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

NHTSA
www.nhtsa.gov

DOT HS 812 244

February 2016

Occupant Restraint Use in 2014:

Results From the NOPUS Controlled Intersection Study

Suggested APA Format Citation:

Pickrell, T. M., Choi, E-H., & KC, S. (2016, February). *Occupant restraint use in 2014: Results from the NOPUS controlled intersection study* (Report No. DOT HS 812 244). Washington, DC: National Highway Traffic Safety Administration.

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
DOT HS 812 244		

4. Title and Subtitle	5. Report Date
Occupant Restraint Use in 2014: Results from the NOPUS Controlled Intersection Study	February 2016
	6. Performing Organization Code: NSA-210

7. Author(s)	8. Performing Organization Report No.
Timothy M. Pickrell*, Eun-Ha Choi†, and Shova KC†	

9. Performing Organization Name	10. Work Unit No. (TRAIS)
Mathematical Analysis Division, National Center for Statistics and Analysis National Highway Traffic Safety Administration U.S. Department of Transportation 1200 New Jersey Avenue SE. Washington, DC 20590	11. Contract or Grant No.

12. Sponsoring Agency Name and Address	13. Type of Report and Period Covered
Mathematical Analysis Division, National Center for Statistics and Analysis National Highway Traffic Safety Administration U.S. Department of Transportation 1200 New Jersey Avenue SE. Washington, DC 20590	NHTSA Technical Report
	14. Sponsoring Agency Code

15. Supplementary Notes

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Abstract

This report presents results from the 2014 National Occupant Protection Use Survey (NOPUS) Controlled Intersection Study. NOPUS is the only nationwide probability-based occupant restraint use survey. The National Center for Statistics and Analysis of the National Highway Traffic Safety Administration conducts this survey annually. The 2014 NOPUS found that seat belt use continued to be higher for females (89%) than for males (84%). Seat belt use in the rear seat (73%) was lower than in the front seat (87%). Overall restraint use for children under 8 years old in 2014 was 91 percent compared to 89 percent in 2013.

17. Key Words	18. Distribution Statement
seat belt use, child restraint use, observational survey, demographics, rear-seat seat belt use, occupant protection, NOPUS, controlled intersections, car seat	This document is available from the National Technical Information Service www.ntis.gov.

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	30	

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

Definitions

- Vehicle occupants observed in the NOPUS survey are counted as “belted” if they appear to have a shoulder belt across the front of the body. NOPUS does not observe the use of lap belts because these restraints cannot be reliably observed from the roadside.

- The survey classifies a child as:
  - Restrained in a rear-facing car seat if the child appears to be on a seat on top of the vehicle seat, facing the rear of the vehicle, with harness straps across the front of the child.
  - Restrained in a forward-facing car seat if the child appears to be on a seat on top of the vehicle seat, facing the front of the vehicle, with harness straps across the front of the child.
  - Restrained in a high-backed booster seat if the child appears to be on a seat on top of the vehicle seat with a shoulder belt across the front of the child.
  - Restrained in a seat belt or backless booster seat if there is a shoulder belt across the front of the child but the observers cannot see if the child is in a seat on top of the vehicle seat.
  - Restrained if s/he is restrained by any of the above.
  - The remaining children are classified as unrestrained. Note that in the survey there is no mention of being “unrestrained” in, for example, a forward-facing car seat. NOPUS does not observe the use of lap belts, and does not distinguish between seat belts and backless booster seats, because these assessments cannot be reliable if observed from the roadside.

- The racial categories “Black,” “White,” and “Members of other races” in NOPUS reflect subjective characterizations by roadside observers regarding the race of vehicle occupants. Likewise observers record all age groups (8 to 15 years old, 16 to 24 years old, 25 to 69 years old, and 70 and older) that best fits their visual assessment of each observed occupant.

- "Expressways" are defined as roadways with limited access, while "surface streets" comprise all other roadways.

- A roadway is defined to have "fast traffic" if, during the observation period, the average speed of passenger vehicles passing the observers exceeds 50 mph, with "medium-speed traffic" defined as 31 to 50 mph and "slow traffic" defined as 30 mph or slower. The traffic speed data in the CI survey is matched to the MT survey data.

