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U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

Safety Belt Use and Automobile Insurance:

A Report To Congress
1988

Prepared in Response to the Committee Report
Accompanying the 1988 Department of Transportation
Appropriations Bill as Enacted in the
Continuing Resolution for FY 1988

EXECUTIVE SUMMARY

This report was prepared in response to the Committee Report accompanying the 1988 Department of Transportation Appropriations Bill as enacted in the continuing resolution for FY 1988. It describes the relationship between rates of safety belt use and automobile insurance prices. Because reliable data on insurance claims costs for 1986 will not be available until 1989, the report presents a reasonably reliable, but preliminary, estimate of the impact of belt use.

The theory supporting a linkage of safety belt use to auto insurance prices involves a chain of causation. Belt use reduces injury incidence and severity. These reductions should decrease insurance claims payments, leading to lower prices for the injury-related portions of auto insurance.

Safety belt use laws now cover more than 80 percent of the population. They have raised use from about 15 percent nationally to about 48 percent in states with belt laws and about 43 percent overall. Most laws apply to front seat occupants of cars and light trucks, motorists who experience roughly 60 percent of all traffic fatalities, 70 percent of severe injuries, and 80 percent of moderate injuries.

In 1987 alone, the 25 percentage point rise in national belt use over 1984 levels saved about 1300 lives and prevented about 16,000 moderate to serious injuries. The resultant reduction in automobile insurance claims was roughly $1 to $2.5 billion dollars. Other public and private insurers probably saved another $0.5 to $1.25 billion.

A study by the Highway Loss Data Institute, conducted using claims data gathered from numerous insurers, shows that each 10 percentage point increase in belt use cuts injury claims frequency for covered occupants in New York and New Jersey by 1.7 to 3.3 percent. This finding is consistent with several studies of injury incidence, which reveal decreases of 2.5 to 3.7 percent in fatalities among covered occupants and 1.8 to 3.0, or perhaps even 4.0, percent in moderate to serious injuries. The drop in overall fatality and injury rates is roughly 1.2 to 2.4 percent.

Laws in Hawaii, Iowa, and Massachusetts required reductions in the price of auto personal injury insurance coverages, including bodily injury liability, personal injury protection or own-medical payments, and sometimes uninsured motorist liability. The Texas State Board of Insurance also reduced auto injury insurance prices in response to the Texas belt law. The reductions, which generally are supported by claims experience, range from 5 to 12 percent -- a 1.5 to 2.8 percent decrease in the price of personal injury coverage for each 10 percent rise in belt use. The average auto insurance bill in these states dropped approximately 2 to 6 percent, $9 to $27 per vehicle insured.

The $1 to $2.5 billion insurance claims reductions produced by increased belt use, if spread across all injury coverages, also would cut typical auto insurance bills by 2 to 6 percent. No direct evidence describes the effects of such insurance price reductions on belt use. However, it seems unlikely that price reductions of this size will have much effect. Between 1983 and 1986, auto claims costs per injury rose 17.5 percent per year. The rate of cost increase slowed to 9.7 percent in 1987, perhaps due in part to increased belt use. Unless the rate of cost increase slows substantially, the impacts of rising belt use probably will slow insurance price growth, but not reverse it.

Insurance prices may be more effective as an incentive for safety belt use if the consequences of belt use are stated as actual savings rather than a reduced rate of price increase. By structuring business-related incentives that make the savings explicit, some auto insurers have used their influence and their advertising budgets to promote belt use and traffic safety. Often, they have applied some of the savings resulting from rising belt use to offer a large discount on a relatively low-cost coverage or to provide a not overly costly add-on coverage for free, rather than spreading them thinly across a broad range of coverages. For example, discounts of 10 to 30 percent on injury coverage for vehicle occupants, which most insurers now offer purchasers of cars with automatic crash protection, typically reduce insurance bills by $5 to $20.

Transportation Secretary Jim Burnley has challenged the insurance industry "to come up with incentives to encourage car buyers to opt for air bags and other safety devices." In response, USAA, the nation's ninth largest auto insurer, offered to pay a $300 bonus to policyholders who buy or take long-term leases on cars equipped with optional air bags in 1988, negotiated creation of and helped finance incentive programs to encourage manufacturers and dealers to market air bags aggressively, and added other incentive coverages. Programs responding to Secretary Burnley's challenge appear to be more promising incentives for increased occupant protection than small reductions in standard injury coverage prices.

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I. INTRODUCTION

The National Highway Traffic Safety Administration (NHTSA) has prepared this report on the linkage between safety belt usage rates and automobile insurance price reductions[1] in response to a directive in the Committee Report accompanying the 1988 Department of Transportation Appropriations Bill as enacted in the continuing resolution for FY 1988. The Congress suggested that:

> stronger linkage of automobile insurance rates and premiums to seat belt usage rates may provide an important seat belt usage incentive.

It directed NHTSA to:

> analyze this linkage and identify ways of promoting the use of seat belt statistics for determining automobile insurance rates ....

Case studies were specifically requested "in states such as Texas" where insurance price reductions were mandated in the state's belt use law or were reduced in response to the belt use increases following the law's enactment.

THIS REPORT IS DIVIDED INTO FIVE CHAPTERS

The report was based primarily on preexisting research for two reasons. First, Congress indicated it should be submitted quickly and prepared under existing budget authority. Second, state data on insurance claims paid in 1986 generally will not be available until the end of 1989, so that the study results are necessarily very preliminary.

The report first considers how increased belt use can affect insurance claims and prices. This effect involves a chain of causation. Belt use reduces the probability of injury. A reduced injury probability means fewer injuries and fewer injury liability claims filed with and paid by insurers. Belt use also reduces the average severity of the injuries that do occur and, possibly to a lesser extent, the average cost per injury claim paid. Reduced claims, in turn, can lead to reduced insurance prices.

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[1]More formally, the charge paid for an insurance policy is called a premium. The premium amount is determined from a rate schedule that shows appropriate rates (in other words, prices) to charge classes of insurance purchasers.

Chapter II provides relevant facts about the automobile insurance industry, with emphasis on what insurance covers, the way prices are set, and the major factors other than belt use that are inducing price changes. While this background information is necessary only at the end of the chain, it is useful to keep in mind throughout.

Chapter III examines the chain's various links. It describes the trend in safety belt use and the laws promoting use. It examines how increasing belt use has reduced traffic fatalities and injuries. Finally, it discusses the aggregate and per-policy average cost savings produced by these belt use increases.

The report then discusses how these cost savings have been and could be used to encourage greater belt use. Chapter IV describes the insurance price reductions ordered in Hawaii, Iowa, Massachusetts, and Texas in response to rising belt use, as well as the analyses underlying these reductions. It summarizes relevant analyses by insurance rating bureaus and insurance claims data analysis organizations. It identifies bonus coverages that selected insurers give to belt users and price discounts for vehicles equipped with automatic restraint systems. Three case studies explore how discounts came to be offered and what makes them effective.

Chapter V concludes and summarizes the report. It also assesses effective ways to structure insurance price reductions as safety belt use incentives.

II. STRUCTURE AND OPERATION OF THE AUTO INSURANCE INDUSTRY

The insurance industry is split for regulatory purposes into three principal segments: property and casualty, life, and health. Some insurance holding companies have subsidiaries that sell policies in all three lines of business, but most restrict themselves to one or two. Auto insurance is the largest seller among property and casualty coverages, accounting for 42 percent of receipts in this segment -- over $81 billion in 1987.

More than 40 percent of auto insurance premiums are written by mutual and reciprocal insurance companies (Wish, 1988). These companies are essentially cooperatives owned by their policyholders. The remaining premiums are written by traditional stock corporations.

As this chapter explains, a wide range of auto insurance coverages is available. About 40 to 50 percent of the typical auto insurance premium is charged for injury-related coverages, with the remainder for property damage protection. Furthermore, a third of the reimbursement for auto injuries comes from other sources, primarily health insurers. Consequently, only a portion of any reduction in injury costs would affect auto insurance prices. Since premiums per registered vehicle have risen an average of 9 percent per year since 1981, a very large reduction probably would be needed to bring about an actual price drop rather than just a slower rise.

