

**The Influence of Regulation, the Marketplace, and
Product Liability on New Technologies for Vehicle Safety**

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Introduction

Motor vehicle crash deaths and injuries are one of the most serious public health problems facing developed societies. In the United States they are the leading cause of death for people ages 1-34. In recent years, motor vehicle crashes have caused between 45,000 and 53,000 deaths and between 4 and 5 million injuries each year.¹ Approximately half a million of these injuries require hospital admission with an average length of stay of nine days.²

For decades, virtually all of the efforts to combat this problem focused on ways to change the driver. In the past 15-20 years a more balanced approach has been adopted incorporating programs aimed at the vehicle and the environment as well as the driver. Passenger car safety features, standard on new cars since the late 1960s, such as dual braking systems and side marker lights have reduced the frequency of crashes; seat belts, high penetration resistant windshields, and energy absorbing steering columns have reduced the number of injuries occurring during crashes.³ The widespread acceptance of this balanced approach to crash and injury reduction took a long time to happen and the situation today is a result of the combined influence of government regulation, marketplace forces, and product liability litigation.

Although the idea of designing vehicles in ways to reduce crash deaths and injuries is now widely accepted, there are still unnecessary delays between the development of new technology and its application. There have been recent improvements in this regard for passenger cars and new safety technologies such as antilock brakes and air bags are beginning to be introduced. In contrast, large trucks continue to be sold with outdated and unsafe technology.

Safety Belts -- An Example

For many years automobile manufacturers resisted the idea of incorporating designs to reduce deaths and injuries into their products. This reluctance led to government regulation -- first by the states and later at the federal level. The following brief history of the safety belt illustrates this process.

A belt restraint system consisting of adjustable cross straps and lap straps was invented in France in 1903, and by the 1920s, lap belts were beginning to be used in race cars. Several physicians concerned with crash injuries began equipping their own automobiles with seat belts in the 1930s and advocating factory installation. The Sports Car Club of America made lap belt use mandatory for all of its competing drivers in 1954. U.S. auto manufacturers began offering seat belts as optional equipment on their 1956 models -- almost 30 years after the physicians' groups had first advocated their installation as standard equipment.

In the early 1960s, a number of states passed laws requiring manufacturers to install first belt anchorage points and later lap belts. In response to these state laws, most U.S. auto manufacturers began installing front seat lap belts as standard equipment on 1964 and later models. By 1966, all U.S. manufacturers were installing front and rear lap belts in new cars. In the same year, the Sports Car Club of America required every driver on the race track to use a shoulder harness as well as a lap belt.

In 1968, in response to federal requirements, both lap belts and shoulder belts became standard equipment in the front seats of new cars. In

1973, again in response to federal requirements, all U.S. manufacturers began installing three-point lap/shoulder belts with inertia reels. (Many foreign car manufacturers had been providing such belts before they were required.)⁴

Clearly, government requirements had more to do with making seat belts available than did the voluntary design decisions of the manufacturers.

Regulation

In large part because of the manufacturers' failure to build in safety features voluntarily, state and federal regulations were introduced requiring minimum levels of vehicle safety. Although the industry typically resisted most of the specific legislation and regulations when they were proposed, there has been an acceptance by the industry that some regulation is necessary to ensure uniform minimum levels of safety performance. As Henry Ford II stated in 1977 "we wouldn't have had the kinds of safety built into automobiles that we have had unless there had been a federal law."⁵ And in the same year Thomas Murphy, Chairman of General Motors said:

Some regulations are clearly necessary to protect and enhance health, safety, and environment -- in terms of all society, not necessarily just that of individuals... The business community has no legitimate quarrel with these, at least not with their objectives.⁶

Largely because the biggest single group of motor vehicle crash deaths involve occupants of passenger cars, most of the federal motor vehicle safety standards apply to cars. However, although deaths of large truck occupants are much less frequent, many of the passenger car occupant deaths result from crashes with large trucks. Despite the role of trucks in

crashes, there are few safety standards for large trucks. In the very important area of truck braking, the only significant safety standard has been suspended since 1978 because of a legal challenge by the trucking industry.⁷ It is also interesting to note that U.S. passenger car safety standards typically set the pace for the rest of the world, whereas in the area of truck safety U.S. standards are inferior to those in Europe.⁸

Historically, government regulation was the main driving force behind the incorporation of safety features in automobiles. Today, other forces also are influencing this aspect of automobile design -- these are the marketplace and product liability litigation.

