However, Graham noted that product liability might hasten safety improvements because the adverse publicity accompanying litigation enhances consumer information and stimulates market forces. *Id.* at 180-82.

⁸¹ See Richard L. Manning, *Changing Rules in Tort Law and the Market for Childhood Vaccines*, 37 J.L. & ECON. 247, 259 (1994) (“... the DPT vaccine currently in use in this country is essentially the same today as it has been for many years.”) (footnote omitted).

product safety. The explanation may be, as we have surmised, that market forces and regulation already generate substantial safety investments by firms.⁸²

III. The Price Signalling Benefit of Product Liability

Product liability not only may affect consumer well-being through its influence on product safety, but also through its effect on product prices. Specifically, because product liability causes prices to rise to reflect product risks, it may beneficially discourage consumers from buying risky products. As noted in the introduction, we refer to this as the price signalling benefit of product liability (we consider a related price distortion cost in Part V).

A. Price Signalling and Consumer Information

To explain the price signalling benefit more precisely, we begin with the fundamental proposition of economics that social welfare is maximized if consumers buy a product only when its value to them exceeds its costs. Suppose that a consumer places a \$15 value on having a widget, that the widget costs \$10 to produce, and that it causes \$1 of harm on average to its owner. Then social welfare will be raised if the consumer buys the widget because her value of \$15 exceeds the widget's total cost of \$11, comprised of both the direct production costs and the harm the widget causes. Conversely, if a consumer attaches only a \$9 value to the widget, social welfare would be lowered if the consumer bought it. Ideally, every consumer who values a widget more highly than \$11 would buy one, and every consumer who values a widget less highly than \$11 would not.

Now if consumers have good information about product risks, they will make the socially correct purchase decisions even in the absence of product liability. In the example, a widget will have a price of \$10 in a regime without product liability because firms will bear only their production costs. Yet if consumers know about the harmfulness of widgets, they will realize that they also will incur \$1 of losses per widget, so they will regard the effective price of a widget as \$11. Consequently, consumers will buy widgets if and only if the value they place on them exceeds \$11, which is the socially ideal outcome.

⁸² Whereas in this section we have considered the effect of product liability on accident rates, others have examined the influence of product liability on innovation, liability insurance premiums, product prices, product availability, and international competitiveness. See DEWEES, DUFF & TREBILCOCK, *supra* note 64, at 197-205; Kessler & Rubinfeld, *supra* note 65, at 363; Robert E. Litan, *The Safety and Innovation Effects of U.S. Liability Law: The Evidence*, 81 AM. ECON. REV.: PAPERS & PROC. 59 (1991).

Suppose, however, that consumers underestimate product risks. Assume that they believe that the harm caused by a widget is \$.75 instead of the true value of \$1. Without product liability, the price of widgets will be \$10, as we just noted, but if consumers mistakenly believe that the harm they will bear per widget is \$.75, the effective price of a widget will be only \$10.75. As a result, a consumer might buy a widget when doing so is socially undesirable. For instance, a person for whom the value of a widget is \$10.85 will buy one even though its true cost is \$11; her purchase will result in a net loss to her of \$.15 (a loss she will not perceive because she underestimates the harm).

If consumers underestimate the harm from products, the imposition of liability on manufacturers will improve consumer purchases by raising product prices. In other words, there will be a price signalling benefit. The widget price will rise to \$11 as a result of product liability, because manufacturers would incur not only \$10 in production costs per widget, but also \$1 in liability costs (to compensate consumers for their \$1 loss). Hence, with product liability, consumers will buy a widget only if they place a value on it that exceeds \$11, the socially desired outcome.

This price signalling benefit of product liability depends on the degree of consumer underestimation of product risks. In the example, consumers were assumed to underestimate the \$1 harm by \$.25. If instead they underestimated the harm by, say, \$.75, the price signalling benefit would be greater.

Product liability also can correct for consumer misperceptions if consumers overestimate product risks. In that case they will buy too little of a product in the absence of product liability. Suppose that they incorrectly believe that widgets cause \$1.50 of harm instead of \$1. They will therefore regard the price of a widget as \$11.50 instead of \$11 and buy too few widgets. With product liability, however, the price of a widget will be \$11 and consumers will again purchase widgets only if they value them more highly than \$11, the socially desired outcome.

In sum, by causing the prices of products to properly reflect accident risks, product liability will lead consumers to purchase the socially ideal quantities of risky products.⁸³ This price signalling benefit occurs regardless of whether consumers underestimate or overestimate

⁸³ See Steven Shavell, *Strict Liability versus Negligence*, 9 J. LEGAL STUD. 1, 12-17, 20-22 (1980); Michael Spence, *Consumer Misperceptions, Product Failure, and Producer Liability*, 44 REV. ECON. STUD. 561 (1977).

product risk. But the magnitude of this benefit depends on the degree of consumers' misperception, with the benefit being smaller the better informed are consumers.

The discussion in this section presumed for simplicity that the price increase due to product liability reflected only the manufacturer's expected liability cost. More realistically, however, the price increase also will reflect litigation costs. We discuss these costs and their detrimental implication for price signalling in Part V.

B. Price Signalling and First-Party Insurance

In the preceding discussion we did not consider first-party accident insurance, but it is relevant to the decisions of consumers whether to purchase risky products.⁸⁴ If a consumer has insurance with full coverage, then she knows that if she buys a product and it causes harm, her insurer will compensate her for her losses — she will ignore the possibility of product-caused harm in her purchase decision. It follows that she will buy an excessive quantity of risky products in the absence of product liability. In the earlier example, the price of a widget was \$10 in the absence of product liability, and we explained that a consumer who was knowledgeable about the product risk would add \$1 to this price to account for the risk. Hence, she would buy a widget only if it were worth at least \$11 to her. But if she has insurance, she will treat the price of a widget as only \$10 because her insurer would cover her losses, and thus she might buy a widget even when its value to her is less than its full cost of \$11, a socially undesirable outcome.⁸⁵

The problem of excessive purchases of risky products due to first-party insurance can be remedied by employing product liability, as has been emphasized by Jon Hanson and Kyle Logue.⁸⁶ As noted above, if product liability is imposed on manufacturers, the prices of products will rise to reflect expected accident losses, leading consumers to make desirable purchase

⁸⁴ In order to isolate the effects of first-party insurance, we assume in this section that consumers have perfect information about product risks. More realistically, of course, the effects of consumer misperceptions and first-party insurance will operate simultaneously.

⁸⁵ The distortion of purchase decisions due to first-party accident insurance was first thoroughly analyzed by Jon Hanson and Kyle Logue. See Jon D. Hanson and Kyle D. Logue, *The First-Party Insurance Externality: An Economic Justification for Enterprise Liability*, 76 CORNELL L. REV. 129 (1990). They note, *id.* at 131 n.3, that this distortion was recognized by Guido Calabresi in *The Cost of Accidents*.

⁸⁶ *Id.*

decisions. A consumer will have to pay \$11 for a widget, not \$10, and thus will buy a widget only if she values it by at least this much, which is the socially correct outcome.⁸⁷

A qualification to the foregoing analysis is that the insurance distortion applies only to monetary losses because nonmonetary losses are not generally covered by first-party insurance policies.⁸⁸ This point is significant because approximately half of all tort payments are for nonmonetary losses.⁸⁹ Suppose in the widget example that half of the \$1.00 accident loss is nonmonetary. Then in the absence of product liability, the effective price of a widget would be \$10.50 because the consumer would bear the \$.50 nonmonetary portion of her loss that is not covered by insurance. Only the remaining \$.50 monetary portion of her loss would be ignored because of first-party insurance. Hence, there is much less of a problem for product liability to correct.

IV. The Compensation Benefit of Product Liability

As we observed in the introduction, the influence of product liability on compensation is incremental, namely, only beyond that furnished by insurance. We begin, therefore, with a summary of the extent of insurance coverage.

A. Compensation Accomplished by Insurance

A substantial majority of Americans possess some private or public insurance coverage for medical expenses, disability, loss of life, and property damage that might result from accidents, including product-related ones. A few statistics indicate the contours of individuals' insurance coverage. Approximately 85 percent of the population possesses health insurance,⁹⁰

⁸⁷ This statement presumes that consumers do not collect the \$1 of liability payments under product liability. This could be the case if these payments are obtained by their first-party insurers under subrogation arrangements (which we discuss in the next part). If subrogation were not applicable, then the effective price of the product would be too low, even with product liability.

⁸⁸ See *infra* Part IV.C.

⁸⁹ See TILLINGHAST-TOWERS PERRIN, U.S. TORT COSTS: 2002 UPDATE: TRENDS AND FINDINGS ON THE COSTS OF THE U.S. TORT SYSTEM 17 (2002).

⁹⁰ See U.S. CENSUS BUREAU, INCOME, POVERTY, AND HEALTH INSURANCE COVERAGE IN THE UNITED STATES: 2007, at 1, 21 fig.7 (2008), available at <http://www.census.gov/prod/2008pubs/p60-235.pdf> (showing that 15.3 percent of the population has no health insurance). The 85 percent figure is probably an underestimate of the true percentage of the population that has health insurance. *Id.* at 59-60.

about 78 percent of U.S. families own life insurance,⁹¹ at least one-third of the workforce holds some form of disability coverage,⁹² and 96 percent of homeowners have property insurance.⁹³ Additionally, individuals benefit from an implicit form of public insurance against accidents, namely the deductibility of casualty losses (losses due to a sudden event) and medical expenses from taxable income.⁹⁴ Such deductions function effectively as insurance because they reduce the loss that a person suffers from an accident.⁹⁵

B. Compensation Accomplished by Product Liability

To assess the extent to which product liability adds to the compensation that individuals obtain from insurance, we first discuss subrogation provisions in insurance contracts. As we explain, these provisions effectively lower the compensation that individuals receive from product liability settlements or judgments. We then address two other factors that also limit the compensation that individuals derive from the product liability system.

Subrogation provisions in insurance contracts. Insurance contracts commonly include subrogation provisions that give insurers the right to stand in the shoes of an insured victim and sue the injurer on behalf of the victim. The insurer may then keep some or all of any judgment or settlement, up to the amount it had paid the insured.⁹⁶ Subrogation rights in property and

⁹¹ See AM. COUNCIL OF LIFE INSURERS, LIFE INSURERS FACT BOOK: 2008, at 61.

⁹² See U.S. DEP'T OF LABOR BUREAU OF LABOR STATISTICS, NATIONAL COMPENSATION SURVEY: EMPLOYEE BENEFITS IN THE UNITED STATES, MARCH 2008, at xx tbl.12 (2008), available at <http://www.bls.gov/ncs/ebs/benefits/2008/ownership/civilian/table12a.pdf>.

⁹³ See Insurance Information Institute, Homeowners Insurance: Expenditures for Homeowners and Renters Insurance, <http://www.iii.org/media/facts/statsbyissue/homeowners> (last visited June 17, 2009). Additionally, 43 percent of renters had renters insurance. *Id.*

⁹⁴ Casualty losses can be deducted to the extent they exceed 10% of adjusted gross income. See 26 U.S.C. § 165(h)(2). Unreimbursed medical expenses can be deducted to the extent they exceed 7.5% of adjusted gross income. See *id.* § 213(a).

⁹⁵ For example, if a person incurs a \$100,000 loss but obtains a tax benefit worth \$25,000 due to the deductibility of the loss, it is as if the person was covered by a \$25,000 insurance policy.

⁹⁶ ALLAN D. WINDT, INSURANCE CLAIMS & DISPUTES: REPRESENTATION OF INSURANCE COMPANIES AND INSUREDS § 10:5 (5th ed. 2007):

[T]he insurance company is ordinarily entitled, on making a payment to or on behalf of the insured . . . to step into the shoes of the insured and assert any cause of action against a third party that the insured could have asserted for his or her own benefit had the insured not been compensated by the insurer. . . . Moreover, the insurer should be entitled to sue only for an amount of money necessary to make it whole. . . . The insurer should not . . . be able to recover for damages incurred by the insured in excess of the amount that the insured was paid by the insurer.