MANY AUTO INSURANCE COVERAGES ARE AVAILABLE

Auto insurance is split into physical damage and liability coverages. Physical damage coverages pay for damage to the insured's vehicle. They include:

- Collision, which pays for repair or replacement of the insured vehicle if it is involved in a crash and the driver of another vehicle is not at fault.

- Comprehensive, which, among other things, pays for repair or replacement of a vehicle that is stolen or damaged without being involved in a crash.

If the vehicle was financed, the lender normally requires physical damage and liability coverage. Rising belt use should not affect the price of this coverage since it will have minimal impact on crash frequency (O'Neill et al., 1985).

Liability coverages (loosely defined to also include coverage of the insured's own medical costs) reimburse losses resulting from injuries and from at-fault damage to the property of other people. The nature of these coverages depends on state tort law. Liability coverages include:

- Personal Injury Protection (PIP) coverage in states with no-fault laws. Under no-fault law, a crash-involved vehicle's PIP coverage reimburses the medical costs of vehicle occupants, up to a fixed limit, regardless of who is at fault in the crash. Some reimbursement, at least for serious injuries, also can be obtained by suing the person who was at fault in the crash. Lost income is compensated by auto insurers only under liability coverage of at-fault drivers.

- Medical payments or own-medical coverage, originally called first-aid coverage, in states where tort liability laws provide that injured occupants will recover their injury-related losses by suing the person at fault in the crash. This coverage pays a modest amount of the medical costs for occupants of the insured vehicle, typically $1,000, without reference to fault, in tort states. This coverage is designed to assure payment for emergency medical treatment. The insured's health insurance normally reimburses any further medical costs if the insured is at fault in the crash, although coverage against these costs can be purchased as part of the auto medical payments package. Lost income is not compensated by this coverage.

- Bodily injury coverage, which reimburses other people's medical, income, and other losses when the insured is at fault in a crash. In no-fault states, this coverage applies only to costs that legally can be recovered through tort action.

- Third-party property damage, which pays for property damage that is the insured's fault.

- Uninsured (and underinsured) motorist protection, which reimburses the insured's costs if the insured's vehicle or the insured is hit by an uninsured, at-fault motorist. This coverage applies even while the insured is a pedestrian. Again, lost income is not compensated.

In 18 states, injury coverage is written on a no-fault basis. Eighteen additional states require drivers to purchase coverage to reimburse bodily injury and property damage they inflict on others. Even the remaining states have laws requiring those involved in crashes to furnish proof of their financial responsibility (Insurance Information Institute, 1987). These laws encourage but do not ensure purchase of liability insurance.

AUTO INSURANCE PAYS ABOUT TWO-THIRDS OF REIMBURSED CRASH-RELATED INJURY COSTS

Available data suggest that auto insurance pays about two-thirds of total reimbursed crash-related injury costs. The remainder is paid by other insurance programs, which also will benefit from the cost reductions produced by higher belt use.

Almost all automobile insurance limits the insurer's maximum liability. In most states, drivers are required to purchase only $40,000 of liability coverage for all persons injured in a crash, subject to a limit of at least $20,000 per individual (Insurance Information Institute, 1987). Automobile policies rarely cover more than $300,000 to $500,000. PIP medical coverage typically is limited to $5,000 to $25,000, but is unlimited in a few states.

An important implication of liability limits is that auto insurance will not cover the full costs of some injuries. Two national studies (All-Industry Research Advisory Council, 1979; U.S. Department of Transportation, 1971) confirm that severe and fatal injury costs often exceed policy limits, with the public sector and the people involved in the crash typically bearing two-thirds of these costs. Severe and fatal injuries contribute about 85% of the total economic costs -- medical costs and lost earnings -- of injuries resulting from auto crashes.

Other insurance programs also pay a portion of auto injury costs. A 1977 survey of people injured in crashes showed that almost one third of their average reimbursement came from health insurance, long-term disability insurance, life insurance, and such public insurance programs as Medicaid, Medicare, unemployment compensation, and Social Security (All-Industry Research Advisory Council, 1979; Coonley and Gurvitz, May 1983; Houchens, 1985). In states without no-fault systems, these are the only sources of more than $1,000 in compensation that typically are available to at-fault drivers and their immediate families. When someone is injured while on work-related travel, most costs are paid by Workers' Compensation insurance, health insurance, sick leave, and corporate liability policies (Young, 1988).

INJURY-RELATED COVERAGES ACCOUNT FOR 40-50 PERCENT OF AUTO INSURANCE PRICES

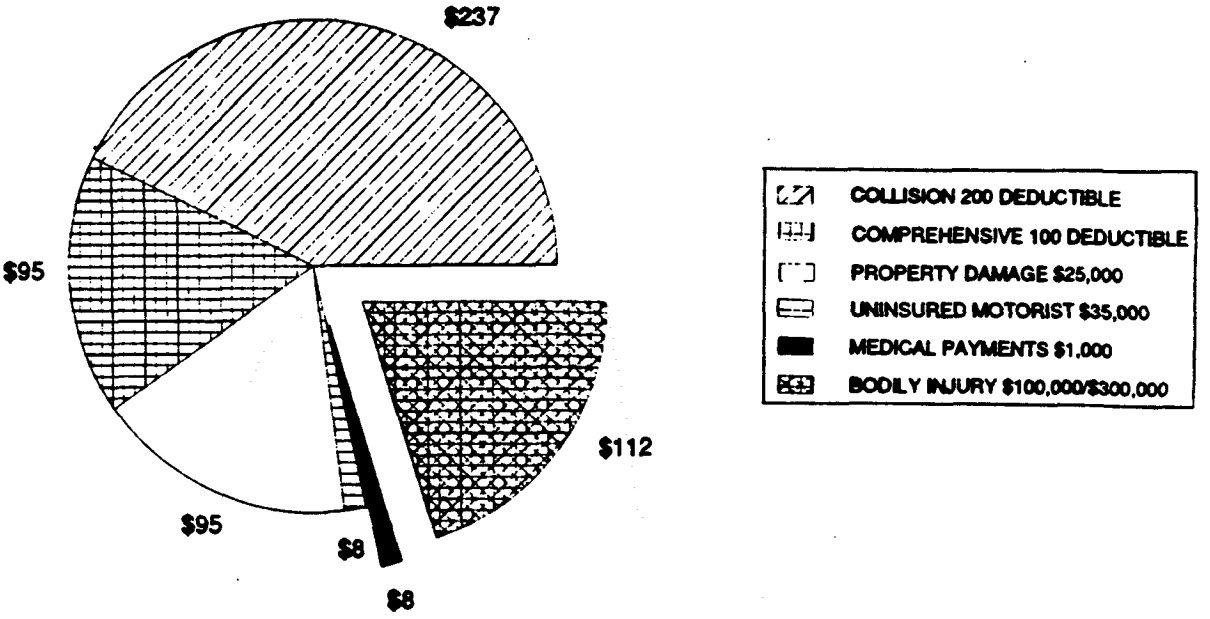
Figure 1 illustrates the price of each coverage for a young driver of a sporty car in central Philadelphia and the middle-aged drivers of a station wagon in suburban Omaha (Yezzi, 1988). The prices shown here are those presently recommended by the Insurance Services Office (ISO). ISO is a rating bureau. It pools data on insurance claims payments and provides advisory information about pricing to the insurers that supplied the data. Figure 1 suggests that drivers, whether paying modest or astronomical prices, are likely to pay less than half of their insurance premiums for bodily injury liability and medical coverage if they buy collision and comprehensive coverage, as about 70 percent do (Docket 74-14-32-6106 and 6126, 1984).

National data obtained for this report from insurers writing more than 30 percent of all auto premiums, when combined with data on total premiums from Wish (1988), indicate that the average driver pays roughly 40 to 50 percent of premiums for injury coverages. These data also show that 10 to 20 percent of the premiums cover the insured's own injury costs and the remaining 25 to 30 percent cover liability if the insured injures another person.