The Marketplace

The reluctance by manufacturers to voluntarily offer safety features on their cars was due in part to their belief that "safety doesn't sell." This belief was reinforced by Ford's experience with its 1956 models. In that model year Ford introduced "a safety package," which included padded dashboards and sun visors, deep dish steering wheels with recessed hubs, safety door locks, and front and rear seat belts, and it also launched a major safety advertising campaign. Chevrolet, however, heavily advertised performance and styling and Ford did not sell as many cars in 1956 as it had in the previous record-breaking sales year, nor did it overtake Chevrolet in sales. Unfortunately this was widely interpreted in the automobile industry as evidence that "safety doesn't sell". In fact, in many respects the campaign was a success, the demand for seat belts caught Ford by surprise and its suppliers were unable to increase their production enough to keep

dealers supplied. Also the optional padding was ordered on 43 percent of all cars produced that year. Furthermore, some industry analysts believed that without the safety campaign that Ford would have sold even fewer cars that year.⁹ The widespread perception in the automobile industry, however, was that Ford's attempt to sell safety in 1956 was a failure. Consequently, safety was rarely mentioned by automobile manufacturers in their advertisements or promotional material until recently.

More recently, attitudes in Detroit about the importance of safety at least for passenger car purchases, has changed. At Congressional hearings in 1983 Howard Kehrl, Vice Chairman of General Motors said:

There is no question our customers place a very high value on safety in the cars they buy. Moreover, many car buyers who do not express safety as a conscious concern in their purchase decision are probably not ignoring safety as much as assuming it.¹⁰

It seems clear from what various manufacturers are beginning to do in the marketplace that this new view is sincere. Several new passenger car features to reduce car crash deaths and injuries are beginning to be sold voluntarily; these include antilock brakes that reduce the likelihood of crashes, and air bags and antilacerative windshields that reduce the chances of injuries during a crash. Not only are these features being introduced, in some cases they are being heavily advertised.^{11,12} Federal safety standards now establish minimum levels of safety protection for all new cars, and some manufacturers are competing to offer safety features that substantially exceed the minimum levels set by the government.

In contrast, new trucks in the United States typically have safety technologies reflecting the state-of-the-art of the 1950s rather than the

1980s. Neither safety regulation nor the marketplace is working to improve the safety of large trucks. This situation is especially true for large truck brakes, which on virtually all trucks sold in the United States are greatly inferior compared to what is available and widely used in Europe.¹³ As an example, virtually no large trucks in the U.S. have antilock brakes, but they are widely sold on large trucks in Europe. Even when manufacturers offer the more modern technology for sale, U.S. purchasers of large trucks virtually never choose it, apparently because of extra cost and maintenance considerations. Here, the marketplace is pushing in the direction of less safety, and the problems tend to be exacerbated by the way most large trucks are sold in the United States. Typically, the truck purchaser specifies the features desired in detail, e.g., drivetrains, braking systems, etc., which limits the manufacturers' ability to include improved technology unless the purchaser specifically asks for it. In contrast, in Europe large trucks are more typically sold with the equipment specified by the manufacturer rather than the purchaser.

Improvements such as rear and side underride protection, antilock brakes, disc brakes, single-piece rather than multipiece wheels, brake retarders, splash and spray guards, on-board computers, tachographs, speed control devices, and power steering are available. Each of these provides varying degrees of protection to the truck driver and the occupants of other vehicles sharing the roadway. Because many trucks are purchased by leasing firms, liability issues may arise when injuries or other losses occur because of crashes that could have been prevented if the leasing company had provided state-of-the-art technology. Large truck fleet owners and leasing

companies could avoid this liability by ordering their vehicles from the manufacturer with modern safety equipment.

The continued purchase and operation of trucks equipped only with antiquated safety technology has serious consequences. For example, the inferior braking capabilities of large trucks on U.S. highways is a significant factor in many crashes, including many multivehicle crashes. In such crashes, it is almost always the other road users who suffer the worst consequences. In fatal crashes involving tractor trailers and passenger cars, the fatality is 35 times more likely to occur to the occupants of the passenger car than the occupants of the truck.¹⁴

Safety Related Litigation

The other factor affecting manufacturers, especially in recent years, is safety related litigation, especially product liability litigation. It is impossible to quantify the influence of litigation on safety engineering in the automobile industry, but it has had an influence.

There is no question that detrimental publicity about the safety performance of particular cars resulting from litigation has seriously hurt their sales. For example, adverse publicity about the safety of the Chevrolet Corvair, much of it resulting from lawsuits, directly contributed to its demise. Similarly, widespread negative publicity concerning the defect in the fuel tanks of Ford Pintos was responsible for the significant decline in the sales and eventual demise of that car.