See generally TOM BAKER, INSURANCE LAW AND POLICY: CASES, MATERIALS, AND PROBLEMS 391-407 (2003).

casualty insurance policies are established by common law in most jurisdictions, although these policies usually include express subrogation clauses as well.⁹⁷ Subrogation rights in health and medical policies are also widespread and are generally established by explicit terms in insurance contracts.⁹⁸

If a victim's insurance coverage is sufficient to compensate her for her loss, the insurer can retain, through subrogation, whatever is paid by the defendant in a judgment or settlement. For example, suppose that an individual suffers a \$100,000 loss for which she is fully compensated by her insurer, and the defendant settles the claim for \$75,000. Then the insurer will keep the entire \$75,000 settlement. If, however, the victim's insurance coverage is less than her loss, the situation is more complicated. Suppose, for instance, that her insurance policy compensates her for only \$60,000 of the \$100,000 loss. Then, if there is a \$75,000 settlement, one possibility is that she will receive \$40,000 of the settlement, thereby making her whole, and her insurer will retain the balance of \$35,000.⁹⁹ Another possibility is that the insurer will keep \$60,000 of the settlement, so it will be fully reimbursed for its payment to the insured, with the remaining \$15,000 going to the insured. A third possibility is that the settlement will be shared between the insured and the insurance company in a way that makes neither of them whole.¹⁰⁰ In sum, subrogation often results in accident victims receiving only a fraction of their settlements or judgments, and possibly nothing at all from them.¹⁰¹

⁹⁷ See KENNETH S. ABRAHAM, *INSURANCE LAW AND REGULATION* 244-45 (4th ed. 2005); Alan O. Sykes, *Subrogation and Insolvency*, 30 *J. LEGAL STUD.* 383 (2001).

⁹⁸ See ABRAHAM, *supra* note 97, at 405; Sykes, *supra* note 97, at 383-84.

⁹⁹ This outcome — that the victim is made whole before the insurer retains any of a settlement or judgment — is the more common of the three possibilities that we discuss. See, e.g., ABRAHAM, *supra* note 97, at 405-07; Sykes, *supra* note 97, at 385.

¹⁰⁰ We have discussed the possible outcomes when the settlement, \$75,000, is between the insurance coverage of \$60,000 and the loss of \$100,000. Another situation is when the settlement is less than the insurance coverage of \$60,000 — say, it is \$50,000. Then there are three possibilities analogous to those mentioned in the text. Specifically, the plaintiff may receive \$40,000 of the settlement, making her whole, and the insurer will receive the remaining \$10,000; the insurer may receive the entire \$50,000 settlement, making it as whole as possible; or the plaintiff and the insurer may share the settlement in some intermediate way.

¹⁰¹ An exception occurs in the following circumstances. Suppose that a settlement is sufficiently low that it plus the victim's insurance coverage is still less than the victim's loss. Then if the victim is made whole before the insurer retains any of a settlement or judgment, the entire settlement would be retained by the victim.

Legal fees. The payment of legal fees also substantially reduces the net compensation that a victim of a product accident obtains from a settlement or judgment. The great majority of product liability suits are brought under contingency fee arrangements,¹⁰² in which the legal fees of individual plaintiffs typically equal 25 percent to 33 percent of the amount received.¹⁰³ The legal fees of class plaintiffs average approximately 18 percent of the value of settlements or awards.¹⁰⁴

Delay. Delay in the payment of judgments or settlements also lowers the effective compensation of victims of product accidents, for two reasons. First, if victims do not receive interest on their judgment or settlement from the time of the accident until receipt of their payment, then they will be shortchanged. This issue is relevant because substantial delay in receiving compensation is typical — the time between injury and payment in tort suits often is measured in years¹⁰⁵ — and prejudgment interest sometimes is not awarded.¹⁰⁶ Second, if

¹⁰² According to DEBORAH R. HENSLER ET AL., COMPENSATION FOR ACCIDENTAL INJURIES IN THE UNITED STATES 8, 135-36 (1991), available at <http://www.rand.org/pubs/reports/2006/R3999.pdf>, 87 percent of tort liability claimants who retained an attorney entered into a contingency fee arrangement to cover legal fees. We assume that the percentage for product liability suits is not dramatically different.

¹⁰³ See HENSLER, *supra* note 102, at 8, 136 (finding that the median fixed contingency fee paid is 33% and that the median adjusted contingency fee paid is between 25% and 33%); see also Herbert M. Kritzer, *The Wages of Risk: The Returns of Contingency Fee Legal Practice*, 47 DEPAUL L. REV. 267, 286 (1998) (finding that the contingency fee paid in the vast majority of fixed contingency fee arrangements is 33% and that the contingency fee paid in adjusted contingency fee arrangements is usually 25% if the case does not involve substantial trial preparation and 33% if it does).

¹⁰⁴ See, e.g., Theodore Eisenberg & Geoffrey P. Miller, *Attorney Fees in Class Action Settlements: An Empirical Study*, 1 J. EMPIRICAL LEGAL STUD. 27, 51 (2004) (finding that the mean fee rate for tort class action lawsuits is 17.9 percent).

¹⁰⁵ In a study of 1,452 closed malpractice claims from five liability insurers, the average time between the injury and the closure of the claim was five years. See David M. Studdert et al., *Claims, Errors, and Compensation Payments in Medical Malpractice Litigation*, 354 NEW ENG. J. MED. 2024, 2026 (2006), available at <http://content.nejm.org/cgi/content/full/354/19/2024>. For tort suits in general, claims take an average of 21.0 months to process if there is a bench trial, and 26.5 months if there is a jury trial. LYNN LANGTON & THOMAS H. COHEN, CIVIL BENCH AND JURY TRIALS IN STATE COURTS, 2005, at 8 (rev. Apr. 9, 2009), available at <http://www.ojp.usdoj.gov/bjs/pub/pdf/cbjtsc05.pdf>.

¹⁰⁶ See, e.g., 4 MATTHEW BENDER, DAMAGES IN TORT ACTIONS § 39.01 (2009) (“Prejudgment interest is not as readily available . . . in wrongful death and personal injury actions — many states continue to limit interest in these cases to post-judgment interest.”); Michael S. Knoll, *A Primer on Prejudgment Interest*, 75 TEX. L. REV. 293, 296 (1996) (“Nonetheless, the requirement that a losing defendant pay prejudgment interest to a successful plaintiff remains far from universal. Although a growing number of jurisdictions recognize a successful plaintiff’s entitlement to prejudgment interest, other jurisdictions expressly bar recovery. Still other courts and statutes leave it to the discretion of the court whether to provide prejudgment interest.”). Some states have begun to reform their laws to permit recovery of prejudgment interest. See American Tort Reform Association, *Prejudgment Interest Reform* (2007), <http://www.atra.org/issues/index.php?issue=7492> (cataloging state reform efforts).

victims cannot easily borrow against future possible judgments or settlements, as would often be true, then they may suffer because of illiquidity while waiting for payment.

C. The Social Desirability of the Compensation Accomplished by Product Liability

Although, for the reasons we have just discussed, the amount of additional compensation that individuals actually receive due to the product liability system is significantly less than the amount defendants pay in settlements or judgments, it is still, of course, often positive. We now consider the value to individuals of this additional compensation.

Our first point is that the value of the compensation that an accident victim obtains due to product liability will be relatively low when she also receives insurance payments. The reason is that her insurance payments will be used to satisfy her most pressing financial needs (say for payment of medical expenses). The money she obtains through the product liability system will be used to meet her remaining and less important needs. Hence, the benefit per dollar received due to product liability payments will be lower.¹⁰⁷

To illustrate this point, suppose that an individual with assets of \$200,000 faces a one percent chance of a \$100,000 loss, that she has insurance coverage that would compensate her for \$60,000 of this amount, and that the product liability system would compensate her for the remaining \$40,000.¹⁰⁸ Using economists' statistical estimates of individuals' degree of risk aversion, we calculate that she would obtain a benefit equivalent to \$1,480.52 from the insurance coverage and an additional benefit of \$499.12 from the supplemental compensation provided through product liability.¹⁰⁹ Thus, the benefit per dollar of compensation due to product liability

¹⁰⁷ In economic terms, the marginal utility of product-liability-related dollars is less than the marginal utility of insurance-related dollars, because of the declining marginal utility of money.

¹⁰⁸ The individual would receive \$40,000 as a result of product liability if her insurance policy includes a subrogation provision. For then the insurer would obtain \$60,000 of a \$100,000 judgment and she would retain \$40,000.

¹⁰⁹ Let $U(\cdot)$ represent the utility to an individual of her wealth. To calculate the dollar equivalent, b , of the benefit from \$60,000 of insurance coverage, we solve $.99U(\$200,000 - b) + .01U(\$160,000 - b) = .99U(\$200,000) + .01U(\$100,000)$. Note that this equation means that the individual is indifferent between paying b for the coverage and not having coverage (if b were lower than that satisfying the equation, the individual would be better off with the coverage than not, so b would not be her willingness to pay for the coverage). We employ the constant relative risk aversion utility function $U(y) = y^{(1-\gamma)}/(1-\gamma)$, where y is an individual's wealth and γ is the coefficient of relative risk aversion. We assume that γ is 2, which is consistent with economists' estimates of γ . See, e.g., Syngoo Choi, Raymond Fisman, Douglas Gale & Shachar Kariv, *Consistency and Heterogeneity of Individual Behavior under Uncertainty*, 97 AM. ECON. REV. 1921, 1931 (2007); Martin L. Weitzman, *Subjective Expectations and Asset-Return Puzzles*, 97 AM. ECON. REV. 1102, 1103 (2007). Solving for b in the equation above, we obtain $b = \$1,480.52$. Similarly, to obtain the dollar equivalent of the benefit of the next \$40,000 of coverage provided by

is \$0.0125 (= \$499.12/40,000), which is only approximately half of the benefit per dollar of insurance coverage, \$0.0247 (= \$1,480.52/60,000). Note that the actuarially fair premium for each dollar of compensation is \$0.01 (= 1% x \$1.00), whereas, because of risk aversion, the individual is willing to pay \$0.0125 on average for each dollar of compensation through the product liability system, and \$0.0247 for each dollar of compensation through insurance. In other words, she is willing to pay 25 percent more than the fair premium for compensation through the product liability system and 147 percent more than the fair premium for compensation through insurance.

Our second point about the value of compensation from product liability applies when the level of loss that an accident victim suffers is modest, as would often be true when a product liability suit is brought as a class action.¹¹⁰ Then the value of compensation per dollar received would be quite low because, by definition, a victim's financial needs after experiencing a modest loss will not be great. Consider a defectively designed water heater that leaks and causes individuals to incur clean-up costs of \$100. Such a loss would be a minor one for most individuals and hence, so would the value of compensation per dollar received for the loss. We calculate that the benefit per dollar of compensation for a loss of this magnitude is \$0.010005 (= \$1.0005/100), which means that the individual is not even willing to pay one percent more than the fair premium for compensation through the product liability system.¹¹¹

Our last point about the compensatory value of the product liability system is relevant when accident victims receive damages for nonpecuniary losses, notably for pain and suffering. Such compensation tends to be of low value because pain and suffering per se usually does not

the liability system, we solve $U(\$200,000 - \$600 - b) = .99U(\$200,000 - \$600) + .01U(\$160,000 - \$600)$ (the \$600 figure represents the actuarially fair premium for the \$60,000 of insurance coverage), which results in $b = \$499.12$.

¹¹⁰ See John C. Coffee, Jr, *Class Action Accountability: Reconciling Exit, Voice, and Loyalty in Representative Litigation*, 100 COLUM. L. REV. 370, 417 (2000) (“[T]he traditional class action aggregates small claims that are individually uneconomical to litigate.”). In *Amchem Products*, the Supreme Court wrote in 1997 “The policy at the very core of the class action mechanism is to overcome the problem that small recoveries do not provide the incentive for any individual to bring a solo action prosecuting his or her rights. A class action solves this problem by aggregating the relatively paltry potential recoveries into something worth someone's (usually an attorney's) labor.” *Amchem Prods., Inc. v. Windsor*, 521 U.S. 591, 617 (1997) (*quoting* *Mace v. Van Ru Credit Corp.*, 109 F.3d 388, 344 (7th Cir. 1997)).

¹¹¹ Assume that, as in the previous examples, the probability of a loss occurring is one percent and that the individual's initial wealth is \$200,000. Then the dollar equivalent, b , of the benefit from \$100 of compensation in the event of a loss is calculated by solving $U(\$200,000 - b) = .99U(\$200,000) + .01U(\$199,900)$. Using the utility function discussed *supra* note 109 results in $b = \$1.0005$.

increase one's need for money, however much it lowers one's well-being. For example, although the death of a child would cause the child's parents the greatest anguish, this loss would not be likely to generate a greater need for money (it probably would decrease their financial requirements).¹¹²

When one takes the cost of providing compensation for pain and suffering into account — product prices will rise to cover manufacturers' payments for pain and suffering damages — consumer welfare can be shown to decline. To illustrate, suppose an individual faces a one percent chance of a product accident that would cause significant pain and suffering, for which she would be compensated \$100,000. The expected value of her compensation is \$1,000 (= 1% x \$100,000) and the product price will rise by the same amount. Although the higher price will be exactly offset by the expected value of her compensation, we calculate that she will be made worse off by \$365.84 as a result of the policy of compensating for pain and suffering losses.¹¹³ This is because the liability system effectively forces individuals to purchase insurance against such losses even though they would not want to purchase insurance for pain and suffering if they had a choice (for example, most parents do not buy insurance that would pay them money in the event of the death of a child because they do not find the insurance worth the premium).¹¹⁴ The reduction in consumer welfare attributable to compensation for

¹¹² Similarly, an injury to a person that causes significant discomfort, say a broken wrist, would not be expected to create financial needs beyond the cost of medical treatment and possibly the replacement of lost income. The point is that pain and suffering per se does not usually enhance the need for money.

