

Traffic Safety Facts

Research Note

DOT HS 811 200

September 2009

Seat Belt Use in 2009—Overall Results

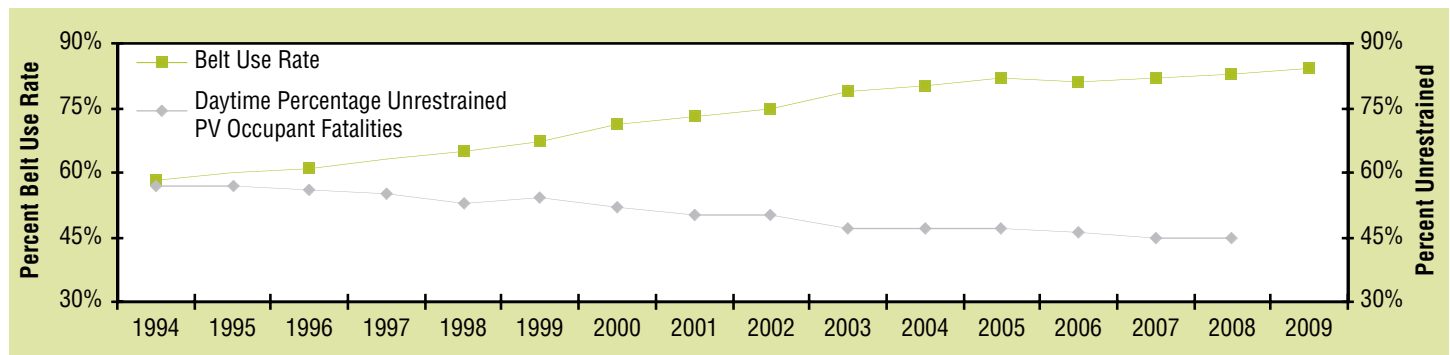
Seat belt use in 2009 stood at 84 percent, a gain from 83 percent use in 2008. This result is from the National Occupant Protection Use Survey (NOPUS) which is the only survey that provides nationwide probability-based observed data on seat belt use in the United States. The NOPUS is conducted annually by the National Center for Statistics and Analysis of the National Highway Traffic Safety Administration.

Seat belt use has been increasing steadily since 1994, accompanied by a steady decline in the percentage of unrestrained passenger vehicle occupant fatalities during daytime (Figure 1).

The 2009 survey also found the following:

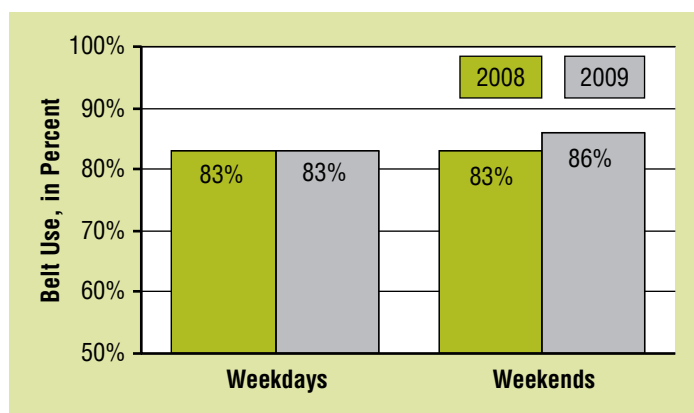
- Seat belt use for occupants traveling during weekends increased to 86 percent in 2009 (83% in 2008), which shows a significant annual increase (Figure 2).
- Seat belt use continues to be higher in the States in which vehicle occupants can be pulled over solely for not using seat belts (“primary law” States) as compared with the States with a weaker enforcement law (“secondary law” States) (Figure 3).

Figure 1: NOPUS Seat Belt Use Rate and Daytime Percentage Unrestrained Passenger Vehicle Occupant Fatalities



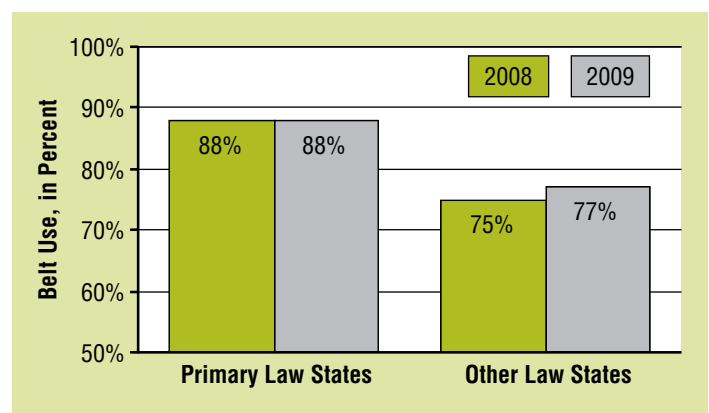
Source: NOPUS and FARS, NHTSA's National Center for Statistics and Analysis

