U.S. Department
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**National Highway
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Research Note

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Observed Safety Belt Use in 1996

A National Occupant Protection Use Survey (NOPUS) was conducted in the Fall of 1996 to estimate safety belt and motorcycle helmet use in the U.S. The first such study was conducted in 1994 and the results were made available in a series of research notes.

In 1996, the overall observed safety belt use rate, as measured by NOPUS, was 61.3% compared to 58.0% observed in 1994.

It should be noted that the National Highway Traffic Safety Administration also obtains belt use rates from each of the states. These estimates are combined using each state's population to derive an estimate of national safety belt use. Comparisons of the results of the state-based surveys with the NOPUS data are included at the end of this research note.

Background

NOPUS is composed of three separate studies: the *moving traffic study*, which provides information on overall shoulder belt use; the *controlled intersection study*, which provides detailed information about shoulder belt use by vehicle type, characteristics of the belt users and child restraint use; and the *shopping center study*, which provides information on rear-seat belt use and shoulder belt misuse. This note presents the results from the moving traffic study. Results from the other studies will be released as they become available.

Data collection from the moving traffic study was conducted at 3,290 sites across the country from October to December 1996. Pairs of observers were stationed for 30 minutes at exit ramps, intersections with stop signs, stop lights, and uncontrolled intersections. One observer counted shoulder belt use for the drivers of passenger cars and light trucks (vans, minivans, sport utility vehicles, and pickup trucks). The second observer counted shoulder belt use for the right-front passengers of cars and light trucks, and helmet use for motorcycle riders and passengers. Every day of the week and all daylight hours (8 a.m. to 6 p.m.) were covered by this study. Commercial and emergency vehicles were excluded.

NOPUS was designed as a multi-stage probability sample to ensure that the results would represent occupant protection use in the country. In the first stage, counties were grouped by region (northeast, midwest, south, west), level of urbanization (metropolitan or not), and level of belt use (high, medium, or low). Fifty counties or groups of counties were selected based on the vehicle miles of travel in those locations. In the next stage, a random sample of roadways was selected from two categories: major roads and local roads. Finally, approximately 4,000 intersections or exit ramps were chosen on these roadways. Of the originally selected sites, some were found to be ineligible during mapping and data collection, and at some sites no vehicles were observed. A total of 176,651 passenger cars, 93,786 light trucks, and 710 motorcycles were observed.

Findings of the 1996 Moving Traffic Study

Shoulder belt use observed in the moving traffic study was as follows:

Passenger Cars:	64.4%
Light Trucks:	56.4%

Detailed results of the moving study are presented in Tables 1 and 2 on the following page. Each estimate has been statistically weighted according to the sample design. Since these are estimates from a sample, each has an associated margin of error or standard error. Two standard errors are given in parentheses next to each estimate. By simply adding and subtracting the standard errors from the estimates, approximate 95% confidence intervals can be created. This means that one can be 95% confident that the true use rate lies within this interval.

Table 1
1996 NATIONAL OCCUPANT PROTECTION USE SURVEY
Belt and Helmet Use for Vehicle and Person Type by Region
(Estimates and 2 Standard Errors)

Belt/Helmet Use Vehicle and Person Type	REGION				
	U.S.	Northeast	Midwest	South	West
Overall Belt Use (%)	61.3 (4.0)	56.6 (6.6)	55.4 (4.4)	60.8 (4.8)	66.8 (10.2)
Passenger Cars (%)	64.4 (4.2)	57.8 (8.6)	58.5 (4.4)	67.3 (4.0)	68.3 (10.6)
Drivers (%)	65.1 (4.2)	57.9 (9.0)	58.5 (5.2)	68.6 (4.4)	69.6 (10.6)
Passengers (%)	62.3 (4.6)	57.3 (8.6)	58.5 (3.0)	63.3 (3.2)	65.2 (11.0)
Light Trucks (LT) (%)	56.4 (4.0)	53.0 (5.0)	50.7 (5.4)	50.8 (6.0)	64.2 (9.6)
Drivers (%)	57.5 (3.2)	53.8 (5.4)	50.9 (6.4)	51.7 (5.8)	66.5 (7.4)
Passengers (%)	53.0 (10.4)	51.0 (6.6)	50.0 (3.2)	48.0 (7.2)	58.3 (23.6)
Helmets (%)	64.1 (9.8)	78.6 (11.2)	65.9 (25.6)	64.7 (15.0)	60.1 (14.6)
Drivers (%)	65.5 (12.4)	79.8 (9.2)	64.6 (24.0)	67.9 (19.2)	62.1 (20.6)
Passengers (%)	58.0 (25.0)	74.1 (30.8)	70.3 (47.2)	51.3 (8.6)	48.8 (40.0)

Table 2
1996 NATIONAL OCCUPANT PROTECTION USE SURVEY
Belt and Helmet Use by Day of Week and Time of Day
Estimates and 2 Standard Errors)