¹¹³ Let L represent the utility loss from pain and suffering. Assume that an individual's assets are \$200,000 and that she is purchasing a good, say an automobile, that would cost \$30,000 if there were no pain and suffering awards and \$31,000 if there were (the higher price is due to the manufacturer's liability cost for pain and suffering of \$1,000 = 1% x \$100,000). The amount, w , by which she is made worse off as a result of having to pay \$31,000 for the automobile because of pain and suffering compensation is determined by the following equation: $U(\$170,000 - w) - .01L = .99U(\$169,000) + .01U(\$269,000) - .01L$. The left-hand side of the equation is, aside from w , her utility if she pays \$30,000 for the automobile and does not receive pain and suffering damages in the event of a product-related accident. The right-hand side is her expected utility if she pays \$31,000 for the automobile and receives pain and suffering damages of \$100,000. Using the utility function *supra* note 109 and solving for w yields $w = \$365.84$.

¹¹⁴ See generally STEVEN SHAVELL, *ECONOMIC ANALYSIS OF ACCIDENT LAW* 228-31 (1987); Kenneth J. Arrow, *Optimal Insurance and Generalized Deductibles*, 1974 SCANDANAVIAN ACTUARIAL J. 1; Philip Cook & Daniel Graham, *The Demand for Insurance and Protection: The Case of Irreplaceable Commodities*, 91 Q.J. ECON. 143 (1977); W. Kip Viscusi & William N. Evans, *Utility Functions That Depend on Health Status: Estimates and Economic Implications*, 80 AM. ECON. REV. 353 (1990); Richard Zeckhauser, *Coverage for Catastrophic Illness*, 21 PUB. POL'Y 149 (1973). But see Steven P. Croley & Jon D. Hanson, *The Nonpecuniary Costs of Accidents: Pain-and-Suffering Damages in Tort Law*, 108 HARV. L. REV. 1785 (1995) (arguing that individuals desire nonpecuniary damages and insurance).

nonmonetary losses is a significant consideration because, as noted previously, approximately half of all tort payments are for such losses.¹¹⁵

In sum, the benefit of product liability with respect to compensation does not appear to be substantial. This is mainly because the compensation provided through the product liability system for monetary losses commonly is incremental in nature — only in addition to the compensation already provided through private and public insurance — and therefore of relatively low value, and because the compensation provided for nonmonetary losses is actually detrimental to consumers.

V. The Costs of Product Liability

In this part we discuss the costs attributable to the product liability system: the legal expenses associated with product liability lawsuits, as well as the loss of consumer welfare due to the increase in product prices resulting from product liability litigation.

A. Legal Expenses

A common measure of the legal expenses associated with tort liability is the percentage of the total payments made by defendants that is retained by plaintiffs — the lower this percentage, the higher are the legal expenses. Notably, Tillinghast-Towers Perrin reports in a nationwide survey of the tort system that victims receive only \$.46 of every dollar paid by defendants in tort litigation.¹¹⁶ Other authors come to similar conclusions. Kakalik and Pace estimate that in tort litigation generally victims obtain \$.46 to \$.47 per dollar of tort system expenditures.¹¹⁷ Also, Kakalik et al. ascertain that in asbestos cases victims obtain \$.37 of every dollar paid by defendants and Carroll et al. find that in such cases victims obtain \$.42.¹¹⁸

¹¹⁵ *See supra* text accompanying note 89.

¹¹⁶ TILLINGHAST-TOWERS PERRIN, U.S. TORT COSTS: 2003 UPDATE: TRENDS AND FINDINGS ON THE COSTS OF THE U.S. TORT SYSTEM 17 (2003) (victims receive \$.22 for economic losses and \$.24 for noneconomic losses). Subsequent reports do not state the return to the plaintiff per dollar spent by defendants. *See, e.g.*, TOWERS PERRIN, 2008 UPDATE ON U.S. TORT COST TRENDS (2008).

¹¹⁷ JAMES S. KAKALIK & NICHOLAS M. PACE, COSTS AND COMPENSATION PAID IN TORT LITIGATION, at ix tbl.S.3 (1986). The numbers reported in the text are based on the net compensation received by plaintiffs compared to the total expenditures on tort litigation, using the low and high estimates in Table S.3.

¹¹⁸ JAMES S. KAKALIK, PATRICIA A. EBENER, WILLIAM L. F. FELSTINER & MICHAEL G. SHANLEY, COST OF ASBESTOS LITIGATION, at vii (1983) (RAND Institute for Civil Justice Pub. No. R-3042-ICJ); STEPHEN J. CARROLL, DEBORAH HENSLER, JENNIFER GROSS, ELIZABETH M. SLOSS, MATTHIAS SCHONLAU, ALLAN ABRAHAMSE & J. SCOTT ASHWOOD, ASBESTOS LITIGATION 104 (2005).

Danzon finds that for medical malpractice claims victims receive \$.60 for every dollar of defendants' liability insurance payments,¹¹⁹ while Huber reports that victims receive only \$.40 for such claims.¹²⁰ Huber states as well that in product liability litigation, victims obtain \$.50 for every dollar paid by defendants for liability insurance.¹²¹ Hersch and Viscusi report that in tort litigation in Texas, plaintiffs receive between \$.55 and \$.57 for every dollar paid by defendants.¹²² Some of these studies do not take into account the administrative costs of insurers, the value of the time spent by litigants, or the operating costs of the judicial system,¹²³ and therefore overestimate the amount obtained by victims per dollar of total litigation-related expenditures.

The preceding review of findings about the costs of the tort system implies that, for each dollar that an accident victim receives in a settlement or judgment, it is reasonable to assume that a dollar of legal and administrative expenses is incurred. In other words, for society to use the tort system to transfer money to victims is analogous to using an ATM machine at which a withdrawal of \$100 results in a service fee of \$100. Actually, there is a sense in which the tort system is even more expensive than this. The reason is that for every \$100 nominally received by victims, only a fraction of this amount is retained by them on average because some of it is kept by first-party insurers under subrogation arrangements.¹²⁴ If, for example, victims retain \$50 of each \$100 received, society incurs \$100 in legal expenses in order to transfer only \$50 to victims. Equivalently, for each dollar that an accident victim receives, two dollars of legal

¹¹⁹ PATRICIA M. DANZON, *MEDICAL MALPRACTICE: THEORY, EVIDENCE, AND PUBLIC POLICY* 187 (1985). She states that for each dollar received by plaintiff, approximately \$.66 is spent by the parties on litigation, implying that plaintiffs' share of total expenditures is $\$1.00/\$1.66 = .60$.

¹²⁰ PETER HUBER, *LIABILITY: THE LEGAL REVOLUTION AND ITS CONSEQUENCES* 151 (1988). His claim is that "[s]ixty cents of every dollar spent on malpractice liability insurance are absorbed by administrative and legal costs," which implies that only \$.40 would be left for victims.

¹²¹ *Id.*

¹²² Joni Hersch & W. Kip Viscusi, *Tort Liability Litigation Costs for Commercial Claims*, 9 AM. LAW ECON. REV. 330, 359 (2007).

¹²³ For example, DANZON, *supra* note 119, appears to omit all of these factors; and Hersch & Viscusi, *supra* note 122, take only partial account of the administrative costs of liability insurers and exclude the value of the time of litigants and the costs of the judicial system.

¹²⁴ *See supra* text accompanying notes 96-101 .

expenses are incurred. In all then, the tort system, and thus the product liability system,¹²⁵ is extremely expensive.

B. Price Distortions

We here discuss an indirect cost of product liability, that it discourages socially beneficial consumption. This occurs, as we now explain, because product liability causes product prices to rise undesirably, both due to litigation costs and to the award of damages for nonmonetary losses.

Litigation-cost-related price distortion. We observed in Part III that product liability leads product prices to rise to reflect product risks and thereby may help consumers to make correct purchase decisions. It was assumed there, for simplicity, that liability did not involve litigation costs. When litigation costs are taken into account, however, product liability causes prices to rise too much and consumers to purchase too little.

To elaborate, recall that in our example in Part III the price of widgets under product liability was \$11, the sum of the \$10 production cost and \$1 in expected harm, and thus consumers bought widgets only if they valued them more highly than \$11.¹²⁶ Now suppose that a manufacturer's litigation costs are \$.40 per widget on average, and that a consumer's litigation costs are also \$.40 per widget. Then the price of a widget would have to be \$11.40 in order for manufacturers to cover all of their costs, including \$.40 in litigation costs. Assuming that consumers are well informed about their own litigation costs, they would realize that they, too, would bear \$.40 in litigation costs per widget, and therefore would not purchase a widget unless they valued it more highly than \$11.80 (= \$11.40 + \$.40). Because the effective price of widgets now exceeds \$11, some consumers will be undesirably discouraged from buying widgets. For instance, a consumer who places a value of \$11.50 on a widget would have obtained a \$.50 net benefit (= \$11.50 - \$11) from purchasing one, but she will not buy one if product liability applies because the effective price would be \$11.80. This foregone benefit of \$.50 is a consumer welfare loss, and such losses occur for all consumers who refrain from buying widgets because

¹²⁵ We are assuming that the costs of the product liability system are comparable to those of the tort system generally.

¹²⁶ *See supra* Part III.A.

of the litigation-cost-related price increase.¹²⁷ These consumer welfare losses are obviously distinct from the direct losses due to the litigation costs themselves.¹²⁸

In the extreme, the litigation-cost-related price increase due to product liability could be so high as to discourage most consumers from purchasing the product and consequently to cause its manufacturer to withdraw the product from the marketplace or go out of business. If so, all consumers who would have purchased the product in the absence of product liability will suffer welfare losses.

Nonmonetary-loss-related price distortion. We noted in Part IV that product liability causes product prices to rise to reflect payments by firms for nonmonetary losses, and we explained that consumers are made worse off as a consequence because the value they attach to compensation for nonmonetary losses is less than its cost to them through higher prices.¹²⁹ Our point here is that, because of this effect, some individuals will be inefficiently discouraged from buying products in the first place. In other words, these individuals are made worse off by product liability not because they are effectively forced to purchase a type of insurance that they do not want when they buy the product, but rather because they are induced by the high price of the product not to buy it.

Consider, for example, parents who are contemplating purchasing a toy that could result in the accidental death of a child. Suppose that the price of the toy is \$5 higher than it otherwise would be due to the manufacturer's expected liability payments for nonmonetary losses, whereas the value to the parents of being able to obtain damages for such losses is only \$1. Then product liability would lower the net value of the toy to the parents by \$4, which might undesirably dissuade them from buying it. This detrimental effect of product liability is likely to be significant because of the importance of nonmonetary losses.

¹²⁷ The point that litigation-cost-related price increases cause consumer welfare losses also holds if consumers misperceive product risks (for simplicity, we have been assuming in the discussion in the text that they correctly perceive risks). The only difference is that the magnitude of the losses depends on the degree to which consumers underestimate or overestimate product risks. In the example in the text, we said that a consumer would add to the price of \$11.40 the \$.40 of litigation costs that she would bear on average. But if the consumer underestimates the likelihood of litigation, she will add less than \$.40 to \$11.40, so that the distortion due to litigation costs would be lessened. Conversely, if consumers overestimate product risks, the distortion due to litigation costs would be exacerbated.

¹²⁸ There are no empirical estimates of these losses of which we are aware.

¹²⁹ See *supra* text accompanying notes 111-115.

VI. Is Product Liability Socially Worthwhile Given its Benefits and Costs?

In this part we compare the benefits of product liability to its costs, first for the product liability system as a whole and then in several specific contexts.

Product liability in general. To this point, we have discussed why product liability might not improve the safety of products beyond the level generated by market forces and regulation, and we found no empirical evidence suggesting that product liability has in fact enhanced product safety.¹³⁰ We also considered whether product liability improves the purchase decisions of consumers by increasing the prices of risky products. We concluded that this price effect will be beneficial for consumers who misperceive product risks or who have insurance against monetary losses,¹³¹ but that it will be distortionary to the extent that prices rise due to litigation costs.¹³² We inquired as well about the degree to which product liability improves the compensation of victims, and found that this benefit is limited — because accident victims already tend to have insurance coverage — and may even be negative — because much of the compensation is for pain and suffering losses for which individuals generally do not want to be insured.¹³³ Finally, we emphasized that the legal expenses of the product liability system are great.¹³⁴

Before assessing the overall desirability of product liability, we need to explain why the effect of product liability on prices is unlikely to be desirable. First, it can be shown that the price signalling benefit associated with the misperception of product risk will be less than the litigation-cost-related price distortion unless consumers underestimate risks by more than fifty percent.¹³⁵ Given the extensive availability of information about product risks that we discussed

¹³⁰ See *supra* Part II.