- A roadway is defined to have "heavy traffic" if the average number of vehicles on the roadway during the observation period is greater than 5 per lane per mile, with "moderately dense traffic" defined as greater than 1 but less than or equal to 5 vehicles per lane per mile, and "light traffic" as less than or equal to 1 vehicle per lane per mile. Please note that this traffic density breakdown has been revised in the 2011 NOPUS to better capture the traffic patterns. The traffic density data in the CI survey is matched to the MT survey data.

- Since NOPUS is not a census but based on a probability sample, it is impossible to produce State-by-State restraint use results. However NOPUS can and does produce regional estimates using the following categories:

  Northeast: Connecticut, Massachusetts, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont

  Midwest: Iowa, Kansas, Illinois, Indiana, Michigan, Minnesota, Missouri, North Dakota, Nebraska, Ohio, South Dakota, Wisconsin

  South : Alabama, Arkansas, the District of Columbia, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia

  West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, Nevada, Oregon, Washington, Washington, Wyoming

  These definitions of the four NOPUS regions are the same regional definitions used in the NSUBS.

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Executive Summary

The National Occupant Protection Use Survey (NOPUS) is the only nationwide probability-based survey of seat belt use (for occupants 8 and older in both front and rear seats), motorcycle helmet use, child restraint use (for children under 8 years old), and driver electronic device use in the United States. The National Center for Statistics and Analysis of the National Highway Traffic Safety Administration conducts this survey annually. Two sub-surveys – the Moving Traffic (MT) Survey and the Controlled Intersection (CI) Study –comprise the NOPUS. In the Controlled Intersection Study, occupants of passenger vehicles without commercial or government markings are observed from the roadside at intersections controlled by stop signs or stoplights. Only stopped vehicles are observed to allow ample time to collect a variety of information required by the survey. NOPUS derives its estimates of seat belt use in rear seats, child restraint use, driver electronic device use, and demographic characteristics of vehicle occupants from the CI study.

This report presents results of occupant restraint use from the 2014 National Occupant Protection Use Survey Controlled Intersection Study. NHTSA will publish the driver electronic device use results in a separate research note. The following are some of the major findings from the 2014 NOPUS Controlled Intersection Study:

Front Seats Belt Use (Among Occupants 8 and Older):

- Seat belt use continued to be lower for males (84%) than females (89%) in 2014.
- Seat belt use continued to be lower among drivers driving alone (86%) than for drivers traveling with passengers (89%) in 2014.
- Seat belt use continued to be lower among 16- to 24-year-olds (84%) than other age groups (87%). However, seat belt use among younger drivers (age 16-24) is significantly higher when riding with 16- to 24-year-old passengers (88%) than with no passengers (83%).

Rear Seats Belt Use (Among Occupants 8 and Older):

- Seat belt use continued to be lower in the rear seat (73%) than in the front seat (87%) in 2014.
- Rear seat belt use declined significantly to 73 percent in 2014 from 78 percent in 2013.
- Seat belt use among younger passengers (age 16 to 24) in the rear seats decreased significantly to 68 percent in 2014 from 78 percent in 2013.
- Seat belt use in the rear seat continued to be significantly higher among the States with laws requiring belts to be used in all seating positions (80%) than those without such laws (66%) in 2014.

Child Restraint Use (For Children From Birth to 7 Years Old):

- Restraint use for children from birth to 7 years old in 2014 is 91 percent, compared to 89 percent in 2013.

- In states that require children from birth to 7 years old to be in the rear seat, children in rear seats were restrained at the rate of 97 percent in 2014; this was a significant increase from 93 percent in 2013.
- Restraint use for children driven by belted drivers continued to be significantly higher (93%) than for children driven by unbelted drivers (72%) in 2014.

1. Introduction

The National Occupant Protection Use Survey is the only nationwide probability-based survey of seat belt use (for occupants 8 and older in both front and rear seats), motorcycle helmet use, child restraint use (for children under 8 years old), and driver electronic device use in the United States. The National Center for Statistics and Analysis of the National Highway Traffic Safety Administration conducts this survey annually. Two sub-surveys: the Moving Traffic (MT) Survey and the Controlled Intersection (CI) Study comprise the NOPUS.