Belt/Helmet Use Vehicle and Person Type	Day of Week		Time of Day	
	Weekday	Weekend	Rush Hour	Non-Rush Hour
Overall Betlt Use(%)	61.0 (3.8)	62.6 (6.2)	61.9 (4.0)	61.2 (4.2)
Passenger Cars (%)	63.9 (4.2)	66.6 (4.6)	66.7 (4.2)	64.0 (4.4)
Car Drivers (%)	64.7 (4.2)	67.1 (4.4)	67.9 (4.4)	64.6 (4.4)
Car Passengers (%)	61.3 (4.4)	65.5 (5.2)	61.9 (5.0)	62.4 (4.8)
Light Trucks (LT) (%)	56.3 (3.4)	56.7 (9.6)	54.1 (4.4)	56.7 (4.2)
LT Drivers (%)	58.0 (3.4)	55.0 (8.6)	55.4 (4.4)	57.9 (3.2)
LT Passengers (%)	50.8 (8.6)	59.9 (11.6)	50.4 (6.4)	53.5 (11.6)
Helmet Use (%)	62.9 (15.2)	66.5 (19.6)	59.0 (17.6)	65.0 (9.4)
Drivers (%)	62.3 (16.8)	73.3 (12.0)	65.0 (24.2)	65.5 (12.0)
Passengers (%)	67.0 (15.4)	49.7 (43.6)	24.8 (9.0)	62.5 (29.2)

Comparison of 1996 and 1994 Moving Traffic Studies

Collection of the second NOPUS study permits comparisons to be made between similar rates in the 1994 and 1996 surveys. Table 3 shows these comparisons.

Table 3
NATIONAL OCCUPANT PROTECTION USE SURVEY
Belt and Helmet Use for Vehicle and Person Type
Comparison of 1996 to 1994 Results

Belt and Helmet Use	1996	1994
Overall Belt Use	61.3%	58.0%
Drivers	62.2%	59.1%
Passengers	58.8%	55.2%
Passenger Cars	64.4%	62.8%
Drivers	65.1%	64.2%
Passengers	62.3%	59.1%
Light Trucks	56.4%	50.2%
Drivers	57.5%	50.7%
Passengers	53.0%	49.1%
Helmet Use	64.1%	62.5%
Drivers	65.5%	67.1%
Passengers	58.0%	54.4%

Belt use for drivers of light trucks increased by almost 7% from 1994, a statistically significant change. While belt use in all other categories increased, demonstrating an upward trend in the use of safety belts, the changes were not statistically significant.

Overall helmet use rates for motorcyclists in 1996 increased by 1.6% compared to 1994. However, when motorcycle drivers are separated from passengers, the data show that slightly fewer motorcycle drivers wore their helmets in 1996 than in 1994. Conversely, motorcycle passengers wore their helmets more often in 1996 than in 1994.

Findings of the 1996 State Surveys

In 1996, the national belt use rate, based on individual state surveys, was 68%. To calculate this number, the belt use rates from each state's most recent survey is weighted by that state's proportion of the total U.S. population.

State safety belt surveys differ in design. However, at least 29 states, comprising over 70% of the U.S. population, conduct probability-based observational surveys as used in the NOPUS. The remaining states conduct surveys that are based on convenience samples. This means that their observation sites, which are usually adequate in number, are not randomly selected. Thus, confidence intervals cannot be calculated for their survey results. One state, Wyoming, uses crash reports rather than roadside observations to estimate belt use, and therefore, its data were not included in the calculation of the national observed use rate.

Some states do not conduct surveys every year. The 1996 national estimate is based on 40 state surveys conducted in 1996 and 10 that were conducted earlier.

Most state surveys measure shoulder belt use of both drivers and front-seat passengers. Four measure use by drivers only. All states observe belt use in passenger cars, 33 states include light trucks, and 24 states include vans.

Comparison of Measurement Methods

The findings of the 1996 NOPUS are not inconsistent with the national use rate estimates as calculated from state surveys.

Direct comparison of findings between the NOPUS and state surveys is difficult, primarily because of the differences in vehicle and occupant coverage. However, a rough comparison of overall use can be made between the state-based estimate of 68% and the NOPUS estimate for passenger car drivers and passengers of 64.4%. In this comparison, the state-based estimate falls within the 95% confidence interval of the NOPUS estimate.

State surveys provide an essential source of information for monitoring progress in the states. The NOPUS provides a probability-based sample of

national use with the ability to estimate sampling variability. In addition, the NOPUS provides a unique source of detailed information concerning restraint use by vehicle type, age, gender, shoulder belt misuse, etc. Plans for repeating the NOPUS survey will be based upon the frequency of need for this level of analysis and budgetary considerations. Annual estimates of belt use progress will continue to be made with the state-based surveys.

For additional copies of this research note, please call (202) 366-4198 or fax your request to (202) 366-7078. For questions regarding the data reported in this research, contact Nancy Bondy [202-366-5353] or Dennis Utter [202-366-5351] of the National Center for Statistics and Analysis. This research note and other general information on highway traffic safety may be accessed by Internet users at *http://www.nhtsa.dot.gov/people/ncsa.*

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