¹³¹ See *supra* Part III.

¹³² See *supra* Part V.B.

¹³³ See *supra* Part IV.

¹³⁴ See *supra* Part V.

¹³⁵ To demonstrate this point, assume that the demand curve for a product is linear, $P = a - bQ$, where P is the price, Q is the quantity, and a and b are positive parameters. Let C be the cost per unit of production, H be the expected harm per unit, and λ be the degree of underestimation of risk (so consumers believe that the expected harm per unit is $(1 - \lambda)H$). Assume also that the parties' litigation costs equal the amount of money obtained by the plaintiff; see *supra* Part V.A. This implies that each party's litigation costs are $(1/3)H$ (for then the plaintiff obtains

above,¹³⁶ it seems unlikely that consumers would generally misperceive risks by more than fifty percent. Second, the price signalling benefit of product liability as a corrective for the price distortion due to consumers having first-party insurance is limited because such insurance typically covers only monetary losses.¹³⁷ And this benefit, too, cannot be obtained without causing a secondary price distortion due to litigation costs.¹³⁸ Third, recall that there also is a price distortion caused by compensating consumers for nonmonetary losses.¹³⁹ On balance, we do not believe that there is a clear basis for finding that the price signalling benefit outweighs the price distortion cost; and if this benefit does outweigh this cost, the difference seems unlikely to be significant.

We can now take stock of the benefits and costs of product liability to come to a conclusion about its social desirability. We have just suggested that the price signalling benefit may not exceed the corresponding price distortion cost and, if it does, it is not likely to exceed the distortion cost by much. We have also found that there is no measurable product safety benefit and little basis for believing that there is a significant compensatory benefit. This leaves on the ledger the legal costs of the product liability system, which are substantial (equaling or exceeding the payments received by product accident victims). Hence, our analysis leads to the conclusion that product liability is likely to be socially undesirable in general — or, at least, that the case for product liability is not easy to make.

($2/3$) H after paying her litigation costs of $(1/3)H$, and the defendant incurs litigation costs of $(1/3)H$). Under these assumptions, the deadweight loss (the reduction in social welfare from its ideal level) in the absence of liability can be shown to be $.5\{(a - C - (1 - \lambda)H)/b\} - [(a - C - H)/b]\lambda H$; this is the area of the triangle that is above the demand curve and below the price line at $C + H$, between the ideal consumption level and the higher level that occurs due to misperceptions. Similarly, the deadweight loss in the presence of liability is $.5[(2 - \lambda)(H/3)/b][(2 - \lambda)(H/3)]$; this is the area of the triangle that is below the demand curve and above the price line at $C + H$, between the ideal consumption level and the lower level that occurs due to the litigation cost-related price increase. Setting these two expressions equal to each other and solving for λ yields $\lambda = .5$. It follows that if λ is less than $.5$, the deadweight loss in the presence of liability exceeds the deadweight loss in the absence of liability. In other words, the price signalling benefit is less than the litigation cost-related price distortion unless λ exceeds $.5$. (Similarly, it can be shown that if consumers overestimate product risks, the price signalling benefit is less than the litigation-cost-related price distortion unless λ is less than -1 , that is, unless the perceived risk is more than double the actual risk.)

¹³⁶ See *supra* Part II.A.

¹³⁷ See *supra* Part III. B.

¹³⁸ Note, however, that this price distortion is the same one associated with the first point. The two price distortions are not additive.

¹³⁹ See *supra* Part V.B.

This conclusion is especially applicable to widely sold products, such as drugs and automobiles. The main reason is that, as we emphasized, the influence of market forces and regulation on product safety tends to be particularly strong for products that are sold in high volume.

We now turn to our consideration of the benefits and costs of product liability in several specific contexts.

Pharmaceuticals. In the case of the DPT vaccine, product liability has failed to result in an improvement in product safety; specifically, as we noted in our earlier discussion, the safety of the vaccine did not change despite a large increase in manufacturers' exposure to liability risk.¹⁴⁰ Product liability has, however, led to a twenty-fold increase in the price of the DPT vaccine¹⁴¹ and one million fewer children being vaccinated.¹⁴² The compensatory benefits to vaccine victims resulting from product liability are likely to be limited for the general reasons discussed above. Finally, product liability involves substantial litigation costs, estimated to be approximately five dollars for every dollar received in compensation.¹⁴³ Thus, product liability for DPT vaccine-related accidents appears to be socially undesirable.

With regard to prescription drugs generally, physicians should have relatively good information about adverse outcomes and therefore market forces should work relatively well to discipline makers of unsafe drugs. Also, as we noted, the FDA actively regulates prescription drugs, seeking to winnow out unsafe drugs in the testing stage, monitoring the safety of drugs that it approves for sale, and regulating labels and warnings.¹⁴⁴ Consequently, the effect of product liability on the safety of pharmaceutical products might not be significant, and we are not aware of any evidence that suggests otherwise. Additionally, for reasons discussed above,

¹⁴⁰ See *supra* text accompanying note 81.

¹⁴¹ Richard L. Manning, *Changing Rules in Tort Law and the Market for Childhood Vaccines*, 37 J. L. & ECON. 247, 273 (1994).

¹⁴² Richard L. Manning, *Is the Insurance Aspect of Producer Liability Valued by Consumers? Liability Changes and Childhood Vaccine Consumption*, 13 J. RISK & UNCERTAINTY 37, 47 (1996). We are presuming that it is socially desirable that all babies be vaccinated, in part because pertussis and diphtheria are communicable diseases. Indeed, most states have had compulsory immunization at school entry. *Id.* at 41. Thus, the price increase would not be providing a price signalling benefit.

¹⁴³ See Manning, *supra* note 81, at 271.

¹⁴⁴ See *supra* text accompanying notes 39-44.

we assume that product liability has limited price signalling and compensatory value. The costs of pharmaceutical-related product liability litigation, however, are quite large.¹⁴⁵ It is at least plausible, therefore, that product liability is not socially beneficial for pharmaceutical products.

General aviation aircraft. As we observed earlier, two studies found that a substantial increase in product liability litigation had little or no effect on the safety of general aviation aircraft.¹⁴⁶ This finding is not surprising because, as we noted, buyers of aircraft have strong incentives to learn about aircraft risks, and the FAA extensively regulates the design and maintenance of aircraft. The increased litigation did, however, cause the price of general aviation aircraft to rise dramatically, resulting in a steep decline in sales¹⁴⁷ that led several leading manufacturers to halt production.¹⁴⁸ This outcome was likely to have been socially undesirable because, if buyers of aircraft are generally well informed about the relevant risks, they presumably had been making appropriate purchase decisions prior to the price increases. Also, the compensatory rationale for product liability in regard to aircraft accidents is questionable, as it appears no different from the compensatory rationale for product liability in general. Finally, the cost of product liability litigation concerning general aviation accidents was

¹⁴⁵ See Tomas J. Philipson & Eric Sun, *Is the Food and Drug Administration Safe and Effective?*, 22 J. ECON. PERSP. 85, 94–95 (2008) (suggesting that the deadweight losses to consumers and producers from the price increase due to product liability litigation in the pharmaceutical industry is in the tens of billions of dollars).

¹⁴⁶ See *supra* text accompanying notes 67-70.

¹⁴⁷ Sales of new airplanes by general aviation manufacturers declined from 17,811 units in 1978 to 1,143 units a decade later, a decline of 93.5%. See Martin, *supra* note 67, at 484. Manufacturers attributed the decline to price increases that had occurred as a result of enhanced product liability exposure. *General Aviation Accident Liability Standards Act of 1987: Hearing on S. 473 Before the S. Subcomm. on Aviation of the S. Comm. on Commerce, Science & Transportation*, 100th Cong. 52–53 (1987) (statement of Robert Martin, attorney representing Beech Aircraft).

¹⁴⁸ General aviation manufacturers began suspending production of piston-engine aircraft in 1986. DONALD M. PATTILLO, *A HISTORY IN THE MAKING: 80 TURBULENT YEARS IN THE AMERICAN GENERAL AVIATION INDUSTRY* 155 (1998). In the cases of Beech and Cessna, product liability costs actually exceeded production costs. Martin, *supra* note 67, at 484. The CEO of Cessna said that production would resume only if a more favorable liability environment emerged. Mark R. Twombly, *Kill the Messenger*, AOPA PILOT, Aug. 1993, at 125. After the General Aviation Revitalization Act passed in 1994, Cessna's parent company announced it was reinitiating piston-engine aircraft production, ultimately launching new models in 1996. Thomas A. Horne, *Manufacturers Face the Future*, AOPA PILOT, Sept. 1994, at 5.

significant.¹⁴⁹ In light of the preceding observations, the case favoring product liability for general aviation aircraft seems weak.

Class actions. As we noted before, product liability cases are sometimes brought as class actions, when numerous individuals are injured in a common way by a product defect.¹⁵⁰ Precisely because many individuals must have been injured in the same way, the dangerousness of the product in question would have been likely to have become well known even in the absence of product liability, and thus it is likely that market forces and regulation would have led to improvements in the safety of the product. We also noted previously that product liability class actions often involve harms to individuals that are of limited magnitude, implying that the compensatory benefit from product liability would be low.¹⁵¹ Indeed, the compensatory benefit is often nonexistent because plaintiffs frequently do not go to the trouble to claim compensation.¹⁵² Finally, the costs of class actions are substantial.¹⁵³ In view of these points, the case for product liability class actions is unclear, particularly when the loss per plaintiff is low.

¹⁴⁹ See Martin, *supra* note 67, at 484 (finding that from 1971-1976, Beech spent \$18 million insuring and defending product liability claims, of which only about \$3 million went to claimants).

¹⁵⁰ See *supra* text accompanying note 2.

¹⁵¹ Class actions can, however, result in substantial imposition of risk on the manufacturer, for if the manufacturer is liable, it will have to pay many consumers at once.

¹⁵² See, e.g., Paul Elias, *Lawyers Emerge as the Winner in Ford Settlement*, <http://www.google.com/hostednews/ap/article/ALeqM5i7uR4LJIBpZCc3wfyalMMKDEwHAD99R9GJG0> (reporting that approximately one million class members had the opportunity to obtain coupons worth several hundred dollars toward the purchase of a Ford vehicle, but that only 75 individuals redeemed the coupons); see also *Settlement Recovery Center, Settlement Recovery Center Sees Indifference as Class Action Claims' Clock Ticks Down – Californians to Microsoft: “Keep Your Money!”*, *BUSINESSWIRE*, Dec. 25, 2004 (finding a claims rate of seven percent in a small-claims class action against Microsoft); Financial Cryptography: Threats Archive, http://www.financialcryptography.com/mt/archives/cat_threats.html (last visited May 9, 2009) (finding a claims rate of eight percent in a small-claims class action against PayPal). Although these were not product liability class actions, there is no reason to believe that the rate of claiming would be different for such actions when the amounts at stake are small.

¹⁵³ See *supra* note 104, finding that the mean fee rate paid to plaintiffs' attorneys in tort class action lawsuits is 17.9 percent. In addition, defendants incur costs that may be comparable in magnitude to plaintiff costs. See JAMES S. KAKALIK & NICHOLAS M. PACE, *COSTS AND COMPENSATION PAID IN TORT LITIGATION*, at vii–ix (1986) (finding that in tort suits generally defense legal costs are roughly equal to plaintiff legal costs).

VII. Liability of Providers of Services to Their Customers

Providers of services may be liable for harms caused to their customers: professionals (such as physicians, accountants, and lawyers) may be found responsible for malpractice, and non-professionals (plumbers, carpenters, restaurateurs) may be held accountable for defective services.¹⁵⁴ Although such liability is not a form of product liability, it is analytically identical to it — our logic does not depend on whether an individual is harmed by a defective service or a defective product.

There are, however, two possible empirical differences between services and products that are relevant to our analysis. One is that problems associated with services may be more difficult to identify and evaluate than defects associated with products. A person who experiences an adverse medical event might find it hard to determine whether it was caused by malpractice, whereas a person whose water heater spontaneously ruptures probably would not face a similar issue. Thus, consumer information about harms caused by services might not be as good, and hence market forces might not discipline service providers as effectively as product manufacturers. For the same reason, regulators may find it difficult to evaluate services, so that regulation of service providers also will be less effective.