In the MT survey, front-seat occupant shoulder belt use data and motorcyclist helmet use data are collected either at the roadside or, in the case of expressways, by data collectors in vehicles. NOPUS derives its major estimates of front-seat belt use and motorcycle helmet use from the MT survey. NHTSA published the front-seat belt use results from the 2014 NOPUS MT survey in February 2015.[1] In contrast, the CI study data is collected at intersections controlled by stop signs or stoplights, where vehicle occupants are observed from the roadside. Only stopped vehicles are observed due to time constraints restricting the amount of time available to collect the variety of information required by the survey. NOPUS derives its estimates of rear-seat belt use, child restraint use, driver electronic device use, and demographic characteristics of the vehicle occupants from the CI study.

Only motorcycles and passenger vehicles (passenger cars, pickup trucks, SUVs, and vans) without commercial or government markings are observed in the NOPUS (NOPUS does not record restraint use data for occupants of commercial vehicles, buses, taxis, or emergency vehicles). The population of interest includes all 50 States, the District of Columbia, with the sample observation sites consisting of Federal, State, county highways, residential streets, and rural roads. Data is collected only during daylight hours when light is adequate to observe seat belt use through the vehicle windshield.

The 2014 NOPUS data collection was conducted between 7 a.m. and 6 p.m. during the period from June 2, 2014, to June 27, 2014. The 2014 NOPUS survey data is based on the results of 50,736 occupants observed in 35,992 vehicles at 1,379 data collection sites. Of these observed occupants, 2,441 were children under 8. More details on the NOPUS sampling, data collection and estimation are discussed in Section 5: NOPUS Methodology.

Please note that the terms “significant” and “statistically significant” are used interchangeably throughout this report. “Significant” always means “statistically significant” and the statistical significance level is 0.1.

2. Demographic Results

The national seat belt use in 2014 stood at 87 percent, unchanged from 2013.[2] This section presents the demographic breakdown of the occupants who used seat belts in 2014. Table 1 on page 5 presents results of passenger vehicle occupant seat belt use by demographic and other characteristics in 2013 and 2014, as well as the changes between the two years. Some major results are highlighted below.

Age

There was no significant change in seat belt use among occupants for all four age groups: 8 to 15 years old, 16 to 24 years old, 25 to 69 years old, and 70 and older, from 2013 to 2014. Figure 1 shows a comparison of the seat belt use rates between 2013 and 2014 across these age groups.

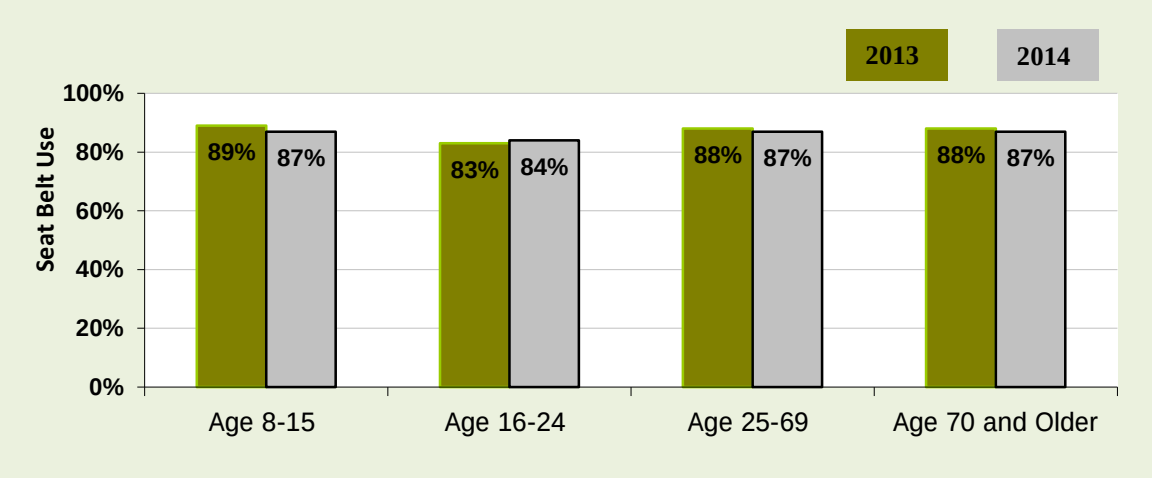

Figure 1: Seat Belt Use by Age for Occupants 8 and Older in 2013 and 2014

Figure 2 displays the trends of seat belt use for the four age groups over a period of 10 years (2005 to 2014). It shows that in 2014, seat belt use continued to be lower among 16- to 24-year-olds than other age groups.