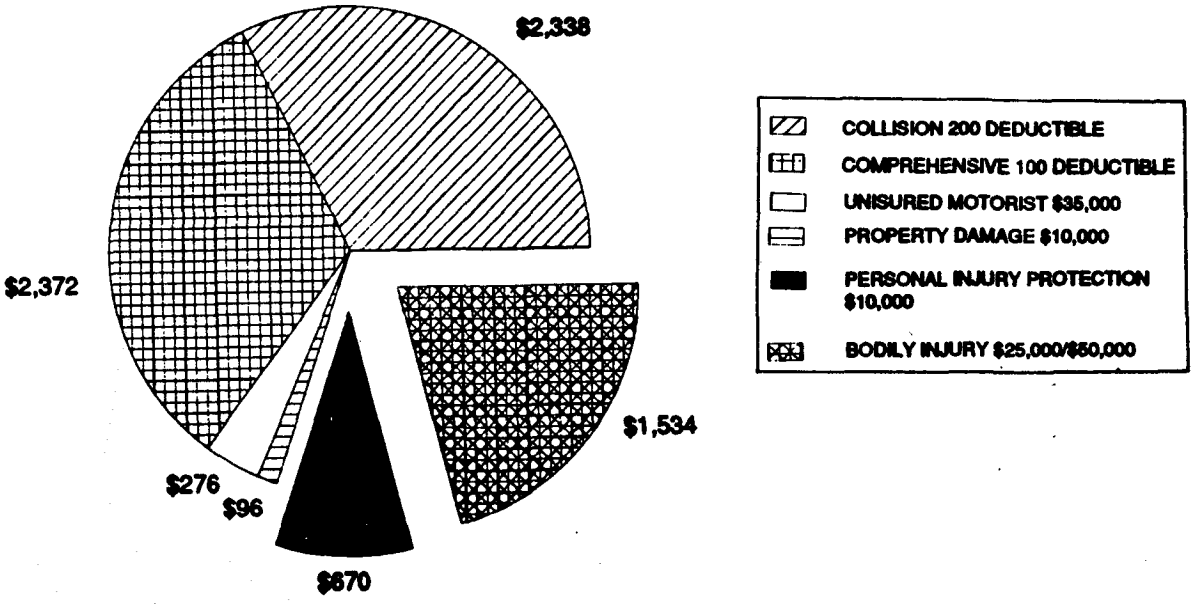
Rising belt use reduces injury, but not property damage, claims costs. Consequently, a 10 percent drop in injury claims costs reduces total claims costs, and presumably insurance prices, by 4 to 5 percent.

Automatic crash protection systems reduce the expected medical claims costs for occupants of the insured vehicle and the expected income loss costs for occupants unrelated to the insured. As Chapter IV describes, many insurers offer a 30 percent discount on PIP or own-medical coverage for vehicles equipped with these systems. Most injury and death claims payments, however, derive from third-party liability claims since lost wages are reimbursed only for these claims. Third-party claims are not reduced when the insured vehicle is equipped with automatic crash protection systems. These claims reductions will appear after enough vehicles have automatic crash protection systems to affect traffic injuries substantially. Until then, discounts for automatic crash protection systems typically will reduce insurance bills for most drivers by 3 to 6 percent (a 30 percent reduction times 10 to 20 percent own-injury).

Figure 1: Price of Auto Insurance Coverages In Low and High Risk Situations



A. Coverage for a 45-year old married couple with clean driving records who drive a 2-year old station wagon less than 15 miles per day to work from their home in suburban Omaha, Nebraska.



B. Coverage for a single, 23-year old male who has one speeding ticket and drives a 2-year old Japanese sports car more than 15 miles per day to work from his home in central city Philadelphia.

Drivers in tort liability states would receive smaller discounts than drivers in no-fault states, because medical payment coverage in a tort state is a smaller share of a typical insurance bill than PIP coverage in a no-fault state. (For example, in Figure 2 the medical payment slice of the Nebraska driver's pie is smaller than the PIP slice of the Philadelphia pie.) Most of the 27 million drivers insured by State Farm Insurance, the nation's largest auto insurer, would receive discounts of $9 to $18 (Insurance Institute, April 1988). Discounts from the ninth largest auto insurer, USAA, typically have been $15 to $20 (Insurance Institute, April 1988).

LIABILITY CLAIMS COSTS AND INSURANCE PRICES ARE RISING RAPIDLY

Rapid rises in insurance prices mask somewhat the savings possible from increased belt use. As Figure 2 indicates, liability claims payments have risen dramatically since 1983. In contrast, the annual number of police-reported injuries and the annual payments for physical damage claims were essentially stable during this time period.[2] In inflation-free dollars, payments per injury rose 13.7 percent per year between 1983 and 1986. Possibly due in part to increased belt use, liability claims costs per injury rose at a slower rate, 5.7 percent in inflation-free dollars, between 1986 and 1987. Accompanying the rise in claims, auto liability insurance prices rose an average of 12 percent per year between 1983 and 1987.

INSURANCE PRICE DETERMINATION IS A COMPLEX PROCESS

A very complex process is used to establish insurance prices. In particular, different states regulate insurers in different ways.

Insurers separate applicants into classes and territories, then use statistical data on losses, tempered by judgment, to determine the price they will offer to each territory-specific class. Auto insurance involves millions of price classes. Because many individual insurers were believed to lack enough data about claims costs to make sound statistical judgment about losses for so many price classes, insurers were permitted to share their claims data (National Commission for the Review of Anti-trust Laws and Procedures, 1979). Insurers in a state pool their loss experiences and are free to base their prices on the pooled experience data. Under the McCarran-Ferguson Act (P.L. 79-15), regulation of this process is delegated to the states (Shapiro et al., 1981).

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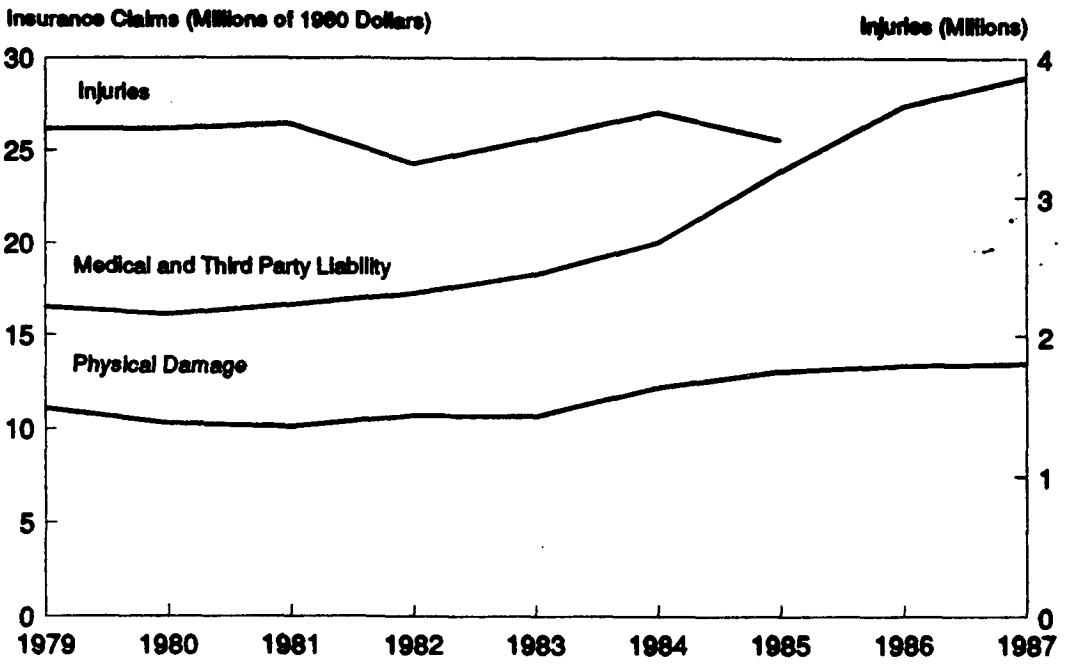
[2]Figure 2 is based on the year claims were paid, not incurred. Many injury claims payments lag injury occurrence and physical damage claims payments by a year (Hammitt, 1985).