The second possible difference is that services seem more likely to be provided by small firms than are products.¹⁵⁵ To the extent that this is so, market forces will not control service providers as well as product manufacturers, for consumers are not as likely to obtain good information about problems caused by small firms, as we discussed above.¹⁵⁶ Also, regulators are presumably less likely to pay attention to service providers if they are small.

¹⁵⁴ See RESTATEMENT (SECOND) OF TORTS § 299A & cmt. b (1965) (requiring “one who undertakes to render services in the practice of a profession or trade” to “exercise the skill and knowledge normally possessed by members of that profession or trade in good standing,” where skilled trades include “airplane pilot, precision machinist, electrician, carpenter, blacksmith, or plumber”); 3 FOWLER V. HARPER ET AL., HARPER, JAMES AND GRAY ON TORTS § 16.6, at 467 n.7 (3d ed. 2006) (concluding that “semi-skilled trades” require minimum levels of competence, including the trades of restaurateur, adviser to plant nursery personnel, builder, painting contractor, and oil well shooter).

¹⁵⁵ This is suggested by the fact that 29 percent of service jobs are at firms with fewer than twenty employees, whereas only 9 percent of manufacturing jobs are at such firms. See OFFICE OF ADVOCACY, U.S. SMALL BUS. ADMIN., THE SMALL BUSINESS ECONOMY 307-08 tbl.A.8 (2007), available at http://www.sba.gov/advo/research/sb_econ2007.pdf (1,212,677 of 13,821,976 manufacturing jobs are at firms with fewer than twenty employees and 2,202,024 of 7,569,981 professional, scientific, and technical services jobs are at firms with fewer than twenty employees).

¹⁵⁶ See *supra* text accompanying notes 32-33.

Because of these potential differences, the case against liability for services may be less strong than that against liability for products.

VIII. Liability of Firms to Parties Who are Not Their Customers

Our analysis of product liability (and of the liability of service providers) should be distinguished from the liability of firms for harms caused to parties who are not their customers — that is, to “strangers.”¹⁵⁷ Such victims include, for example, pedestrians struck by delivery trucks, tourists prevented from using a beach because of an oil spill, and bystanders hurt by the collapse of a crane at a construction project.

There is a crucial difference between situations in which strangers are harmed and those in which customers are injured.¹⁵⁸ If strangers are harmed by a firm, the firm would not expect to lose sales and profits as a result, whereas if its customers are injured, it would expect to suffer these losses, as we have stressed. A pizza parlor would not be likely to suffer diminished sales if its delivery vehicles hit pedestrians, but it would be likely to lose business if its pizzas caused food poisoning of its customers.¹⁵⁹ The important implication of these observations is that market forces will not induce firms to increase safety if those at risk are strangers.

A related difference between situations in which customers are victims and those in which strangers are victims concerns price signalling. As we explained in Part III, when the victims of product accidents are customers, price increases due to liability will not improve customers’ purchase decisions to the extent that they are well informed about product risks.¹⁶⁰

¹⁵⁷ See, e.g., RESTATEMENT (THIRD) OF TORTS § 3 cmt. f, illus. 1 (Proposed Final Draft No. 1, 2005) (illustrating negligence by example with a power company liable to a stranger because the company strung a low power line across a river that came into contact with most of the non-customer’s sailboat and cause severe electric burns); see also 1 DOBBS, *supra* note 1, § 227, at 578 (“Among strangers—those who are in no special relationship that may affect duties owed—the default rule is that everyone owes a duty of reasonable care to others to avoid physical harms.”).

¹⁵⁸ The remaining discussion in this section is based on ideas developed in Shavell, *supra* note 83.

¹⁵⁹ Analogously, an oil company probably would not lose sales if one of its tankers caused an oil spill, but it would expect to suffer losses if its gasoline damaged car engines. In the case of the Exxon Valdez oil spill, the largest environmental disaster in North American history, Exxon’s revenue actually rose in the quarter after the spill. Exxon reported \$22.2 billion in revenue in first quarter of 1989, the quarter during which the spill occurred, and \$23.6 billion in revenue in the second quarter of 1989. *Exxon Corp.: Interim Consol. Earnings: June '89*, STANDARD & POOR'S DAILY NEWS, July 24, 1999.

¹⁶⁰ See *supra* Part III.A.

Higher pizza prices will not be needed to discourage consumption of pizza if consumers know about a high risk of food poisoning. But when the victims of product accidents are strangers, price increases due to liability will be needed because the customers of those products will otherwise ignore the injuries to strangers caused by their purchases. Higher pizza prices, reflecting accident costs, are needed to discourage consumers from buying pizza from sellers whose delivery vehicles cause harm to pedestrians. In sum, the price signalling benefit of liability is generally greater when the victims of product accidents are strangers than when they are customers.¹⁶¹

Both because of the ineffectiveness of market forces in creating safety and the need for product prices to reflect risk when victims are strangers, the case for liability is stronger in that case than when victims are customers.

IX. The Prevailing Social Endorsement of Product Liability

In this part we summarize the views of courts, academics, the media, and public policy organizations about product liability. We find that they broadly approve of such liability even though some have criticized it as being too expansive. However, neither the proponents nor the critics of product liability undertake a serious evaluation of its benefits or costs, which we believe explains why the possibility that product liability is socially undesirable, at least for widely sold products, has not been contemplated by them.

A. Judicial Opinions

Over the last two centuries, courts have generally increased the scope of the liability of firms for harms done to their customers. They have altered the foundation of liability from contract — predicated on a firm having sold a product directly to a customer — to tort — not

¹⁶¹ The remainder of our analysis is essentially the same if victims are strangers. In particular, regulation tends to improve safety, the compensation rationale for liability is weak, and the costs of the liability system are high.

requiring a firm to have sold its product directly to a customer.¹⁶² Nevertheless, they have acted to curtail product liability to some extent in recent years.¹⁶³

One important rationale for product liability offered by courts is that it promotes fairness, especially the notion that a firm that benefits from selling a dangerous product should have to pay for the harms that the product causes. For example, in *Brooks v. Beech Aircraft Corp.*, the court states “The burden of illness from dangerous products . . . should be placed upon those who profit from its production . . . That burden should not be imposed exclusively on the innocent victim.”¹⁶⁴ Naturally, this conception of fairness, like others to which the courts might appeal,¹⁶⁵ is not framed in terms of the benefits and costs of product liability that we have considered here.

Courts do, however, mention the benefits and costs of product liability when they comment on its public policy justifications. Yet on these occasions, their discussion is typically perfunctory and their claims often seem illogical. The influential concurring opinion of Justice Traynor in *Escola v. Coca-Cola Bottling Co.*, concerning harm done by a defective Coca-Cola

¹⁶² 1 DAVID G. OWEN ET AL., MADDEN & OWEN ON PRODUCTS LIABILITY § 1.4 (3d ed. 2008); Steven P. Croley & Jon D. Hanson, *Rescuing the Revolution: The Revived Case for Enterprise Liability*, 91 MICH. L. REV. 683, 695-712 (1992); George L. Priest, *The Invention of Enterprise Liability: A Critical History of the Intellectual Foundations of Modern Tort Law*, 14 J. LEGAL STUD. 461, 465-83 (1985); William L. Prosser, *The Fall of the Citadel (Strict Liability to the Consumer)*, 50 MINN. L. REV. 791, 791-800 (1960).

¹⁶³ See generally James A. Henderson & Aaron D. Twerski, *Closing the American Products Liability Frontier: The Rejection of Liability Without Defect*, 66 N.Y.U. L. REV. 1263, 1272 n.31 (1991) (listing examples of court decisions since the 1980s that have curtailed product liability); James A. Henderson & Theodore Eisenberg, *The Quiet Revolution in Products Liability: An Empirical Study of Legal Change*, 37 UCLA L. REV. 479, 480, 483-88 (1990) (“This quiet revolution is a significant turn in the direction of judicial decision making away from extending the boundaries of products liability and toward placing significant limitations on plaintiffs’ rights to recover in tort for product-related injuries.”); Gary T. Schwartz, *The Beginning and the Possible End of the Rise of Modern American Tort Law*, 26 GEORGIA L. REV. 601, 603 (1992) (“[D]uring the last decade courts have rejected invitations to endorse new innovations in liability, moreover, they have placed a somewhat conservative gloss on innovations undertaken in previous years.”).

¹⁶⁴ See *Brooks v. Beech Aircraft Corp.*, 902 P.2d 54, 58 (N.M. 1995); see also *Greenman v. Yuba Power Prods.*, 377 P.2d 897, 901 (Cal. 1963) (“The purpose of such liability is to insure that the costs of injuries resulting from defective products are borne by the manufacturers that put such products on the market rather than by the injured persons. . .”); *Kemp v. Miller*, 154 Wis.2d 538, 556, 453 N.W.2d 872 (Wis. 1990) (“the risk of the loss associated with the use of defective products should be borne by those who have created the risk and who have reaped the profit by placing a defective product in the stream of commerce.”); RESTATEMENT (THIRD) OF TORTS: PRODUCT LIABILITY § 2 reporters’ note cmt. a (1998) (“the manufacturer should be strictly liable because it profits from its activity, which inevitably involves defect-caused harm to others.”); RESTATEMENT (SECOND) OF TORTS § 402A cmt. c (1965) (“the justification for the strict liability has been said to be that the seller, by marketing his product for use and consumption, has undertaken and assumed a special responsibility toward any member of the consuming public who may be injured by it.”).

¹⁶⁵ See, e.g., RESTATEMENT (THIRD) OF TORTS: PRODUCT LIABILITY § 2 cmt. a (1998) (mentioning disappointment of “reasonable expectations of product performance” as a fairness rationale).

bottle, is illustrative.¹⁶⁶ There Justice Traynor states: “[P]ublic policy demands that responsibility be fixed wherever it will most effectively reduce the hazards to life and health inherent in defective products that reach the market. It is evident that the manufacturer can anticipate some hazards and guard against the recurrence of others, as the public cannot.”¹⁶⁷ This is essentially the only language in the opinion that mentions the effect of product liability on product safety,¹⁶⁸ and its reasoning is problematic. It is true that manufacturers may be able to reduce risk and consumers unable to do so, but this does not imply that liability is needed to induce manufacturers to lower risk. As we have stressed, manufacturers would not want to market dangerous products if their sales would fall in the wake of product-caused accidents. In other words, the opinion does not address the possibility that product safety might be achieved in the absence of liability because of market pressure from consumer information about product risks.

Justice Traynor’s concurrence in *Escola* does mention consumer knowledge, however: “The consumer no longer has means or skill enough to investigate for himself the soundness of a product, even when it is not contained in a sealed package, and his erstwhile vigilance has been lulled by the steady efforts of manufacturers to build up confidence by advertising and marketing devices such as trade-marks. . . . Consumers no longer approach products warily but accept them on faith, relying on the reputation of the manufacturer or the trade mark.”¹⁶⁹ One might agree that consumers will often be unable to learn about product risks from direct inspection of products. But this does not bar consumers from learning about product risks from the print media, television and the Internet, and government agencies — and, as we have emphasized, these sources provide extensive information about product risks.¹⁷⁰ Further, Justice Traynor’s view that firms employ their reputations opportunistically to sell unsafe products is questionable:

¹⁶⁶ *Escola v. Coca Cola Bottling Co.*, 150 P.2d 436 (Cal. 1944) (Traynor, J., concurring).

¹⁶⁷ *Id.* at 440-41.

¹⁶⁸ There are two additional sentences bearing on deterrence that are summary in nature: “It is to the public interest to discourage the marketing of products having defects that are a menace to the public. . . . It is to the public interest to prevent injury to the public from any defective goods by the imposition of civil liability generally.” *Id.* at 441.

¹⁶⁹ *Id.* at 443.

¹⁷⁰ See *supra* text accompanying notes 18-30.

it would be difficult for a firm to build and maintain a reputation for product safety without having a true record of product safety.

The *Escola* opinion also fails to mention that the regulation of product safety may lead firms to take desirable precautions and thus reduces the need for product liability.¹⁷¹ Furthermore, the opinion does not consider whether product liability has in fact led to changes in safety.

The abbreviated and intellectually unsatisfactory character of the statements about liability and safety in *Escola* is representative of what is found in other decisions that refer to the deterrence rationale for product liability.¹⁷² For example, the court in *U.S. Airways v. Elliott Equip. Co.* states without analysis that “imposing strict liability here would serve as an incentive to safety because [defendant] Fluidics . . . is in a better position than a consumer to prevent circulation of defective products.”¹⁷³ Here we see the same non sequitur as in *Escola*. Just because the manufacturer is in the superior position to prevent defects does not imply that liability is needed to improve product safety; market forces and regulation may already lead the manufacturer to prevent defects. As in *Escola* and *U.S. Airways*, the occasional references in other opinions to the effect of product liability on product safety are generally conclusory and presumptive.¹⁷⁴

¹⁷¹ Justice Traynor in *Escola* does mention the section of the Health and Safety Code that “prohibits the manufacturing, preparing, compounding, packing, selling . . . of any adulterated food” and that imposes strict criminal liability on manufacturers. *Escola*, 150 P.2d at 441. He argues that this “public policy of protecting the public from dangerous products placed on the market” should be expanded beyond food products and containers. Here Justice Traynor is using regulation as a justification for expanded product liability, not suggesting that regulation may be a substitute for product liability.

