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Primary Laws and Fine Levels Are Associated With Increases in Seat Belt Use, 1997–2008

Increasing seat belt usage in the United States has proved to be a slow and difficult task. It has taken about 30 years since NHTSA conducted the first seat belt and child restraint workshops in 1978 to reach 84% usage in 2009. In general, seat belt laws and their enforcement have received the greatest emphasis since 1984. There has been less emphasis on increasing fine amounts as a means to increase usage, in spite of positive circumstantial and research evidence.

Bedford Research and the Pacific Institute for Research and Evaluation conducted a study for NHTSA to determine the relative impact of primary seat belt laws and fine amounts on seat belt usage. This research examined changes in usage associated with past activities and estimated gains that might be expected in the future.

Analytic Method

This study determined the impact of various predictors on two measures of seat belt use, using panel regression analyses. The first measure was the percentage of buckled front-seat occupants over age 8 killed in passenger vehicles, as found in NHTSA's Fatality Analysis Reporting System (FARS), which is a census of all crashes involving fatalities in the United States. Because seat belt use among the fatally injured is consistently measured, FARS use is a reliable estimate of belt use. The second measure was the percentage of front-seat occupants of passenger vehicles observed to be buckled up in annual statewide observational surveys conducted by each State in accordance with criteria established by NHTSA.

Penalties (Fines Plus Fees) for Seat Belt Violations

Based on information obtained from the States, penalty amounts (fines plus fees and court costs) have increased over the past decade. The sum of these charges averaged $35 in 2000 and $49 in 2008. Twenty-six States increased their total penalty by at least $5. In these 26 States, the average penalty increased from $39 to $70. FARS use increased by an average of about 9.1 percentage points. In the remaining 24 States, there was a small decline (on average) in total fine-and-fee amount, from $30 in 2000 to $26 in 2008. FARS use increased by 6 points in these 24 States, about two-thirds the gain experienced by the 26 States that increased their total fine plus fee assessments.

High-Belt-Use States Versus Low-Belt-Use States

States were ranked by their two most recent years of observed seat belt use (2007-2008) and placed into three groups based on these rankings. They were: "Top 10," "Bottom 10," and a "Middle" group of 30 States plus the District of Columbia. Nine of the 10 States with the highest use had primary seatbelt laws; nearly half of the middle group had such laws; and only 3 of the 10 States with the lowest use had primary laws. New Hampshire, among the 10 States with the lowest use, has no adult seat belt law.

Table 1 shows that the top 10 States had the highest fines, highest overall penalties (fines and fees), and the highest per capita *Click It or Ticket* (CIOT) citation rates, compared with the middle and bottom groups. States with the lowest seat belt use rates had the highest per capita expenditures for paid media during May CIOT mobilizations.

Table 1. High-, Middle-, and Low-Seat-Belt-Use States*

	Top 10 States (Average)	Middle 31 States (Average)	Bottom 10 States (Average)
Observed Belt Use (2007-08)	94.0%	84.0%	71.7%
FARS Belt Use (2006-07)	59.2%	45.2%	33.5%
Fines Only (2003-08)	$52.63	$23.58	$24.67
Fines + Fees (2008)	$81.62	$43.79	$26.28
Citations, per 10K pop. (2003-08)**	23.0	21.7	13.4
Media $, per capita (2003-08)**	$0.07	$0.08	$0.09

* States were grouped on the basis of observed statewide seat belt use rates in 2007 and 2008.

** During the national *Click It or Ticket* seat belt campaign.

Impact of Law Type, Fines, Enforcement, and Media

There were two time periods examined in this study: 1997-2002, a period of *Operation Always Buckle Children* (ABC) mobilizations, and 2003-2008, a period of CIOT mobilizations.

Primary seat belt laws (versus secondary laws) had the most consistent impact on seat belt usage across the two time periods. Table 2 shows that primary laws accounted for 10- to 12-percentage-point increases in seat belt usage among occupants observed during daytime hours (observed use) and 9-point increases among occupants killed in crashes (FARS use).