Figure 2. Time Trends in Injuries and Auto Claims Paid



Source: Injuries from NASS, various years; claims from Best's Aggregates and Averages, 1987-88.

Texas and Massachusetts have chosen to analyze the pooled data and set maximum prices. Elsewhere, many insurers subscribe to "rating bureaus" that pool their loss data. The insurers then add an expense factor to the loss data, and possibly adjust it based on their own loss experience, to determine prices. ISO, the largest rating bureau, pools loss data in 44 states and the District of Columbia.

Anyone who has shopped for auto insurance knows that insurers do not all offer the same prices. A few do quote the prices derived directly from analyses by ISO or another rating bureau, but most insurers only use them as a starting place. Based on the loss experience of their insureds, many offer prices that are a bit higher or lower than the rating bureau's across the board or for most classes of applicants. Some offer discounts from these prices for applicants who own cars with superior safety records or special features like automatic crash protection. Some also apply surcharges for those who present extra risk of loss, for example by buying optional large engines or sports cars. Some large companies base their auto insurance prices entirely on their own loss experience. Finally, some insurers specialize in coverage for high-risk drivers and charge correspondingly high prices (GAO, 1979).

State regulations vary in their details, but adhere to the basic principle that insurers have the option of deriving prices from bureau data or using prices they derive from their own loss and expense experience (Shapiro et al., 1981). Most states require insurers to demonstrate that experience justifies their pricing, either approving price changes before they go into use or within 60 days afterwards. A few states exercise minimal control over pricing (National Commission for the Review of Antitrust Laws and Procedures, 1979). Michigan requires public hearings on price increases. Chapter IV provides further information on the practices in different states.

III. IMPACTS OF BELT USE ON INJURY RATES

To control insurance costs requires slowing or reversing the rise in insurance claims payouts. This can be accomplished by reducing the incidence of injuries, and especially of severe injuries. Safety belt use is one of the most effective and least costly ways to reduce the number and severity of crash injuries.

BELT USE HAS A LONG HISTORY

Safety belts were developed in the 1880s to keep people from bouncing off horse-drawn buggies. In 1922, Barney Oldfield's racer became the first belt-equipped car. Effective January 1, 1968, all new cars were required to have lap and shoulder belts for the driver and right front seat passenger and lap belts for all other seating positions. Recent belt systems include improvements such as retracting belt pretensioners and continuous loop design (Johannessen, 1984).

The potential advantages of belts have gone largely unrealized because many people choose not to wear them. The Department of Transportation has attempted to increase use in many ways, most notably through Federal Motor Vehicle Safety Standard (FMVSS) 208. After years of debate and revision, the automatic crash protection amendment to FMVSS 208 now is taking effect and will apply to all Model Year 1990 cars.

In response to FMVSS 208, roughly 13 percent of Model Year 1987 vehicles included automatic belts or airbags, and at least 25 percent will in Model Year 1988. A few manufacturers include automatic belts or airbags on all of their vehicles.

Between December 1984 and April 1988, 34 states and the District of Columbia passed laws mandating belt use by front seat occupants. Figure 3 shows the states that had laws in April 1988. In addition to the current-law states, Massachusetts and Nebraska implemented laws that subsequently were repealed in public referendums, and the Oregon law must be approved by referendum before it becomes effective. Table 1 shows the effective dates of all the laws that have been passed.

Belt laws in force covered 82 percent of the American populace in April 1988. For the most part, the states that still lacked laws were sparsely populated. Figure 4 shows how coverage grew over time.

Figure 3. Map Showing States with Safety Belt Use Laws In Effect in April 1988

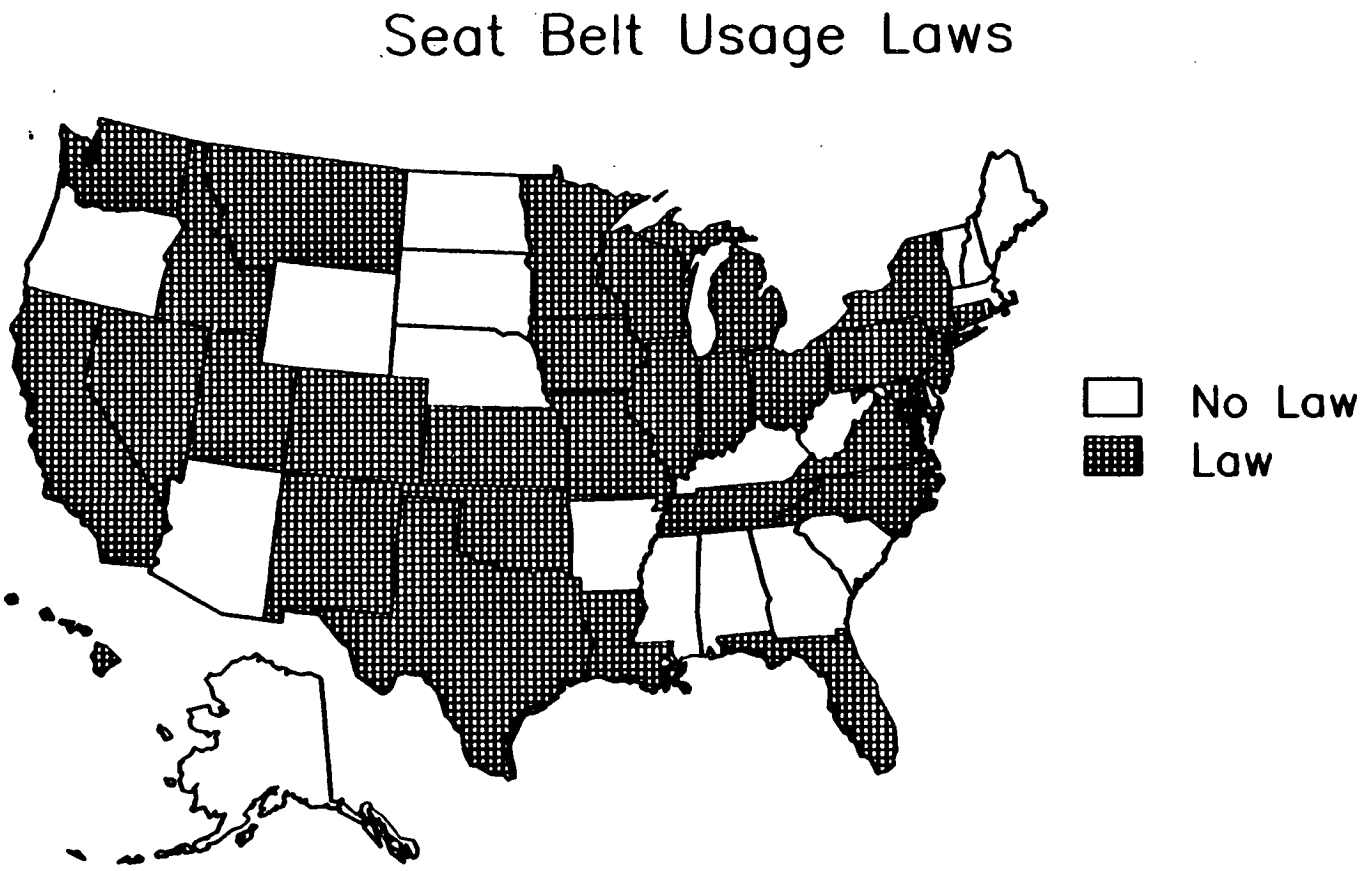
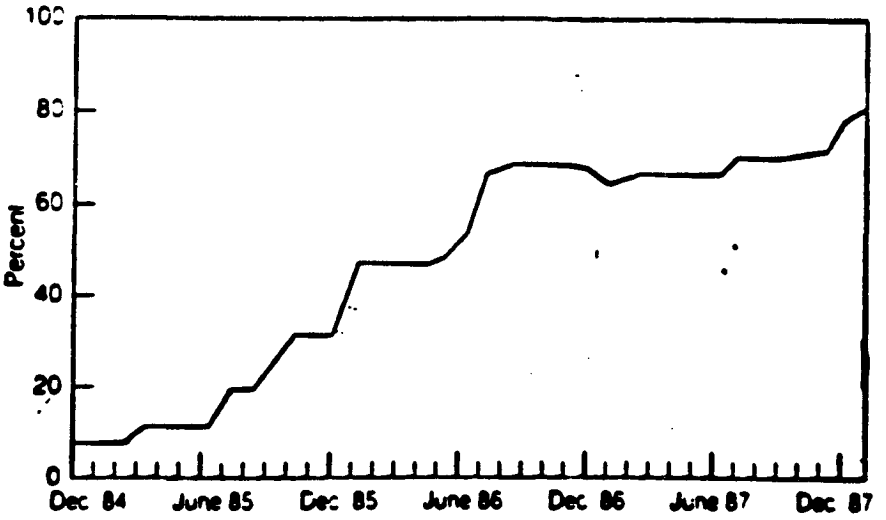