¹⁷² Justice Traynor did not even mention deterrence explicitly in *Greenman v. Yuba Power Products, Inc.*, 377 P.2d 897 (Cal. 1963), an influential product liability case.

¹⁷³ *U.S. Airways v. Elliott Equip. Co.*, No. 06-1481, 2008 WL 4425238, at *5 (E.D. Pa. Sept. 29, 2008). This case involved injury to an employee of U.S. Airways when a boom supplied by Fluidics for deicing aircraft collapsed. The court presumed that liability would be needed to induce a firm like Fluidics to ensure the safety of its booms. But the court did not ask whether Fluidics would have a motivation to supply safe booms in order to retain its business with U.S. Airways and other airlines. Moreover, although the court noted that local authorities regulated the safety of airport equipment, *id.* at *1, it did not consider this in assessing the need for liability.

¹⁷⁴ See, e.g., *All Alaskan Seafoods, Inc. v. Raychem Corp.*, 197 F.3d 992, 995 (9th Cir. 1999) (in which the court’s treatment of deterrence is cursory, stating that “Product liability promotes safer products by placing responsibility on the manufacturer, which is the party most able to prevent harm.”); *Sindell v. Abbot Laboratories*, 607 P.2d 924, 936 (Cal. 1980) (stating without development that “The manufacturer is in the best position to discover and guard against defects in its products and to warn of harmful effects; thus, holding it liable for defects and failure to warn of harmful effects will provide an incentive to product safety.”); *Bell v. Jet Wheel Blast*, 462

The discussion of the safety rationale in the *Restatement (Third) of Torts: Product Liability* is similar. The *Restatement* mentions the safety justification for product liability in a few brief sentences, assuming its importance, and does not consider that market forces and regulation already encourage product safety.¹⁷⁵ The *Restatement (Second)* only mentions in a phrase that the provision of safety is a rationale for product liability.¹⁷⁶

With respect to the price signalling benefit of product liability, most courts are silent, though some have observed that product liability is desirable because it causes the prices of defective products to rise and thereby dampens their consumption. For example, in *Bynum v. FMC Corp.*, the court said that “increased prices will . . . discourage consumers from purchasing risky products and thereby lower total accident costs to society.”¹⁷⁷ This view, however, fails to

So.2d 166, 177 (La. 1985) (asserting that “in many instances the manufacturer would have no incentive to make and market a safer product . . .” if its liability is reduced); *Heath v. Sears, Roebuck & Co.*, 464 A.2d 288, 293 (N.H. 1983) (in which the only reference to deterrence occurs in the sentence “Deterrence is also a valid consideration; without the stimulus of plaintiffs’ products liability actions, the incentive to improve products and make them safer would not exist.” citation omitted); *Gantes v. Kason Corp.*, 679 A.2d 106, 112 (N.J. 1996) (claiming that the state’s interest in product safety “is furthered through the recognition of claims and the imposition of liability based on principles of strict products-liability law.”); *Leichtamer v. Am. Motors Corp.*, 424 N.E.2d 568, 575 (Ohio 1981) (in which the only mention of deterrence is the statement “. . . the public interest in human life and safety can best be protected by subjecting manufacturers of defective products to strict liability in tort when the products cause harm.”); *Dippel v. Sciano*, 155 N.W.2d 55, 58 (Wis. 1967) (arguing that “the manufacturer has the greatest ability to control the risk created by his product since he may initiate or adopt inspection and quality control measures thereby preventing defective products from reaching the consumer”). There are, however, occasional cases in which the reasoning about deterrence is not conclusory because they discuss whether imposing liability would promote product safety in the particular circumstances. *See, e.g., McKay v. Rockwell Int’l Corp.*, 704 F.2d 444, 452 (9th Cir. 1983) (arguing that imposing liability would not be likely to foster product safety because market forces already accomplish this — the plaintiff, a purchaser of military equipment, is knowledgeable and would not buy dangerous products); *Queen City Terminals, Inc. v. Gen. Am. Transp. Corp.*, 653 N.E.2d 661, 672 (Ohio 1995) (explaining that product liability does not promote product safety when buyers are knowledgeable about product risks and specify the design of the product).

¹⁷⁵ We have found only three passages on deterrence in the RESTATEMENT (THIRD) OF TORTS: PRODUCT LIABILITY: “On the premise that tort law serves the instrumental function of creating safety incentives, imposing strict liability on manufacturers for harm caused by manufacturing defects encourages greater investment in product safety . . .” § 2 cmt. a (1998). “Subsections (b) and (c), which impose liability for products that are defectively designed or sold without adequate warnings or instructions . . . achieve the same general objectives as does liability predicated on negligence. The emphasis is on creating incentives for manufacturers to achieve optimal levels of safety in designing and marketing products.” *Id.* “Strict liability for harm caused by manufacturing defects has been supported on the ground that it promotes investment in product safety. *See, e.g., Hoven v. Kelble*, 256 N.W.2d 379, 391 (Wis. 1977) (“Strict liability is an effective deterrent; it deters the creation of unnecessary risks, or to put it positively, strict liability is an incentive to safety.”) *Id.* at Reporters’ Note cmt. a.

¹⁷⁶ *See* §402A on product liability, comment c, stating that the justification for strict liability includes that “the consumer of such products is entitled to the maximum of protection at the hands of someone, and the proper persons to afford it are those who market the products.” RESTATEMENT (SECOND) OF TORTS § 402A (1966). A full reading of comment c suggests that the quoted statement refers to the safety rationale for product liability.

¹⁷⁷ *Bynum v. FMC Corp.*, 770 F.2d 556, 571 (5th Cir. 1985).

recognize that, to the extent that consumers have knowledge of product risks, an increase in the price of a dangerous product is not needed to induce them to refrain from buying it — they would not purchase a product that they knew to be dangerous, regardless of whether its price was higher due to product liability.¹⁷⁸ Other courts that mention the effect of product prices on purchases generally make the same error, believing that it is always beneficial for prices to reflect product risks.¹⁷⁹ Moreover, none of the product liability opinions that we have examined recognize that product prices will also increase due to litigation costs and thereby may undesirably chill the purchase of products. These mistakes of the courts are also made in the *Restatement (Third) of Torts: Product Liability*.¹⁸⁰

Concerning compensation, Justice Traynor’s opinion in *Escola* is again illustrative of judicial thinking generally. He states that “[t]he cost of an injury and the loss of time or health may be an overwhelming misfortune to the person injured, and a needless one, for the risk of injury can be insured by the manufacturer. . . .”¹⁸¹ Here Justice Traynor provides a compensation-based argument for product liability, but he does not consider the fact that many individuals already have various forms of private and public insurance, substantially lessening their need for compensation through the product liability system. He also does not recognize that, to the extent that insurance policies have subrogation provisions, a significant portion of the liability payments by defendants do not provide additional benefits to plaintiffs after an accident. Finally, Justice Traynor does not take into account the detrimental effect of compensating individuals for pain and suffering, which, as we explained, effectively forces them to purchase a type of

¹⁷⁸ *But see McKay*, 704 F.2d at 452 (observing that prices will beneficially discourage consumers from buying risky products only if consumers underestimate product risks).

¹⁷⁹ *See, e.g., LaRosa v. Superior Court*, 176 Cal Rptr. 224, 233 (Cal. App. Dep’t Super. Ct. 1981) (“The assumption is that the entrepreneur will pass the costs of injuries along to the consumer in the form of increased prices for more dangerous products and that the consumer will be more likely to buy safer goods because they will be relatively less expensive.”); *Belle Bonfils Mem’l Blood Bank v. Hansen*, 665 P.2d 118, 122 n.7 (Colo. 1983) (“Enterprise liability assumes that a product’s market price ought to include the cost of accidents caused by defects in the product, and that consumer demand will shift accordingly to safer substitutes.”)

¹⁸⁰ *See* RESTATEMENT (THIRD) OF TORTS: PRODUCT LIABILITY § 2 cmt. a (1998) (“Some courts and commentators also have said that strict liability discourages the consumption of defective products by causing the purchase price of products to reflect, more than would a rule of negligence, the cost of defects.”); *id.* at § 2 reporters’ note cmt. a. There is no discussion of the price signalling rationale for product liability in the RESTATEMENT (SECOND) OF TORTS (1965).

¹⁸¹ *Escola*, 150 P.2d at 441.

insurance that most do not want.¹⁸² When other opinions and the *Restatements* address the compensation benefit of product liability, they also do so in a spare manner and without reference either to the role of victims' insurance coverage or to the undesirable effect of compensation for pain and suffering.¹⁸³

With respect to the costs of the product liability system, the courts say little or nothing when they discuss public policy considerations bearing on product liability. Only a tangential reference to litigation costs is made by Justice Traynor in *Escola*,¹⁸⁴ and only a sentence is devoted to this topic in the *Restatements*.¹⁸⁵ Most opinions omit discussion of litigation costs altogether.¹⁸⁶

¹⁸² See *supra* text accompanying notes 111-115.

¹⁸³ See, e.g., *All Alaskan Seafoods, Inc. v. Raychem Corp.*, 197 F.3d 992, 995 (9th Cir. 1999) (making the cursory statement regarding compensation that “Manufacturers can set prices to spread the risk of defects over the entire market for their products.”); *Sindell v. Abbot Laboratories*, 607 P.2d 924, 936 (Cal. 1980) (in which the only explicit reference to compensation is the statement “[t]he cost of an injury and the loss of time or health may be an overwhelming misfortune to the person injured, and a needless one, for the risk of injury can be insured by the manufacturer. . .,” quoting Justice Traynor’s concurring opinion in *Escola*); *Bell v. Jet Wheel Blast*, 462 So.2d 166, 171 (La. 1985) (noting without further development that one of the basic goals of strict product liability is “placing of the burden of accidental injuries caused by defective products on those who market them, to be treated as a cost of production against which liability insurance can be obtained.”); *Queen City Terminals, Inc. v. Gen. Am. Transp. Corp.*, 653 N.E.2d 661, 672 (Ohio 1995) (simply pointing out that sometimes “manufacturers are in a better position to bear the costs of injuries, because they have the ability to ‘distribute the losses of the few among the many who purchase the products’ by charging higher prices.” (citation omitted)); *Blankenship v. Gen. Motors Corp.*, 406 S.E.2d 781, 784 (W. Va. 1991) (observing only that “product liability is concerned with spreading the cost of inevitable accidents. Inherent in this cost-spreading function is the collection of what amounts to insurance premiums from all the purchasers of products . . .” footnote omitted). See also RESTATEMENT (THIRD) OF TORTS: PRODUCT LIABILITY § 2 cmt. a (1998) (solely observing that as between wholesalers and retailers, and “innocent victims who suffer harm because of defective products, the product sellers as business entities are in a better position than are individual users and consumers to insure against such losses”); RESTATEMENT (SECOND) OF TORTS § 402A cmt. c (1965) (merely asserting that “public policy demands that the burden of accidental injuries caused by products intended for consumption be placed upon those who market them, and be treated as a cost of production against which liability insurance can be obtained”). But see *McKay v. Rockwell Int’l Corp.*, 704 F.2d 444, 452 (9th Cir. 1983) (recognizing that the plaintiff would receive generous compensation for his accident through the Veterans’ Benefits Act).

¹⁸⁴ His only mention of litigation costs concerns the comparison between a regime of product liability and a regime in which injured consumers sue retailers and retailers sue manufacturers (he describes the latter as “needlessly circuitous and engender[ing] wasteful litigation”). *Escola*, 150 P.2d at 442.

¹⁸⁵ The sentence appears in RESTATEMENT (THIRD) OF TORTS: PRODUCT LIABILITY § 2 reporters’ note cmt. a (1998) (“Another objective traditionally thought to be promoted by strict liability is the reduction of transaction costs, which include the costs of operating the accident reparation system.”).

¹⁸⁶ See, e.g., *Bynum v. FMC Corp.*, 770 F.2d 556 (5th Cir. 1985); *U.S. Airways v. Elliott Equip. Co.*, 2008 WL 4425238 (E.D. Pa. 2008); *Brooks v. Beech Aircraft Corp.*, 902 P.2d 54 (N.M. 1995). But see *Torres v. Goodyear Tire & Rubber Co.*, 867 F.2d 1234, 1238-39 n.4 (9th Cir. 1989) (recognizing the significance of legal costs and citing academic literature on their magnitude).