Higher fines were associated with higher seat belt use, particularly in the most recent time period (2003-2008). The results showed that increasing the fine amount from $5 to $25 had approximately the same effect as changing the fine from $25 to $60; both were associated with 3- to 4-point increases in usage in primary or secondary law States. A fine increase of $60 to $100 was associated with gains of 2 to 3 percentage points in belt use. Little improvement was associated with fines above $100, but there were few States with fines above this level.

Table 2. Percentage-Point Increases in Seat Belt Use Associated With Laws and Fine Amounts

	Percentage Point Increase in Seat Belt Use			
	1997 – 2002 Period		2003 – 2008 Period	
	FARS	Observed	FARS	Observed
Law Upgrade				
Primary vs. Secondary	+9.1	+11.9	+9.0	+10.4
Fine Increase				
$5 to $100	+9.4	+8.7	+10.6	+10.8
$5 to $25	+3.3	+3.1	+3.8	+3.8
$25 to $60	+3.3	+3.1	+3.7	+3.8
$60 to $100	+2.7	+2.5	+3.1	+3.1

Enforcement, as reported during the two weeks of the mobilizations each year, was related to higher FARS and observed seat belt use. These measures, however, were deemed too unreliable to estimate potential gains in annual seat belt use because of reporting limitations.

Media expenditures as reported during the two CIOT weeks were not associated with increases in usage after accounting for variations associated with laws, fines, and enforcement. Some low-use States focused on media more than actual enforcement.

Effect on the Odds of Seat Belt Use

The analysis also examined the change in the odds of seat belt use associated with each predictor. The odds ratio is a measure of the odds of being buckled up in any given year, divided by the odds of being buckled in the baseline year. This measure is more sensitive to relative change for States that already have high use rates. Table 3 shows the percent increase in the odds of seat belt use. Primary laws (versus secondary laws) were associated with 7.9 to 26.2 percent increases in the odds of belt use. A fine increase from the median $25 to $100 was associated with 11.3 to 29.6 percent increases in belt use.

Table 3. Percent Increases in Odds of Seat Belt Use Associated With Laws and Fine Amounts*

	Percent Increase in Odds of Seat Belt Use			
	1997 – 2002 Period		2003 – 2008 Period	
	FARS	Observed	FARS**	Observed
Law Upgrade				
Primary vs. Secondary	17.9	26.2	7.9	20.0
Fine Increase				
$5 to $100	35.7	25.1	22.5	59.1
$5 to $25	27.7	19.5	17.5	45.9
$25 to $60	17.9	12.6	11.3	29.6
$60 to $100	9.8	6.9	6.2	16.2

* Percentage change is relative to baseline: 1995–1996 for the Operation ABC period and 2000–2002 for the CIOT period.
** FARS use was based on 2003-2007 for the CIOT period.

Summary and Conclusions

These analyses confirmed that primary seat belt laws and fine increases were associated with higher use rates and with increases in the odds of being buckled.

1. Fine amounts were consistently associated with seat belt use across the two time periods and for both FARS and observed belt use. An increase in fine level from $25 (the current median value in both primary and secondary law States) to $60 was associated with a 3- to 4-percentage-point increase in both FARS and observed seat belt use. Increasing a State's fine level from $25 to $100 was associated with a 6- to 7-point increase in both use rates.

2. An upgrade from secondary to primary enforcement was associated with a 10- to 12-percentage-point increases in observed use and 9-point increases in FARS use. This increase is additive to the increase associated with a fine increase.

In summary, increasing fine levels is a strategy that has potential to further raise seat belt use, in addition to primary law upgrades and high-visibility enforcement. Although the regression analyses did not find a statistically significant effect associated with media, the public needs to be aware of laws and fine changes before compliance is likely. Publicizing fine increases is essential for maximizing their effectiveness.

How to Order

To order ***Strategies to Increase Seat Belt Use: An Analysis of Levels of Fines and the Type of Law*** (40 pages plus appendices), write to the Office of Behavioral Safety Research, NHTSA, NTI-130, 1200 New Jersey Avenue SE., Washington, DC 20590, fax 202-366-7394, or download from www.nhtsa.gov.

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