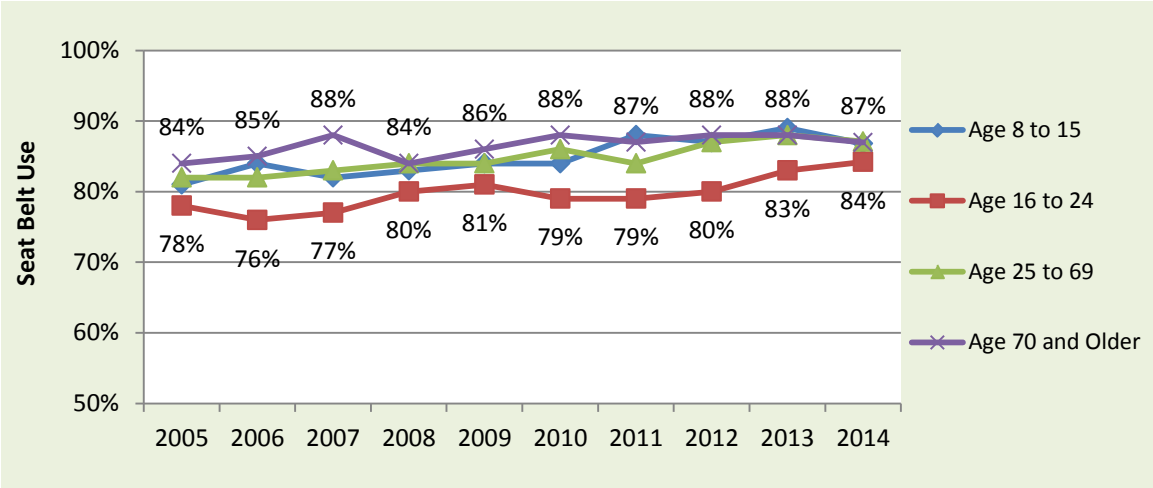

Figure 2: Seat Belt Use by Age for Occupants 8 and Older, 2005-2014

Gender

Figure 3 shows the trends of seat belt use for male and female occupants over a period of 10 years (2005 to 2014). In 2014, seat belt use continued to be lower for males (84%) than females (89%).

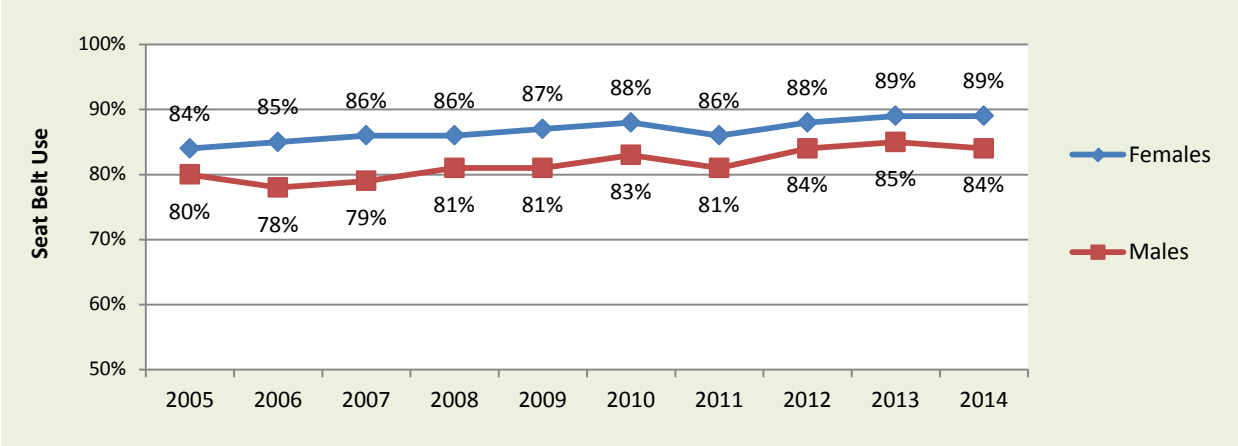

Figure 3: Seat Belt Use by Gender for Occupants 8 and Older, 2005-2014

Race

In NOPUS, vehicle occupant race is recorded as: black, white, and members of other races. The characterization is based on the visual assessment of the data collectors who observe vehicle occupants from roadsides.