In sum, product liability opinions usually devote at most a few sentences to the safety and compensation benefits of product liability, generally overstating them, and largely ignore the costs of product liability. It is not surprising, therefore, that when courts consider public policy arguments concerning product liability, they typically find them supportive of such liability.

B. Academic Writing

Early academic writing on product liability was oriented toward traditional legal concerns and instrumental goals, while much of the more recent scholarly writing on product liability has adopted an avowedly economic approach in addressing questions of legal policy. We now review both bodies of literature.

Traditional academic writing. The traditional literature on product liability is exemplified by the work of such authors as Fleming James, William Prosser, Page Keeton, and James Henderson.¹⁸⁷ These commentators generally favor product liability.¹⁸⁸ One justification that they often mention is that it advances conceptions of fairness. Prosser, for example, writes that “The public interest in human life and safety . . . justifies the imposition, upon all suppliers of products, of full responsibility for the harm they cause . . .”;¹⁸⁹ and Keeton states that “it is important to recognize as a basic reason for liability that a consumer’s expectations have been frustrated.”¹⁹⁰

¹⁸⁷ See, e.g., FOWLER V. HARPER & FLEMING JAMES, JR., *THE LAW OF TORTS* (1956); WILLIAM L. PROSSER, *HANDBOOK OF THE LAW OF TORTS* (4th ed. 1971); Henderson & Eisenberg, *supra* note 163; Henderson & Twerski, *supra* note 163; Fleming James, Jr., *General Products — Should Manufacturers Be Liable Without Negligence?*, 24 TENN. L. REV. 923 (1957); Fleming James, Jr. & John J. Dickinson, *Accident Proneness and Accident Law*, 63 HARV. L. REV. 769 (1950); Page Keeton, *Products Liability: Some Observations About Allocation of Risks*, 64 MICH. L. REV. 1329 (1965); Page Keeton, *Products Liability: The Nature and Extent of Strict Liability*, 1964 U. ILL. L. F. 693 (1964); Prosser, *supra* note 162. Other traditional scholars of product liability include Robert E. Keeton, David G. Owen, Gary Schwartz, and Marshall Shapo.

¹⁸⁸ See, e.g., James, *General Products*, *supra* note 187 at 923-24 (arguing that product liability is desirable because it spreads risks); Priest, *supra* note 162, at 505 (describing Prosser’s important role as a Reporter of the RESTATEMENT (SECOND) OF TORTS, which adopted Section 402A, imposing liability on sellers for injuries from defective products); Prosser, *supra* note 162 (suggesting that strict product liability be adopted). Page Keeton and James A. Henderson appear to favor some form of product liability, although both are concerned about its proper design, especially the scope of the definition of product defect. See, e.g., Henderson & Twerski, *supra* note 163; Keeton, *Products Liability: Observations*, *supra* note 187.

¹⁸⁹ Prosser, *supra* note 162, at 1122. In advancing this argument, it is clear that Prosser is not referring to the effect of liability on product safety or on the compensation of victims.

¹⁹⁰ Keeton, *Products Liability: Nature*, *supra* note 187, at 695.

Traditional writing also usually considers public policy rationales for product liability, including improved safety. For instance, James believes that an object of such liability is to “cut down accidents” and that “the manufacturer is in a peculiarly strategic position to improve the safety of his products, so that the pressure of strict liability could barely be exerted at a better point”¹⁹¹ But traditional writing rarely includes discussion, even of a qualitative nature, of how market forces and regulation may already accomplish some risk reduction, and thus why the effect of product liability on safety may be limited. Most traditional writing also fails to ask whether there is empirical evidence concerning the influence of product liability on product safety. In sum, even though this writing justifies product liability in part on the basis of its ability to reduce risk, it does not offer sound reasons for believing that such liability exerts a significant effect on safety.

With regard to price signalling, traditional writers are, like the courts, mostly silent. We have been unable to find in the traditional literature on product liability more than a few scattered references to this issue.¹⁹²

The traditional literature predominantly views product liability as desirably contributing to the compensation of accident victims. James in particular is well known for having emphasized the general risk-spreading role of manufacturer liability, declaring that “the enterprise which causes losses should lift them from the individual victims and distribute them widely.”¹⁹³ Similarly, Page Keeton and his coauthors write that firms “have the capacity to distribute the losses of the few among the many who purchase the products . . . by charging higher prices”¹⁹⁴ Although these writers speak of the beneficial effect of product liability in promoting compensation, they generally overlook the point that private and public insurance

¹⁹¹ James, *General Products*, *supra* note 187, at 923. Some commentators, though, are skeptical of the effect of product liability on product safety. *See, e.g.*, Prosser, *supra* note 162, at 1119.

¹⁹² One such reference is Henderson & Twerski, *supra* note 163, at 1273 (1991) (observing that “products liability would reduce the consumption of relatively risky products by increasing their monetary costs to users and consumers”).

¹⁹³ James, *General Products*, *supra* note 187, at 924. *See also* Priest, *supra* note 162, at 470 (“James promoted one principle — risk distribution — above all others.”).

¹⁹⁴ W. PAGE KEETON, DAN B. DOBBS, ROBERT E. KEETON & DAVID G. OWEN, *PROSSER AND KEETON ON TORTS* 693 (5th ed. 1984).

already serves this purpose to a significant degree.¹⁹⁵ Moreover, they do not consider that awards for pain and suffering constitute a form of insurance that individuals do not want and that therefore lowers their well-being. Hence, even though traditional writing views compensation as a paramount rationale for product liability, it fails to address questions of obvious importance about the degree to which product liability actually facilitates that goal.

Finally, traditional writing typically omits the costs of the product liability system from its analysis, although some authors mention this factor in passing.¹⁹⁶

To summarize, the traditional literature is qualitatively similar to judicial opinion in viewing product liability favorably because it furthers certain fairness goals and yields deterrence and compensation benefits. However, the traditional writing does not undertake a realistic assessment of these benefits and it essentially disregards the costs of the product liability system.

Economically-oriented academic writing. During the last several decades, a substantial literature has emerged that adopts a self-consciously economic viewpoint in analyzing product liability.¹⁹⁷ One branch of this literature emphasizes the theoretical point that product liability has a beneficial effect on product safety only to the degree that consumers lack information about product risks. This writing, which includes articles by Michael Spence and Steven Shavell, also examines how different rules of product liability function under varying assumptions concerning imperfect information.¹⁹⁸ It does not, however, attempt to assess empirically the effect of product liability on product safety.

¹⁹⁵ The only exception of which we are aware is Keeton, *Products Liability: Observations*, *supra* note 187, at 1333-34 (commenting that the existence of private insurance reduces the need for product liability to accomplish risk spreading).

¹⁹⁶ See, e.g., Keeton, *Products Liability: Nature*, *supra* note 187 (noting that a potential problem with product liability is the “economic and sociological costs of adjudications.”).

¹⁹⁷ This literature is discussed in DEWEES, DUFF & TREBILCOCK, *supra* note 64, at 188-264; Mark Geistfeld, *Products Liability*, in 1 ENCYCLOPEDIA OF LAW AND ECONOMICS 287 (Michael Faure ed., 2d ed. 2009); Kessler & Rubinfeld, *supra* note 65, at 361-63; and W. Kip Viscusi, *Products Liability*, in 3 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 131 (Peter Newman ed., 1998).

¹⁹⁸ See Shavell, *supra* note 83; Spence, *supra* note 83. See also Andrew F. Daughety & Jennifer F. Reinganum, *Product Safety: Liability, R&D, and Signaling*, 85 AMER. ECON. REV. 1187 (1995); Dennis Epple & Artur Raviv, *Product Safety: Liability Rules, Market Structure, and Imperfect Information*, 68 AM. ECON. REV. 80 (1978); Victor P. Goldberg, *The Economics of Product Safety and Imperfect Information*, 5 BELL J. ECON. & MGMT. SCI. 683 (1974); Roland N. McKean, *Products Liability: Implications of Some Changing Property Rights*, 84 Q. J. ECON. 611 (1970); A. Mitchell Polinsky & William P. Rogerson, *Products Liability, Consumer Misperceptions, and Market Power*, 14 BELL J. ECON. 581 (1983).

Another body of economic literature focuses on the question whether liability for defective products should be imposed by the courts as a form of tort liability or instead be determined by contract (notably, through use of warranties). Some contributors to this literature argue that consumers tend to have better information than courts about product characteristics, their own aversion to risk, and other factors bearing on the optimal form of liability. These contributors conclude, therefore, that consumers are better off if they are allowed to choose the form of liability through contract. Scholars who develop this theme include Richard Epstein, George Priest, Paul Rubin, and Alan Schwartz.¹⁹⁹ Conversely, other contributors to this literature believe that courts generally have superior information about the need for product liability, in which case consumers are better off if liability is imposed by the courts. Scholars who elaborate this view include Steven Croley and Jon Hanson, William Landes and Richard Posner, and Kip Viscusi.²⁰⁰ Hence, the major issue addressed by the writers contributing to this branch of literature is whether liability for defective products should be selected by the parties or imposed by courts, not whether product liability is socially desirable.

Of note, too, is the economically-oriented writing of Guido Calabresi, who developed the notion that tort liability should be imposed on the cheapest cost avoider, that is, the party who can reduce accident risks at least cost.²⁰¹ According to Calabresi, this principle implies that, in the context of product accidents, manufacturers should be strictly liable for injuries to their customers when the risk of an accident is primarily under their control.²⁰² He does not discuss, however, the point that strict liability would not be needed to induce manufacturers to control

¹⁹⁹ See, e.g., RICHARD A. EPSTEIN, *MODERN PRODUCT LIABILITY LAW* (1980); PAUL H. RUBIN, AM. ENTERPRISE INST. FOR PUB. POL'Y RES., *TORT REFORM BY CONTRACT* (1993); George L. Priest, *A Theory of the Consumer Product Warranty*, 90 *YALE L. J.* 1297 (1981); Alan Schwartz, *Proposals for Products Liability Reform: A Theoretical Synthesis*, 97 *YALE L. J.* 353 (1988). But see Abraham L. Wickelgren, *The Inefficiency of Contractually-Based Liability with Rational Consumers*, 22 *J. L. ECON. & ORG.* 168 (2006) (arguing that court-imposed liability is needed even when consumers correctly judge a product's risk).

²⁰⁰ See, e.g., W. KIP VISCUSI, *REFORMING PRODUCTS LIABILITY* (1991); Croley & Hanson, *supra* note 162; William M. Landes & Richard A. Posner, *A Positive Economic Analysis of Products Liability*, 14 *J. LEGAL STUD.* 535 (1985).

²⁰¹ See generally CALABRESI, *supra* note 7; Guido Calabresi & Jon T. Hirschoff, *Toward a Test for Strict Liability in Torts*, 81 *YALE L. J.* 1055 (1972).

²⁰² Thus, for example, a manufacturer of a motorized lawnmower should be strictly liable for accidents caused by a defective blade breaking off and striking the owner. Conversely, the owner of the lawnmower should bear her own losses if she drives it on a road and has an accident. See Calabresi and Hirschoff, *supra* note 201, at 1063-64.

accident risks to the degree that market forces and regulation already accomplish this task. In addition, Calabresi does not attempt to assess whether the costs of the product liability system outweigh its product safety and compensation benefits.²⁰³

Hence, although there is a substantial body of writing about the economics of product liability, essentially no one attempts to assess the overall benefits and costs of the product liability system.²⁰⁴ As we explained, the focus tends to be on the theoretical effects of product liability under different assumptions about consumer information, or on the question of whether product liability rules should be chosen by the parties or by the courts, or on the concept of the least-cost avoider.²⁰⁵

C. Public Commentary

Many newspapers, magazines, television networks, and policy-oriented organizations favor product liability. The main reasons they give are essentially those provided by the courts and traditional academic writers. Thus, they argue that product liability promotes fairness. For example, *The Washington Post* maintained that product liability is necessary “to ensure justice for victims” and *The New York Times* claimed that it is needed in order to “punish the makers and sellers of unsafe products.”²⁰⁶ A second justification they furnish is that product liability encourages product safety. A *USA Today* article, for instance, stated that product liability lawsuits provide an incentive for firms to make safer products and an *NBC News* report observed

²⁰³ In Calabresi and Hirschhoff, *supra* note 201, the compensatory benefits and costs of the product liability system are not discussed. In Calabresi’s *The Costs of Accidents*, there is a qualitative discussion of the benefits and costs of the tort system in general, but not of the product liability system in particular; for his discussion of product liability. See CALABRESI, *supra* note 7, at 161-73.