Figure 2: Seat Belt Use by Weekday/Weekend



Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2008, 2009

Figure 3: Seat Belt Use by Law Type



Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2008, 2009

Seat Belt Use by Major Characteristics

Occupant Group ¹	2008		2009		2008-2009 Change	
	Belt Use ²	Confidence That Use Is High or Low in Group ³	Belt Use ²	Confidence That Use Is High or Low in Group ³	Change in Percentage Points	Confidence in a Change in Use ⁴
All Occupants	83%		84%		1	68%
Drivers	84%	100%	85%	100%	1	69%
Right-Front Passengers	81%	100%	82%	100%	1	65%
Occupants in States With ⁵						
Primary Enforcement Laws	88%	100%	88%	100%	0	51%
Secondary Enforcement Laws or No Belt Use Law	75%	100%	77%	100%	2	75%
Occupants on						
Expressways	90%	100%	89%	100%	-1	49%
Surface Streets	80%	100%	81%	100%	1	77%
Occupants Traveling in						
Fast Traffic	87%	100%	88%	100%	1	63%
Medium-Speed Traffic	83%	55%	83%	78%	0	29%
Slow Traffic	79%	100%	78%	100%	-1	22%
Occupants Traveling in						
Heavy Traffic	97%	100%	92%	NA*	-5	NA*
Moderately Dense Traffic	85%	68%	83%	60%	-2	24%
Light Traffic	83%	85%	84%	57%	1	73%
Occupants Traveling Through						
Light Precipitation	81%	75%	83%	78%	2	33%
Light Fog	80%	62%	78%	90%	-2	16%
Clear Weather Conditions	83%	76%	84%	85%	1	72%
Occupants in						
Passenger Cars	84%	98%	86%	100%	2	84%
Vans and SUVs	86%	100%	87%	100%	1	56%
Pickup Trucks	74%	100%	74%	100%	0	10%
Occupants in the						
Northeast	79%	93%	82%	81%	3	80%
Midwest	79%	96%	81%	93%	2	79%
South	81%	86%	82%	82%	1	42%
West	93%	100%	93%	100%	0	33%
Occupants in						
Urban Areas	84%	71%	83%	60%	-1	40%
Suburban Areas	85%	99%	86%	100%	1	65%
Rural Areas	79%	100%	81%	100%	2	71%
Occupants Traveling During						
Weekdays	83%	66%	83%	99%	0	2%
Weekday Rush Hours	84%	90%	84%	96%	0	1%
Weekday Non-rush Hours	82%	90%	82%	96%	0	6%
Weekends	83%	66%	86%	99%	3	96%

¹ Drivers and right-front passengers of passenger vehicles with no commercial or government markings.

² Use of shoulder belts observed between the hours of 7 a.m. and 6 p.m.

³ The level of statistical confidence that use in the occupant group (e.g., occupants in urban areas) is higher or lower than use in the corresponding complementary occupant group (e.g., occupants in suburban and rural areas). Confidence levels that meet or exceed 90 percent are formatted in boldface type. Confidence levels are rounded to the nearest percentage point, and so levels reported as "100 percent" confidence are between 99.5 percent and 100.0 percent.

⁴ The degree of statistical confidence that the 2009 use rate is different from the 2008 rate.

⁵ Use rates reflect the laws in effect at the time data was collected.

NA: Estimates cannot be computed since all observations were done in a single Primary Sampling Unit.

Source: National Occupant Protection Use Survey, National Highway Traffic Safety Administration, National Center for Statistics and Analysis

Survey Methodology

The National Occupant Protection Use Survey is the only nationwide probability-based observational survey of seat belt use in the United States. The survey observes usage as it actually occurs at a randomly selected roadway sites, and thus provides the best tracking of the extent to which passenger vehicle occupants in this country are buckling up.

The survey data is collected by sending to probabilistically sampled roadways trained observers who observe passenger vehicles between the hours of 7 a.m. and 6 p.m. Observations are made either while standing at the roadside or, in the case of expressways, while riding in a vehicle in traffic. Observers do not stop vehicles or interview occupants, so that the NOPUS captures the untainted behavior of occupants. The 2009 NOPUS data was collected between June 1 and June 20, 2009, while the 2008 data was collected between June 2 and June 22, 2008.

Sites, Vehicles, and Occupants* Observed			
Numbers of	2008	2009	Percentage Change
Sites Observed	1,865	1,823	-2%
Vehicles Observed	116,000	100,000	-14%
Occupants Observed*	147,000	127,000	-14%

*Drivers and right-front passengers only.