Figure 4 shows the trends of seat belt use among occupants who are white, black, and members of other races over a period of 10 years (2005 to 2014). In 2014, seat belt use continued to be lower among black occupants than occupants of the other race groups. Seat belt use for members of other races was significantly higher than for the other two groups.

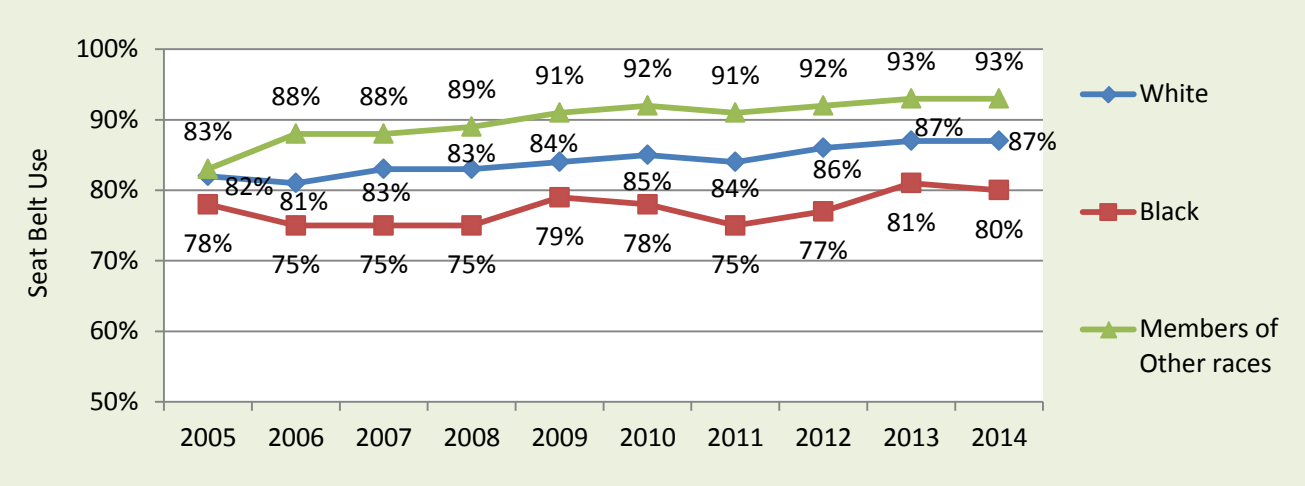

Figure 4: Seat Belt Use by Race for Occupants 8 and Older, 2005-2014

Presence of Passengers and Seat Belt Use

Figure 5 shows that seat belt use continued to be lower among drivers driving alone than for drivers driving with passengers.