Figure 4. Percentage of Population Covered by Belt Laws, by Month



Source: Insurance Institute for Highway Safety, April 16, 1988

Table 1. Effective Dates of Safety Belt Use Laws and Most Recent Estimates of Belt Usage Rates as of April 1988

State	Effective Date	Percentage Belt Use
California	1/86	49%
Colorado	7/87	47%
Connecticut	1/86	56%
Florida	7/86 (1/87)	50%
Georgia	9/88	
Hawaii	12/85	66%
Idaho	7/86	27%
Illinois	7/85	37%
Indiana	7/87	46%
Iowa	7/86 (1/87)	56%
Kansas	7/86 (7/87)	44%
Louisiana	8/86	35%
Maryland	7/86	66%
Massachusetts	1/86-12/86	24%
Michigan	7/85	48%
Minnesota	8/86 (5/88)	32%
Missouri	9/85 (7/87)	41%
Montana	10/87 (1/88)	57%
Nebraska	9/85-11/86	29%
Nevada	7/87	47%
New Jersey	3/85	41%
New Mexico	1/86	46%
New York	12/84	64%
North Carolina	10/85 (1/87)	65%
Ohio	5/86 (7/86)	42%
Oklahoma	2/87	35%
Oregon	1/89	
Pennsylvania	11/87 (3/88)	
Tennessee	4/86 (1/87)	28%
Texas	9/85 (12/85)	54%
Utah	4/86 (10/86)	22%
Virginia	1/88	
Washington	6/86 (1/87)	52%
Wisconsin	12/87	
Dist. Columbia	12/85 (6/86)	55%

Source: Belt use from NHTSA, March 1988; effective dates from NHTSA, April 1988. Dates in parentheses are dates fines became effective if more than one month after the effective date of the law.

The belt laws and the publicity they stimulated raised belt use from about 15 percent nationally in 1984 to about 48 percent in states with belt laws and about 43 percent overall in 1988. Belt use varies considerably from state to state, and sometimes varies over time within a state. Belt use law states have reported use levels as high as 75 percent. Table 1 gives the most recent, often quite approximate, use levels reported by belt law states. Belt use is reported to be about 65 percent in Hawaii, Maryland, New York, and North Carolina. Most states with belt laws reported belt use between 35 and 55 percent. Even some states without laws now are reporting usage rates above 25 percent.

RISING BELT USE HAS REDUCED INJURIES AND FATALITIES

In 1987 alone, NHTSA estimates that the 25 percentage point rise in national belt use over 1984 levels saved about 1,300 lives and prevented about 16,000 moderate to serious injuries. From December 1984, when New York's first safety belt use law became effective, through the end of 1987, these belt use increases have saved about 2,800 lives and prevented about 33,000 moderate to serious injuries.

Since passage of the safety belt laws, several studies have examined the impacts of rising belt use on injuries. These studies address the percentage change in injuries to front seat occupants, since they are covered by all the laws. FARS and NASS data for the year before the first belt laws went into effect, 1984, show that front seat occupants of cars accounted for 48 percent of all traffic fatalities, 47 percent of serious injuries, and 71 percent of moderate and minor injuries. Front seat occupants of pickups and other light trucks, who also are covered by many belt laws, accounted for roughly another 12 percent of the fatalities and 10 percent of the injuries. These national percentages -- coverage of those experiencing roughly 60 percent of fatalities and 80 percent of moderate injuries -- are consistent with the state data.

Impact on Fatalities. Because the most timely and accurate data indicate the incidence of fatal injuries, most studies only have examined the impact on fatalities to front-seat occupants. The most comprehensive analysis of the impact of belt use on fatalities appears in Campbell et al. (1987). In this study, the number of front-seat fatalities that would have occurred without a belt use law was forecast for states grouped by the length of time since they implemented their laws. The projections considered both the previous fatality trend in the states and the current fatality experience of states without laws. Control groups included: (1) fatalities in the same state among pedestrians, rear-seat occupants, and others not covered by the belt law, and (2) front-seat occupants in states without belt laws.

Overall, belt laws were estimated to have reduced front-seat fatalities by 6.6 percent in states where they were implemented before the end of 1986, about a 2.5 percentage point drop for every 10 percentage point rise in belt use. This estimate masks substantial variation in the reductions achieved in individual states. It also underestimates the ultimate impact of some laws since it includes the partial impact in states that issued only warning tickets during a phase-in period. Furthermore, it is conservative because belt use in non-law states rose, thus reducing fatalities in the control group, possibly by as much as 1 percent.

A second comprehensive study (Skinner and Hoxie, 1988) includes a time-series analysis of fatality trends across states and more detailed analyses in nine large states that implemented belt laws by January 1986. This work is based on fatality data through September 1987. It suggests an average fatality reduction of 11.9 percent in the first three months after a belt law is implemented and 6.3 percent thereafter. This equates to about a 2.1 percentage point drop in fatalities for every 10 percentage point rise in belt use on a continuing basis and an overall 2.5 percent drop for the period studied.

Other noteworthy studies of fatality impacts in 1985 include Partyka (1987), Lund et al. (1986), Wagenaar et al. (1987), and Skinner and Hoxie (1986). As Table 2 indicates, these studies suggest a consistent 2.5 to 3.7 percentage point decrease in front-seat fatalities for each 10 percentage point increase in belt use.

Table 2. Decrease in Front-Seat Fatalities
For a 10 Percentage Point Increase in safety belt Use

Study	Reduction
Campbell (1987)	2.5%
Skinner (1987)	2.1-2.5%
Wagenaar (May 1987)	3.2%
Campbell (1986)	3.7%
Lund (1986)	3.7%
Partyka (1987)	2.6%
Skinner (1986)	2.5%

The consensus on a 2.1 to 3.7 percentage point drop in front-seat fatalities for each 10 percentage point increase in belt use derives from the experience of states that generally were experiencing rises in belt use from a prior level of 15 to 20 percent to new levels from 35 to 65 percent. The rate of change in fatalities with respect to belt usage rate may not be linear. In particular, the rate may rise for very high use levels (for example, 80 percent and above). According to one study, when belt use was about 67 percent in Hawaii during 1986 the remaining unbelted drivers had a fatality rate 3.1 times the rate for the belted drivers (State of Hawaii, 1987).

Impact on Injuries. Estimates of the impact of belt use on injuries generally have been based on the injuries indicated in police reports on crashes. Because injury severity necessarily is coded on a rather crude scale at the scene by officers with minimal medical training, it can be relatively inaccurate, especially with respect to head injuries and internal injuries (Partyka, 1982). Nevertheless, police-reported injuries to front-seat occupants have dropped in states that have implemented belt laws.

The Campbell (1987) study provides time series analyses of the impacts on moderate and severe injuries in New York, North Carolina, and Texas, and on severe injuries in Illinois. The other detailed studies available (Wagenaar, March 1987; Hawaii, 1987) arrive at higher estimates.