Clearly, adverse publicity, usually generated by lawsuits, concerning the safety performance of particular cars can produce a negative image for

that particular make and model, which translates into declining sales. Automobile manufacturers, however, argue that many of the allegations made in lawsuits, including some that get widespread publicity and that in turn depress sales, are groundless.

Does this sort of negative publicity influence future design decisions? The answer probably depends on the accuracy of the charges. Cases involving genuine defects are likely to influence future designs, but in those cases where the engineers believe that the charges are invalid, future designs are less likely to be affected. Furthermore, to the extent that litigation involving charges of defective products or designs does influence future designs, it is most likely to result in improvements to existing features rather than directly leading to new safety technologies. For example, although many fuel tanks were designed to be less vulnerable following the Ford Pinto lawsuits, new types of fire-resistant fuel cells are still not widely used.

Another somewhat newer aspect of litigation is when a manufacturer is sued for failure to offer state-of-the-art safety equipment on its new cars. Suits against manufacturers for failing to offer air bags are examples of this type of litigation. Advocates of this type of litigation have claimed that it will speed up the adoption of new safety technologies by manufacturers.¹⁵ However, the manufacturers argue that this sort of litigation does not influence their design decisions and claim that they will be sued when they do offer new technology and also when they don't.

When no manufacturer is offering a particular safety technology, such as was the case up until recently with air bags, litigation against

manufacturers for failing to offer the technology may be somewhat limited. It has been suggested, however, that once some manufacturers begin offering safety technology and other manufacturers do not, a much stronger liability burden will shift to those manufacturers who fail to offer the technology.

Failure to offer such devices could also affect the potential liability of persons and companies other than manufacturers. Millions of passenger cars are not purchased by individual owners but by rental car agencies and by companies for their employees use. Rental car and leasing agencies should make available cars with state-of-the-art safety technology; otherwise, they could face potential liability claims. For example, if rental car agencies do not offer air bag equipped cars for rent when they are available, new areas of liability may result for injuries that could have been prevented. Workman's compensation claims for injuries occurring while operating company cars not equipped with the latest safety devices could possibly spill over to involve the leasing company that provided the cars as well as the auto manufacturers. Because air bags are especially effective at preventing certain kinds of long-term debilitating injuries, such as brain injuries, prudence would suggest that such companies should at least begin to augment their fleets with vehicles equipped with these and other safety devices.

Another important aspect of the influence of litigation is the extent to which concerns about the potential for product liability litigation delays the introduction of new technology. Many safety technologies such as antilock brakes and air bags are more complicated than many earlier safety features and this may result in frivolous or nuisance product liability

lawsuits. For example, when air bags were briefly offered by GM in the 1970s, there were claims that there were an unusually large number of essentially frivolous lawsuits involving air bags. It is to be hoped, of course, that any such increase in such suits would only be a temporary phenomenon and that manufacturers would be able, because of their extensive testing and research in the development stage, to be in a strong position to defend against them. There is no question, however, that concerns over possible litigation can lead to delays in the introduction of new safety technology.

These same concerns can also lead engineers to over-design new safety systems. For example, the newer air bags include complicated diagnostic circuits that have no function in relation to the performance of the system in a crash but are primarily intended to provide information for litigation purposes. The pressure to over-design because of litigation concerns does not necessarily produce safer systems, but it can produce more expensive systems and also contribute to delays regarding their availability. An analogy can be drawn here with medical malpractice litigation. It is evident that such litigation has increased the cost of medicine, but there is little evidence that it has improved the quality. Product liability litigation can also increase product costs unnecessarily.

Conclusion

New technologies for passenger car safety are increasingly being offered on a voluntary basis. A combination of marketplace forces, government regulation, and litigation has led to this situation. It is doubtful that this would have been achieved without the interaction of each of these factors, and it is impossible to disentangle the separate influences of each. For the future, however, manufacturers, as well as corporate fleet owners and rental companies that do not offer new safety technologies such as air bags, antilock brakes, and antilacerative windshields, may be opening themselves to potential liability.

In contrast, large trucks have continued to use antiquated and unsafe technology. Government truck regulations are currently either weak or nonexistent and marketplace pressures tend to push commercial truck operators in the direction of choosing less safe technology. Despite the obvious potential liability involved, litigation has not yet been an important factor in correcting this obviously unsatisfactory situation. This may also change as public awareness of the truck safety problem increases and the failure of truck owners and lessors to equip their vehicles with available safety devices increasingly become issues in liability claims.

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