²⁰⁴ However, some scholars employ benefit-cost analysis to study related questions. See DEWEES, DUFF & TREBILCOCK, *supra* note 64 (focusing on a comparison of strict product liability to negligence-based liability with respect to the goals of deterrence, compensation, and corrective justice); see also Stephen D. Sugarman, *Doing Away with Tort Law*, 73 CAL. L. REV. 555 (1985) (analyzing the limited deterrence and compensation benefits of tort law generally).

²⁰⁵ Although these have been the major topics addressed in the economic literature on product liability, numerous other issues have been studied as well. See, e.g., Omri Ben-Shahar, *Should Products Liability Be Based on Hindsight?*, 14 J.L. ECON. & ORG. 325 (1998); James Boyd & Daniel E. Ingberman, *Should ‘Relative Safety’ Be a Test of Product Liability?*, 26 J. LEGAL STUD. 433 (1997); Paul Burrows, *Consumer Safety Under Products Liability and Duty to Disclose*, 12 INT’L REV. L. & ECON. 457 (1992); Bruce Hay & Kathryn E. Spier, *Manufacturer Liability for Harm Caused by Consumers to Others*, 94 AM. ECON. REV. 1700 (2005); Janusz A. Ordover, *Products Liability in Markets with Heterogeneous Consumers*, 8 J. LEGAL STUD. 505 (1979).

²⁰⁶ See, respectively, Op-Ed., *Lawsuits: The People’s Last Resort*, WASH. POST, July 10, 1999, at A17; *Another Damaging Damages Bill*, N.Y. TIMES, July 7, 1998, at A14.

that the judgment against tobacco companies sent “a strong message” not to sell dangerous products.²⁰⁷ A third basis they offer for product liability is that it compensates injured consumers. For example, a *CBS News* broadcast asserted that such compensation is a primary purpose of product liability law, and a Public Citizen report urged legislators to take into account that product liability facilitates injured consumers’ ability “to recoup their economic losses.”²⁰⁸

There is, however, significant criticism of the product liability system by the business press and conservative think tanks. For example, a *Wall Street Journal* article concluded that there have been “thousands of small businesses driven under by . . . one product-liability case.”²⁰⁹ An American Enterprise Institute report stated that “[p]roducts liability has become a means of transferring wealth from the guilty and innocent alike to attorneys’ and random plaintiffs’ pockets. This does not deter design defects — it just deters design.”²¹⁰ The theme of these writings is that product liability is random in its application, raises prices, inhibits innovation, causes desirable products to be withdrawn from the marketplace, and drives companies out of business.²¹¹ The usual recommendation is that product liability be curtailed, but not that it be eliminated.²¹²

²⁰⁷ See, respectively, Joan Biskupic, *Court Draws Line on State Safeguards*, USA TODAY, Feb. 21, 2008, at 3A; NBC News Transcripts, *Reactions Over Record-High Judgment Against Tobacco Companies*, July 15, 2000. See also Dennis A. Henigan, Op-Ed., *Sue The Gun Makers*, WASH. POST, Oct. 29, 1999, at A31 (“The threat of product liability litigation is the only incentive gun makers have to improve the safety of their products.”); Bob Herbert, *In America; Contract On the Consumer*, N.Y. TIMES, Mar. 4, 1995, § 1, at 19 (product liability lawsuits have a “deterrent effect”); CBS News Transcripts, *Number of Lawsuits Based on Product Liability Law Rising*, Oct. 23, 1995 (without the threat of large damage awards, there is no reason for companies to make their products safer or take unsafe products off the market); Robert J. Samuelson, *Lawyer Heaven*, WASH. POST, June 22, 1994, at A21 (product liability law “deters dangerous products”); Meghan Mulligan & Emily Gottlieb, *Lifesavers: CJ&D’s Guide to Lawsuits That Protect Us All*, STUD. & WHITE PAPERS (Center for Just. & Democracy, New York, N.Y.) 2002, available at <http://www.centerjd.org/archives/studies/Lifesavers.pdf> (argues that lawsuits concerning dangerous products make society safer by deterring negligent behavior).

²⁰⁸ CBS News Transcripts, *Number of Lawsuits Based on Product Liability Law Rising*, Oct. 23, 1995; *New Federal Products Deal Hurts Consumers, Workers and Preempts Law in All 50 State*, CONGRESS WATCH (Pub. Citizen, Wash., D.C.) July 1, 1998, available at http://www.citizen.org/print_article.cfm?ID=5346. See also, e.g., NPR Transcript, *Fertilizer Company Sued Following Oklahoma City Blast*, May 19, 1995 (reporting that Rich Vernet of Citizen Action argues against product liability reform because it would undermine the full compensation of victims).

²⁰⁹ See *Lawyers Torch the Economy*, WALL ST. J., Apr. 6, 2001, at A14.

²¹⁰ Ted Frank, *Rollover Economics: Arbitrary and Capricious Product Liability Regimes*, AEI OUTLOOK SERIES (Am. Enterprise Inst. for Pub. Pol’y Res., AEI Online, Wash., D.C.) Jan. 4, 2007, available at <http://www.aei.org/outlook/25395>.

²¹¹ See, e.g., CBS News Transcripts, *Warning Labels Placed on Products* (Jan. 29, 2000) (observing that when companies lose product liability lawsuits, “the cost is mostly passed on to consumers...to the tune of more

The foregoing public commentary on product liability, like the corresponding discussion by the courts and traditional academic writers, is incompletely developed and supported. The proponents of product liability rarely provide justification for the view that it will improve safety or that it is a desirable method of compensation.²¹³ Moreover, they typically ignore the costs of the product liability system.²¹⁴ Similarly, most of the critics of product liability fail to supply evidence that product liability does not lead to greater safety or better compensation.²¹⁵ Instead, they stress that product liability raises product prices and causes firms to withdraw products,

than \$152 billion in...higher prices.”); Milton R. Copulos, *An Rx for the Product Liability Epidemic* (Heritage Found., Wash., D.C.) May 15, 1985 (claiming that the large number of product liability cases is “threatening the very existence of some industries”); Editorial, *Review & Outlook: Litigation Liberalism*, WALL ST. J., May 12, 1992, at A24 (stating that the risk of product liability lawsuits retards product innovation); *Overload*, WASH. POST, May 8, 1995, at A20 (arguing that reform of product liability law is needed because “the present system is so arbitrary and unfair”); Samuelson, *supra* note 207 (noting that some products, such as light aircraft, have been taken off the market because of liability fears). See also Scott Gottlieb, *More Drugs Will Mean More Lawsuits*, AEI ARTICLES & COMMENTARY (Am. Enterprise Inst. for Pub. Pol’y Res., AEI Online, Wash., D.C.) Feb. 26, 2003, available at <http://www.aei.org/article/16108> (arguing that product liability in the pharmaceutical industry raises prices and limits innovation); Stephen B. Presser, *How Should the Law of Products Liability Be Harmonized? What Americans Can Learn from Europeans*, GLOBAL LIABILITY ISSUES VOL. 2 (Manhattan Inst. for Pol’y, New York, N.Y.), Feb. 2002, available at http://www.manhattan-institute.org/html/gli_2.htm (observing that product liability is random in its application and drives up product prices).

²¹² See, e.g., Copulos, *supra* note 211 (proposing a list of reforms, including a statute of repose, a limitation on contingent fees, and restrictions on awards for noneconomic losses); Frank, *supra* note 210 (advocating a cap on noneconomic damages and more objective safety standards); *Guns and Poses*, WALL ST. J., Apr. 17, 2003, at A12 (arguing that Congress should pass legislation that would limit lawsuits against the firearms industry); Presser, *supra* note 211 (recommending such changes as the abolition of contingent fees and punitive damages, and the adoption of the loser-pays rule regarding legal fees); Samuelson, *supra* note 211 (suggesting that making the losing side pay legal fees would be a “genuine remedy” for many of the problems associated with product liability litigation); *Trial Lawyers’ Triumph*, WASH. POST, Mar. 19, 1996, at A16 (recommending caps on punitive damages in product liability lawsuits); *The Trials of Merck*, WALL ST. J., November 18, 2004, at A18 (advocating that FDA approval of a drug should insulate its manufacturer from product liability).

²¹³ None of the articles cited *supra* notes 206-208 give such justification. For example, in *Lawyer Heaven*, *supra* note 207, it is asserted that product liability will improve safety, but the effects of market forces and regulation on product safety are ignored. Similarly, in *In America; Contract on the Consumer*, *supra* note 207, it is claimed that product liability will lead to desirable compensation, but the fact that insurance already provides significant compensation to accident victims is overlooked.

²¹⁴ This also is true about the articles cited *supra* notes 206-208.

²¹⁵ None of the articles cited *supra* notes 209-212 provide evidence to support the claim that the deterrent effect of product liability is small. Furthermore, none of these articles take into account the significance of insurance as a source of compensation, although some observe that litigation costs reduce the amount of money that victims obtain. See, e.g., *Litigation Liberalism*, *supra* note 211 (noting that most of what defendants pay goes into the pockets of the plaintiffs’ bar).

though they do not recognize that these consequences are socially undesirable only if the litigation cost-related component of the price increase is sufficiently high.²¹⁶

X. Conclusion

We have explained in this Article that when product liability is viewed in terms of its benefits and costs, there are strong reasons for doubting its desirability, especially for widely sold products. The main bases for our conclusion are as follows. First, market forces and regulation — which are likely to be most significant for products sold in high volume — encourage firms to make safe products, so that product liability might not add much to product safety. Moreover, the available empirical evidence indicates that product liability has not in fact measurably enhanced product safety. Second, the price signalling benefit of product liability is limited and is likely to be largely, if not entirely, offset by the price distortions caused by litigation costs and awards for nonmonetary losses. Third, product liability does not substantially promote the compensation goal because this objective is already significantly achieved through private and public insurance. Furthermore, product liability actually detracts from the compensation goal because it provides damages for nonmonetary losses. Finally, the product liability system generates high legal expenses, equaling or exceeding the payments received by plaintiffs.

If our analysis of product liability is accepted, it implies that such liability should be substantially curtailed or even abolished, at least for widely sold products.²¹⁷ The elimination of product liability would not constitute as radical a step as might first appear. Tort liability for personal injury was abolished in New Zealand in the 1970s,²¹⁸ and tort liability has been

²¹⁶ None of the articles cited *supra* notes 209-212 discuss the litigation cost-related price distortion.

²¹⁷ Notably, the imposition of product liability could be based on several factors. One would concern whether consumers are likely to know about product risk, given such indicia as the volume of sale of a product and the attention the media pay to it. Another factor would involve the safety regulation of the product; the more regulation, the less would be the inclination to impose liability. A third factor would be the likelihood that a party with the plaintiff's characteristics (not the actual plaintiff) would be likely to have insurance coverage sufficient to compensate for the monetary losses sustained. We discuss and develop these factors in another article, where we explain how they could be employed by the courts. See A. Mitchell Polinsky & Steven Shavell, *A Revision of Product Liability Doctrine to Better Promote Its Policy Goals* (manuscript in progress).

²¹⁸ See, e.g., Geoffrey W. R. Palmer, *Compensation for Personal Injury: A Requiem for the Common Law in New Zealand*, 21 AM. J. COMP. L. 1, 15-16 (1973) (describing the barring of suit for personal injury under a 1972 act establishing a national compensation scheme); Stephen Todd, *Privatization of Accident Compensation: Policy*

displaced in this country in significant domains: liability for workplace injuries was terminated in the early 1900s when workers' compensation legislation was enacted;²¹⁹ and liability for automobile accidents was replaced in the 1970s in many states by no-fault regimes.²²⁰ Thus, ending product liability for widely sold products, although admittedly a dramatic change, would not be without precedent.²²¹

and Politics in New Zealand, 39 WASHBURN L. J. 404, 423-27 (2000) (discussing the same for a 1998 modification of the 1972 act).

²¹⁹ New York adopted the first workers' compensation statute in 1910, and now all states and the federal government have some form of workers' compensation plan. *See* 2 DOBBS, *supra* note 1, § 392, at 1098. Workers' compensation is generally mandatory, and is the exclusive remedy under these plans — an employee cannot recover in tort against the employer. *See id.* at 1098-99.

²²⁰ Nearly thirty jurisdictions have adopted some form of no-fault regime (although a few later repealed it). *See generally* 3 FOWLER V. HARPER ET AL., HARPER, JAMES AND GRAY ON TORTS § 13.8 (3d ed. 2006).

²²¹ Even a court has raised the possibility of abolishing product liability. *Torres v. Goodyear Tire & Rubber Co.*, 867 F.2d 1234, 1239 (9th Cir. 1989) (“We are approaching the time when fundamental assumptions with respect to section 402A will be reexamined. Questions will be raised such as: Should universal compensation for injuries not self-inflicted be provided by a form of national accident insurance exclusively?”).