Table 3. Decrease in Injuries of Front-Seat Occupants For a 10 Percentage Point Increase in Safety Belt Use

Study	State	Police-Reported Severity	Decrease
Campbell(1987)	New York	K+A+B	1.8%
	North Carolina	K+A+B	2.0%
	Texas	K+A+B	2.0%
	Illinois	K+A	3.0%
Wagenaar (March 1987)	Michigan	K+A+B+C	4.0%
Limm (1987)	Oahu	Hospitalized	4.9%

K = fatality
A = serious injury
B = moderate injury
C = minor injury

As Table 3 shows, at a minimum, a 10 percentage point rise in safety belt use seems to result in a 1.8 to 3 percentage point drop in serious and moderate injuries to front-seat occupants. At the extreme, on Oahu, hospitalizations dropped 4.9 percentage points for each 10 percentage point increase. A complete inventory of crash-related hospitalizations on Oahu showed that those not using belts were 1.8 times more likely to be hospitalized than those who were (Limm, 1987). This impressive statistic was compiled in the first half of 1986, when 74 percent of Oahu drivers were belted.

The studies suggest that a 10 percentage point rise in belt use drops fatalities of front-seat occupants by 2.1 to 3.7 percentage points and moderate and serious injuries by at least 1.8 to 3.0 percentage points. This equates to a drop in overall fatalities by 1.2 to 2.4 percentage points (55 to 65 percent of 2.1 to 3.7 percent) and in moderate and serious injuries by 1.3 to 2.5 percentage points (70 to 85 percent of 1.8 to 3.0 percent).

RISING BELT USE HAS REDUCED INJURY COSTS AND SHOULD REDUCE INSURANCE PRICES

The fatality and injury reductions produced by belt use laws have reduced auto insurance claims by roughly $1 to 2.5 billion dollars. Other public and private insurers probably saved another $0.5 to 1.25 billion.

The states with the largest belt usage gains -- about 50 percentage points -- probably have experienced a 6 to 12 percent decrease in fatalities and injuries. The probable result is a 2.4 to 6 percent drop in insurance costs (6 to 12 percent times the 40 to 50 percent of insurance costs that are injury-related). If the cost per auto insurance policy is assumed roughly equal to total premiums (from Wish, 1988) divided by the number of registered vehicles, the average cost reduction per insured vehicle in 1987 was $11 to $27 dollars in these states.

Claims costs per injury annually rose 17.5 percent between 1983 and 1986, and 9.7 percent in 1987, according to the data in Chapter II. Annual inflation of 2 to 4 percent in all costs and 6 to 7.5 percent in medical costs (Economic Report, 1988) contributed to the rise in claims costs. Unless the rate of increase in claims costs per injury drops substantially, the reduction in claims costs attributable to rising safety belt use appears likely to slow, but not reverse, the rate of increase in auto insurance prices.

IV. STATE AND INSURANCE INDUSTRY ACTIONS

The insurance industry has examined the linkage between belt use and the price of injury liability coverage. Insurance regulatory agencies in Hawaii, Iowa, Massachusetts, and Texas have analyzed the impacts of rising safety belt use on insurance claims and incorporated this information into their decisions on pricing. The Highway Loss Data Institute, a claims data analysis organization funded by the insurance industry, has examined the impact on injury claims in New York and New Jersey. ISO, the largest rating bureau, has recommended discount factors for vehicles with automatic occupant protection systems. Finally, many auto insurers have offered incentives to encourage belt use.

FOUR STATES HAVE ORDERED PRICE REDUCTIONS

Hawaii's safety belt law mandated a 10 percent reduction in the price of PIP and medical payments coverages for the first three years after passage, followed by conversion to fully actuarial prices that incorporated the impacts of increased belt usage. The 10 percent figure was based on existing research, with particular weight on the Massachusetts Insurance Division's estimates (Santos, 1988).

Hawaii's Department of Commerce and Consumer Affairs is compiling extensive data on the impacts of rising belt use on injury incidence and claims. Preliminary indications are that the 40 percentage point rise in belt use in the state had even more impact than anticipated, with a 20 percent drop in overall fatalities, a 55 percent drop in fatalities to front-seat passengers, and on the order of a 12.5 percent drop in personal injury protection losses (State of Hawaii, 1988).

Iowa's legislature mandated a reduction in the price of bodily injury liability and medical payment coverage to reflect the expected savings in claims costs (Knapp, 1988). The Insurance Department found that in the first six months of the law, roughly a 30 percentage point rise in belt use was associated with a 4.4 percent drop in bodily injury loss payments made to injured persons by insurers of motorists at fault (1.5 percentage points for each 10 percentage point increase) and a 9 percent drop in medical payments paid to motorists by their own insurers (3 percent for each 10). Some insurers, however, experienced virtually no decrease, and the Department noted the difficulty of separating the impacts of the law from variations in medical costs, crash frequency, and other factors. Based on the available data, the Department ordered a 5 percent price reduction.

The Massachusetts safety belt use law required a reduction in auto insurance prices. The Massachusetts Division of Insurance estimated insurer savings on 1986 claims payouts resulting from the state's belt law. Anticipating a 43 percentage point rise in belt use, it ordered an 11.2 percent reduction in 1987 prices for bodily injury liability, PIP, and uninsured motorist coverages. This is a 2.6 percentage point drop in the price of this coverage for each 10 percentage point increase in belt use; it equates to an average drop of 0.8 percent across all types of coverage (Hosford, 1988). Despite the publicity surrounding this reduction and other belt promotion efforts, belt usage rose only 17 percentage points, less than half the amount anticipated. This low belt law acceptance, together with inadequate education and other factors, resulted in the law's repeal in a late 1986 referendum. Based on the more complete claims experience in 1986, prices for injury coverages were increased by 2.8 percent in 1988 to reflect an expected 10 percentage point decrease in belt use due to repeal of the law (Massachusetts, 1987).

The Division's work was actuarially based. Early New York data, and subsequently Massachusetts data, on the percentage reduction in injuries by severity that resulted from rising belt use were multiplied by the percentage of Massachusetts insurance claims costs attributable to each injury severity. Claims costs for injuries to non-occupants then were incorporated into the analysis (Hosford, 1988).

Though not required by the Texas belt use law, the Texas State Board of Insurance factored the law's impacts into its prices in each of 1986, 1987, and 1988 (Daniel, 1988). The 1986 analysis was based on a formula developed by the Highway Users Federation to predict the effects of safety belt use on injury rates by severity. It led to a 21 percent decrease in price for bodily injury liability, PIP, medical payments, and uninsured motorist coverages. The reduction was decreased to 15 percent in 1987, based on methodology refinements that limited the saving per fatality averted to the mean policy liability limit and applied the expected percentage decrease in injuries to front-seat occupant injuries in covered vehicles rather than all injuries.

When police-reported injury and crash rates became available for the first seven months after the law went into effect, they showed that a 45 percentage point increase in belt use in urban areas and an unknown but probably smaller increase elsewhere had caused an 11.5 percent drop in fatality rates and, the actuarial staff assumed, in injury severity. The Board adjusted prices accordingly, to a level 5 percent below the level suggested by claims incurred in the policy year ending June 30, 1986, when the law was in effect for only seven months (Daniel, 1988). The impact essentially is a 2.6 percent reduction in the price of injury coverage for each 10 percentage point rise in belt use.

Table 4 indicates the percentage decreases in injury rates observed or estimated by the insurance regulatory agencies in states where price changes have been ordered because of rising belt use. The agencies estimate that each 10 percentage point rise in belt use has resulted in a 1.7 to 2.8 percentage point drop in injury claims costs. This range is reasonably consistent with the 1.2 to 2.5 percentage point range suggested by the studies reviewed in Chapter III. It also is consistent with earlier NHTSA projections. In its July 1984 regulatory impact analysis on FMVSS 208, the agency estimated that each 10 percentage point rise in automatic belts would produce a 1.8 percentage point drop in injury claims. Adjusting for the difference in effectiveness between automatic and manual belts, this becomes a 1.9 percentage point drop. An insurance cost saving of $14 per vehicle insured was projected.