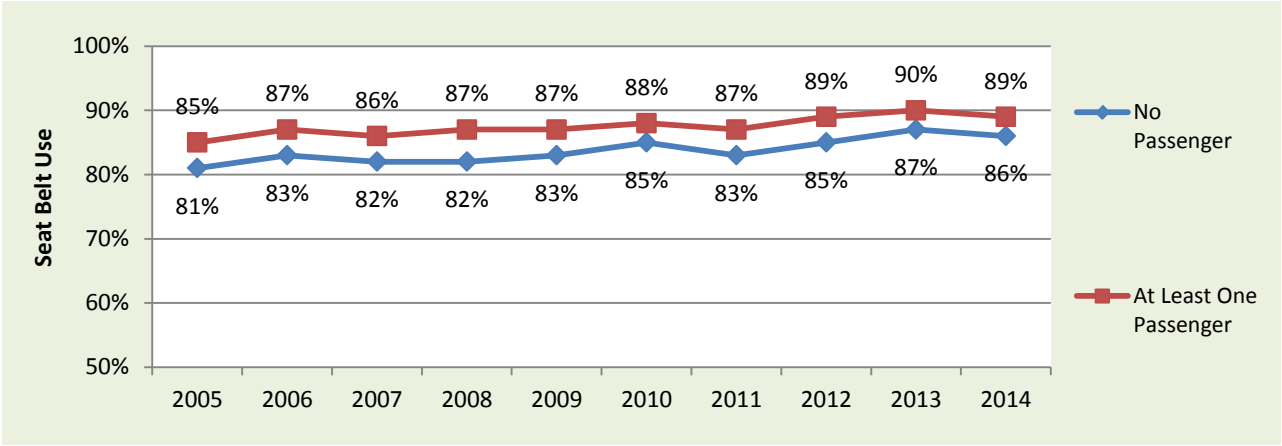

Figure 5: Passenger Effect on Seat Belt Use for Occupants 8 and Older, 2005-2014

As shown in Table 1, seat belt use among younger drivers 16 to 24 with younger passengers also 16 to 24 was 84 percent in 2014 compared to 83 percent in 2013. Drivers 16 to 24 with no passengers had a lower seat belt use rate than drivers with at least one passenger in 2014.

Table 1: Passenger Vehicle Occupant Seat Belt Use by Demographic and Other Characteristics

Occupant Group[1]	2013		2014		2013 - 2014 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 Percentage[4]
All Occupants	87%		87%		0	51%
Males[5]	85%	**100%**	84%	**100%**	-1	80%
Females[5]	89%	**100%**	89%	**100%**	0	8%
Occupants by Age Group[5]						
8 to 15	89%	88%	87%	52%	-2	67%
16 to 24	83%	**100%**	84%	**99%**	1	64%
25 to 69	88%	**100%**	87%	**98%**	-1	74%
70 and Older	88%	69%	87%	58%	-1	44%
Occupants by Race[5]						
White	87%	66%	87%	71%	0	51%
Black	81%	**99%**	80%	**100%**	-1	30%
Members of Other Races	93%	**100%**	93%	**100%**	0	5%
Drivers With						
No Passengers	87%	**100%**	86%	**100%**	-1	77%
At Least One Passenger	90%	**100%**	89%	**100%**	-1	73%
Drivers With						
No Passengers	87%	**100%**	86%	**100%**	-1	77%
Passengers All Under 8	90%	**94%**	89%	**91%**	-1	27%
Passengers All 8 and Older	90%	**100%**	89%	**100%**	-1	69%
Some Passengers Under 8 and Some 8 or Older	91%	**100%**	90%	**99%**	-1	53%
Drivers 16-24 With						
No Passengers	84%	82%	83%	**95%**	-1	29%
Passengers All 16-24	85%	56%	88%	**95%**	3	65%
At Least One Passenger Not 16-24	87%	**93%**	86%	82%	-1	24%
Occupants 16-24 When						
All Occupants Are 16-24	83%	68%	84%	70%	1	58%
At Least One Occupant Is Not 16-24	84%	68%	85%	70%	1	42%

[1] Drivers and right-front passengers of passenger vehicles with no commercial or government markings.
[2] Use of shoulder belts observed between 7 a.m. and 6 p.m.
[3] The statistical confidence that seat belt use in the occupant group (e.g., occupants who are members of other races) is higher or lower than use in the corresponding complementary occupant groups (e.g., combined black and white occupants). Confidences that meet or exceed 90 percent are formatted in boldface type. Confidences are rounded to the nearest percentage point, and so confidences reported as "100 percent" are between 99.5 percent and 100 percent.
[4] The degree of statistical confidence that the 2014 use rate is different from the 2013 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
[5] The age, gender, and racial classifications are based on the subjective assessments of roadside observers.
Source: NOPUS

3. Seat Belt Use in Rear Seats

Not all vehicles on the road today have shoulder belts in the rear seats. Based on the 2010 vehicle registration data from the National Vehicle Population Profile, R.L. Polk & Co., NHTSA estimated that 92 percent of passenger vehicles on the road have shoulder belts in the rear outboard seating positions. Of the 8 percent of vehicles that have only lap belts in the rear outboard seats, all observed rear-seat vehicle occupants are counted by NOPUS as *not using shoulder belts*, even if they are using lap belts. Consequently, NOPUS rear-seat shoulder belt use estimates reflect both the degree to which vehicle occupants use restraints and the availability of shoulder belts in these seating positions. Please note that NOPUS only observes up to two passengers in the second row of seats and none in the third row and beyond.