Because the NOPUS sites were chosen through probabilistic means, we can analyze the statistical significance of its results. Statistically significant increases in belt use between 2008 and 2009 are identified in the table "Seat Belt Use by Major Characteristics" by having a result that is 90 percent or greater in the table's column 7. Statistical confidence levels that use in a given occupant group, e.g., occupants in the Midwest, is higher or lower than in the complementary occupant group, e.g., occupants in the Northeast, South, and West, are provided in columns 3 and 5. Such comparisons are made within categories, such as road type, delineated by changes in row shading in the tables. The exception to this is the grouping "Occupants Traveling During ...," in which weekdays are compared to weekends, and weekday rush hour to weekday non-rush hour.

The NOPUS uses a complex multistage probability sample, statistical data editing, imputation of unknown values, and complex estimation and variance estimation procedures. The 2009 NOPUS continued the transition to the newly designed sample of observation sites, which was implemented in 2006. The 2009 results reflect the partial incorporation of a set of observation sites from the new design (about 65%) and a set of the observation sites from the old design (about 35%). Data from 2005 and prior years was obtained from the old observation sites only.

Data collection, estimation, and variance estimation for the NOPUS are conducted by Westat, Inc., under the direction of the National Center for Statistics and Analysis in NHTSA under Federal contract number DTNH22-07-D-00057.

Definitions

Under NOPUS observation protocols, a driver or right-front passenger is considered "belted" if a shoulder belt appears to be across the front of the body.

States With Primary Enforcement Seat Belt Laws*		
Alabama	Alaska	California
Connecticut	Delaware	District of Columbia
Georgia	Hawaii	Illinois
Indiana	Iowa	Kentucky
Louisiana	Maine	Maryland
Michigan	Mississippi	New Jersey
New Mexico	New York	North Carolina
Oklahoma	Oregon	South Carolina
Tennessee	Texas	Washington

*States with laws in effect as of May 31, 2009.

A jurisdiction that can enforce traffic laws, such as a State or the District of Columbia, has a "primary enforcement law" if occupants can be ticketed simply for not using their seat belts. Under a "secondary enforcement law" occupants must be stopped for another violation, such as an expired license tag, before being cited for seat belt nonuse. As of May 31, 2009, primary laws were in effect in 26 States and the District of Columbia, 23 States had secondary laws, and 1 State (New Hampshire) effectively has no belt law for adults. (In New Hampshire, it is legal for occupants over age 18 to ride unbelted.) Primary enforcement seat belt laws in Arkansas, Florida, and Wisconsin did not take effect until June 30, 2009. Minnesota's primary law took effect on June 9, 2009. Seat belt use rates reflect the State laws in effect at the time of data collection.

"Expressways" are defined to be roadways with limited access, while "surface streets" comprise all other roadways. "Rush hour" is defined to comprise the time periods 7 – 9:30 a.m. and 3:30 – 6 p.m.

A roadway is defined to have "fast traffic" if during the observation period the average speed of passenger vehicles that passed the observer(s) exceeded 50 mph, with "medium-speed traffic" defined as 31 - 50 mph and "slow traffic" defined as 30 mph or slower.

A roadway is defined to have “heavy traffic” if the average number of vehicles per lane mile on the roadway during the observation period exceeded 45, with “moderately dense traffic” defined as 26 - 45 vehicles per lane mile and “light traffic” having at most 25 vehicles per lane mile.

The survey uses the following definitions of geographic regions, which are defined in terms of the States contained in the region below:

Northeast: CT, MA, ME, NH, NJ, NY, PA, RI, VT

Midwest: IA, KS, IL, IN, MI, MN, MO, ND, NE, OH, SD, WI

South: AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV

West: AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY

Seat belt use rates reflect the State laws in effect at the time of data collection.

For More Information

This research note was written by Timothy M. Pickrell, a mathematical statistician in the Mathematical Analysis Division, National Center for Statistics and Analysis, NHTSA, and by Tony Jianqiang Ye, a contractor employed by URC Enterprises, Inc., working with the Mathematical Analysis Division, National Center for Statistics and Analysis, NHTSA. For questions regarding the information presented in this document, please contact timothy.pickrell@dot.gov.

Additional data and information on the survey design and analysis procedures will be available in upcoming publications to be posted at the Web site www-nrd.nhtsa.dot.gov/CMSWeb/index.aspx in 2009.

Research has found that lap/shoulder seat belts, when used, reduce the risk of fatal injury to front-seat passenger car occupants by 45 percent and the risk of moderate-to-critical injury by 50 percent. In 2008 alone, seat belts saved an estimated 13,250 lives (Traffic Safety Facts: 2008 Data, NHTSA, DOT HS 811153). For more information on the campaign by NHTSA and the States to increase seat belt use, see www.nhtsa.dot.gov/link/ciot.htm.

The NOPUS also observes other types of restraints such as child restraints and motorcycle helmets, and observes driver electronic device use. This publication is part of a series that presents overall results from the survey on these topics. Please see other notes in the series such as “Motorcycle Helmet Use in 2009 – Overall Results” for the latest data on these topics.



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