Table 4. Decrease in Injury Claims of Covered Occupants For a 10 Percentage Point Increase in Safety Belt Use

	SEVERITY OF INJURY		
State	Fatal	Fatal or Serious	Any*
Hawaii	5.0%	3.1%	2.5%
Iowa		1.5-3.0%	1.7%
Massachusetts	2.2%	4.0%	2.8%
Texas	2.6%		2.6%
NHTSA Regulatory Analysis			1.9%
Insurance Data Analysis Organizations			
Insurance Services Office (automatic restraint)			3.0%
Highway Loss Data Institute			1.7-3.3%

* Percentage of all injury costs.

In other states, the insurance regulatory agencies generally have not compiled systematic information on the impacts of belt laws on prices. To the extent that insurance is a competitive business, the impact may be reflected in the prices filed by insurers as rising belt use helps to control claims costs.[3] The impacts most probably will be comparable to those in Hawaii, Iowa, Massachusetts, and Texas: a 1.7 to 2.8 percent drop in the price of bodily injury liability and medical payments or PIP coverage for each 10 percentage point rise in belt use. The 5 to 12 percent reductions in prices for injury coverage that were achieved in these states reduced overall auto insurance prices by an estimated 2 to 6 percent (5 to 12 percent times 40 to 50 percent injury-related), about $9 to $27 per vehicle insured.

A notable relationship exists between the clarity of price reductions related to belt use and the insurance regulatory system in a state. Texas and Massachusetts were able to make central policy because they almost unilaterally set insurance prices. Twenty-seven states, including Hawaii and Iowa, review the actuarial basis for and approve price changes before they are put into use. In their belt use laws, the legislatures in Hawaii and Iowa authorized state regulators to mandate one-time insurance price reductions. Normally, they would not have the authority to impose reductions. The remaining states, which are identified in Table 5, largely allow insurers to decide what prices are appropriate (National Commission for the Review of Antitrust Laws and Procedures, 1979). These states have the strongest tradition of moderate intervention in insurance pricing. None ordered price reductions in response to rising belt use.

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[3]See GAO (1979) or Joskow (1973) for a discussion of the industry's structure.

Table 5. How States Regulate Auto Insurance Price Changes

State	Type of Filing	State	Type of Filing
Alabama	PA	Montana	FU
Alaska	PA	Nebraska	PA
Arizona	UF	Nevada	PA (FU)
Arkansas	FU	New Hampshire	PA
California	NF	New Jersey	PA
Colorado	FU	New Mexico	PA
Connecticut	PA (FU)	New York	PA
Delaware	PA (FU)	North Carolina	PA
Florida	PA (UF)	North Dakota	PA
Georgia	PA (FU)	Ohio	FU
Hawaii	PA (FU)	Oklahoma	PA
Idaho	NF	Oregon	FU
Illinois	UF	Pennsylvania	PA
Indiana	FU	Rhode Island	PA
Iowa	UF	South Carolina	PA
Kansas	PA	South Dakota	PA
Kentucky	FU (UF)	Tennessee	PA
Louisiana	PA	Texas	PA
Maine	FU	Utah	FU (UF)
Maryland	FU	Vermont	FU
Massachusetts	PA	Virginia	FU
Michigan	PAH	Washington	PA
Minnesota	FU	West Virginia	PA
Mississippi	PA	Wisconsin	UF
Missouri	UF	Wyoming	NF
Dist of Columb	PA		

Prior Approval (PA) means that new prices cannot be used until approved by the State Insurance regulatory agency. A 30 day review period generally is allowed.

Prior Approval with Public Hearing (PAH) means that the Commission holds a public hearing before approving the price change request.

File and Use (FU) means that new prices can be used as soon as they are filed with the Commission, although they have to be discontinued if the Commission disapproves of them.

Use and File (UF) means that new prices can be used for a fixed time period, generally 30 days, before they are filed with the Commission, although they have to be discontinued if the Commission disapproves of them.

No File (NF) means that price changes are not filed with or reviewed by the Commission.

Letters in parentheses denote how the system operates as a practical matter when it differs from the nominal legal system.

Source: Systems in use from Parsons (1988); definitions from Shapiro et al. (1981).

INDUSTRY-FUNDED ANALYSES ALSO CONFIRM THE RANGE OF IMPACT

Two analyses by industry-funded organizations that analyze claims data further confirm that the impact on prices of injury-related coverage is likely to lie roughly in the 1.7 to 2.8 percent range for each 10 percentage point increase in belt use. First, the Highway Loss Data Institute, an industry-funded claims data analysis organization, studied 1985 injury claims rates for Model Year 1983-85 cars in New York, New Jersey, and Connecticut prior to and after implementation of the New York and New Jersey safety belt laws (Highway Loss Data Institute, 1986). They found that, relative to the control state, a 35 percentage point increase in belt use in New York was associated with a 6 percent drop in injury claims and an 8 percent drop in injury claims in cases with collision damage also claimed. For New Jersey, the corresponding drops were 8 percent and 6 percent for a 24 percentage point rise in belt use. This equates to a 1.7 to 2.3 percent reduction in claims frequency for each 10 percentage point increase in belt use in New York and a 2.5 to 3.3 percent reduction in New Jersey.

Second, since November 1986, ISO has recommended a 30 percent discount on PIP or own-medical coverage for vehicles equipped with automatic safety belts -- essentially for belt use 100 percent of the time -- or with air bags.

MANY INSURERS OFFER INCENTIVES FOR BELT USE

Insurers that in aggregate write at least 35 percent of all premium volume offer a 30 percent discount on PIP or own-medical coverage for cars with automatic belts. Insurers that write another 20 percent of the market, most notably State Farm and Nationwide, offer or are in the process of filing a 10 percent discount. All of these companies and Allstate, which has almost 9 percent of the market, also match or exceed ISO's recommended 30 percent discount for full front air bags. These discounts are not offered in Texas where the Board of Insurance would not approve them (but moved to do so in mid-1988), or in Massachusetts and North Carolina where insurers chose not to offer them. Table 6 lists the discounts offered by selected major insurers. These discounts generally save drivers about $5 to $20.

Rising belt use will lead to a reduction of $1 to $2.5 billion in insurance payments. Spreading this saving uniformly across all coverages would reduce injury coverage prices about 5 to 10 percent.

As an alternative approach, incentives for increased belt use may be created by using some of the savings to offer a major reduction in the price of one coverage component or a free add-on coverage. Some insurers now offer such incentives. State Farm and the Farmers Insurance Group, for example, both double their accidental death benefit if a fatally injured person was wearing a belt. USAA adds $10,000 to the benefits under its own medical payment and PIP coverages for any occupant who is injured or killed while wearing a safety belt, protected by an air bag, or secured in a child seat. Between 1984 and April 1988, USAA paid more than $1 million in claims under this provision (Insurance Institute, April 1988).

Table 6. Insurer Market Shares and Discounts for Vehicles with Automatic Restraint Systems (Selected Insurers, as of April 1988)

		PIP or Own-Medical Discount for:		
Front Insurer	% of Auto Premiums	Automatic Belts	Driver Air bag	Full Air bag
Aetna Casualty	2.9%	30%	20%	30%
Allstate	8.7%	None	20%	30%
American Family	1.0%	30%	30%	30%
Continental	1.3%	30%	30%	30%
Erie Exchange	0.7%	30%	30%	30%
Farmers Group	4.7%	None	None	None
GEICO	1.6%	30%	30%	30%
Hartford	2.1%	30%	20%	30%
Liberty Mutual	2.5%	30%	20%	30%
Maryland Casualty	0.7%	30%	20%	30%
Nationwide	4.1%	10%	25%	40%
Prudential	0.8%	20%	30%	30%
State Farm	15.1%	10%	20%	30%
Travelers	2.5%	30%	15%	30%
USAA	1.9%	30%	60%	60%
U.S.F.& G.	1.6%	30%	30%	30%
ISO Recommendation		30%	20%	30%

Note: Only insurers with large market shares and a few with medium market shares were surveyed. Some insurers that are not mentioned also offer discounts.

Source: Discounts, Insurance Institute for Highway Safety, October 17, 1987 and April 16, 1988. 1986 Market Share, Wasilewski, 1987.

CASE STUDIES SHOW INCENTIVES OFTEN ARE NOT COSTLY

General Motors and its Motors Insurance Corporation mounted one of the best-known insurance incentive campaigns to encourage belt use. From April 16, 1984 until the end of the 1986 model year, buyers of General Motors cars received a free life insurance policy that paid a $10,000 death benefit if someone was killed in a crash in the car while belted. The coverage lasted for one year from date of purchase. More than 17 million policies were written in the U.S. and Canada, but less than $7.5 million dollars in claims costs were incurred -- less than 50 cents per vehicle sold (O'Toole, 1988). By structuring a business-related incentive that could be used as the focus of a major vehicle sales campaign and an insurance sales campaign directed at car buyers, General Motors was able to provide tremendous positive publicity for belts with minimal increase in its normal advertising costs.

USAA, the nation's ninth largest writer of auto insurance and primarily a writer of coverage for military officers, announced the strongest air bag incentive program to date on March 30, 1988 (Insurance Institute, April 1988). Again, the package reflected a business-related commitment to auto safety. USAA offered to pay $300 to any of its insureds as a bonus for buying or taking a long-term lease on a car equipped with an optional air bag in 1988. This offer actually applies to very few vehicles. As of March 1988, optional airbags were available only on the Ford Tempo, Mercury Topaz, Oldsmobile Delta 88, Volvo 740 GLE, and Porsche 944. They were expected to be available later in the year on the Saab 9000T.

USAA is encouraging manufacturers and dealers to market optional air bags agressively through a companion dealer incentive program in which USAA pays for the dealer prizes awarded for optional air bag sales. It also added a free $25,000 death benefit to its life insurance policies, which is paid when an insured is killed in an auto crash while belted in an air bag protected position in a car. And it increased its PIP or own-medical discount for an air bag to 60 percent in all but a few states.[4]

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[4]USAA also announced a 5 percent discount on property damage and bodily injury coverages for cars equipped with another new safety device -- anti-lock brakes.

USAA's explanation of its decision to offer a strong program of business-related incentives for buying safety devices is consistent with Congress' concept of an insurance-based belt use incentive scheme and suggests how to encourage this type of action. USAA Chief Executive Robert McDermott announced the policy in a joint press conference with NHTSA Administrator Diane Steed. He stated that it was a direct result of a challenge issued by Transportation Secretary Jim Burnley at a meeting of the Insurance Institute for Highway Safety's Board in December 1987. Burnley told insurance executives that he was "100 percent committed to automatic restraints," but that the insurers were far better positioned "to come up with incentives to encourage car buyers to opt for air bags and other safety devices" (Insurance Institute, April 1988).

Burnley continued his campaign at the press conference. In a written statement, he said:

> The insurance industry has long had a lead role in advocating these safety devices and now must take a lead role in making them affordable and desirable in the eyes of the American public. Significant insurance discounts and incentives will make air bags more appealing and underscore your belief in the lifesaving effectiveness of this new safety technology.

The largest auto insurer, State Farm, also began using discounts to encourage greater automatic crash protection purchases in 1988. In announcing its new discount structure for automatic restraint systems, State Farm offered a 40 percent discount for cars equipped with both bags and automatic belts, even though none currently are manufactured. Said a State Farm spokesman, "We hope to drive the market a little and get some out there shortly" (Insurance Institute, April 1988). State Farm also noted that its action was "a gesture of support" for automatic crash protection systems rather than a reflection of loss experience (Yates, 1988).

These case studies and the discount structures listed in Table 6 suggest insurers, and even their largest rating bureau, are using insurance price breaks as incentives rather than just reflections of loss experience. This is especially clear for insurers who offer the same percentage discount for air bags that protect only the driver and ones that protect the full front seat since losses will be somewhat higher if only the driver receives air bag protection. More generally, the incremental advantages of adding automatic crash protection depend on how often belts would have been used if automatic crash protection were not available. Since manual belt use currently varies widely between states, the uniform national discounts for cars with automatic crash protection must not accurately reflect expected loss reductions by most states.

As insurers consider how to return the savings resulting from rising belt use to consumers, they should be encouraged to use a substantial portion to structure business-related incentives. These incentives would both serve as a symbol of the industry's conviction that safety is good business and as an inducement for belt use or other positive safety behavior on the part of customers. Typical business-related incentives are a relatively low-cost coverage offered at a large discount or an impressive-sounding but not overly costly add-on coverage provided for free. The incentives can be used as an advertising tool to sell the company's policies as well as to "sell" the public on safety equipment (automatic belts or airbags) and safety behavior (manual belt use). Marketing budgets and sales forces are generally much larger than loss prevention budgets and staff, so this linkage provides an essential guarantee of high visibility for the incentives.

Insurers can return the savings produced by increased belt use as across-the-board price reductions, or targeted incentives, or some combination. They also should be encouraged to provide extra incentives beyond current savings, or prior to those justified by definitive actuarial data. That's what USAA did for airbags and GM did for belt use. These are highly visible programs, which exemplify how business incentives can promote auto safety.

V. CONCLUSIONS

Increasing belt use is reducing traffic injuries and auto insurance claims and should slow the growth in insurance prices. It already has done so in a few states and should in more as enough data become available for actuaries to determine the reductions occurring in claims payments. The reductions in both injury rates and auto insurance prices should accelerate as automatic crash protection equipment becomes mandatory. Reductions will be even greater if manual belt use continues to increase.

The insurance claim savings are substantial in the aggregate, but rather small when spread uniformly over all policies.

- In 1987, the rise in belt use above 1984 levels probably saved private and public insurers $1.5 to $3.75 billion dollars. A third of this saving went to health, life, and workers' compensation insurers, however, rather than auto insurers.

- Injury claims account for 40 to 50 percent of auto insurance claims. Rising belt use probably will reduce injury claims costs by roughly 5 to 12 percent. The $1 to $2.5 billion savings to auto insurers, if spread across all injury coverages, would cut typical auto insurance bills by 2 to 6 percent -- about $9 to $27 annually per vehicle insured.

The savings produced by rising belt use should be used to promote safety as they are passed on to those insured. One way is to reduce insurance prices directly, either voluntarily or through regulation.

- Four states reduced insurance prices for injury coverages because belt use laws were implemented. The reductions range from 5 to 12 percent -- a 1.5 to 2.8 percent decrease in cost for each 10 percentage point rise in belt use. The average auto insurance bill in these states also dropped approximately 2 to 6 percent, $9 to $27 per vehicle insured.

- Except in Texas, an act of the state legislature, like the ones passed in Hawaii, Iowa, and Massachusetts, probably would be needed to allow the insurance commission to dictate when and how insurers should incorporate the impacts of rising belt use into their prices.

- Auto insurance prices have been rising very rapidly because claims payments per injury have risen at least 7 percent per year since 1979. If this trend continues, a price reduction related to belt use probably would slow, but not reverse, the rise in overall prices. Publicity that rising belt use has reduced insurance prices may not convince consumers who are paying more for insurance.

Case studies suggest that carefully structured marketing tools that emphasize the savings from belt use may be effective incentives for improved occupant protection.

- USAA, the nation's ninth largest auto insurer, offered to pay a $300 bonus to policyholders who buy or take long-term leases on cars equipped with optional air bags in 1988, negotiated creation of and helped finance incentive programs to encourage dealers to market air bags aggressively, and added other incentive coverages.

- From April 16, 1984 until the end of the 1986 model year, General Motors gave buyers of their cars a free life insurance policy that paid a $10,000 death benefit if someone was killed in a crash in the car while belted.

- Health, disability, life, and other insurers also will benefit from the injury cost reductions produced by increased belt and air bag system use. They also should consider how they can promote increased use.

Transportation Secretary Jim Burnley has challenged the insurance industry "to come up with incentives to encourage car buyers to opt for air bags and other safety devices." Insurers should respond to the Secretary's challenge with creative, highly visible programs to promote increased occupant protection through advertising and incentives. Such programs are more likely to be effective than small reductions in standard injury coverage prices.

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