Table 3 on page 8 presents results of seat belt use in the rear seat of passenger vehicles in 2013 and 2014 as well as the changes between the two years. Some major results are highlighted below.

Seat Belt Use in Rear Seats Versus in Front Seats

Figure 6 displays the front and rear seat belt use trends from 2005 to 2014. As in previous years, seat belt use in 2014 was lower in the rear seat (73%) than in the front seat (87%).

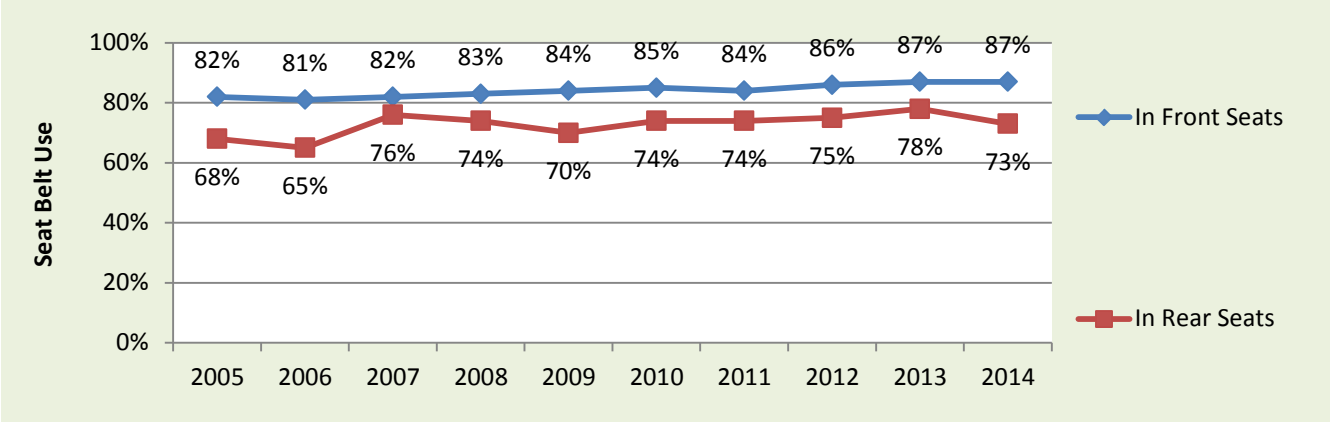

Figure 6: Seat Belt Use by Seating Position for Occupants 8 and Older, 2005-2014

Similar to the younger occupants 16 to 24 in the front seats, the seat belt use among younger passengers also 16 to 24 in the rear seats also decreased significantly to 68 percent in 2014 from 78 percent in 2013.

State Laws and Rear-Seat Belt Use

At the time the 2014 NOPUS survey was conducted, 27 States and the District of Columbia required all vehicle occupants 18 and older to use seat belts when riding in the rear seats.[3] Please note that rear-seat belt use laws are secondary in Arizona, Colorado, Idaho, Massachusetts, Missouri, Montana, Nebraska, Nevada, North Dakota, Ohio, Pennsylvania, South Dakota, Utah, Vermont, Virginia, and Wyoming. Secondary seat belt laws state that law enforcement officers

may issue a ticket for not wearing a seat belt only when there is another citable traffic infraction. Table 2 provides a list of States requiring seat belts be used in all seating positions.

Table 2: States With Laws Requiring Seat Belts Be Used in All Seating Positions

Alaska	California	Delaware
District of Columbia	Hawaii	Idaho
Illinois	Indiana	Kansas
Louisiana	Maine	Maryland
Massachusetts	Minnesota	Montana
Nevada	New Jersey	New Mexico
North Carolina	Oregon	Rhode Island
South Carolina	Texas	Utah
Vermont	Washington	Wisconsin
Wyoming		

States with laws in effect as of June 27, 2014, requiring people 18 and older to use seat belts in all seating positions. Also includes the District of Columbia.

Figure 7 shows the trends of rear-seat belt use among passengers in the States with or without laws requiring belt use in all seating positions over a period of 10 years (2005 to 2014). As in previous years, seat belt use in rear seats in 2014 was higher in the States with laws requiring belt use in all seating positions (80%) than in the States requiring belt use only in the front seat (66%).

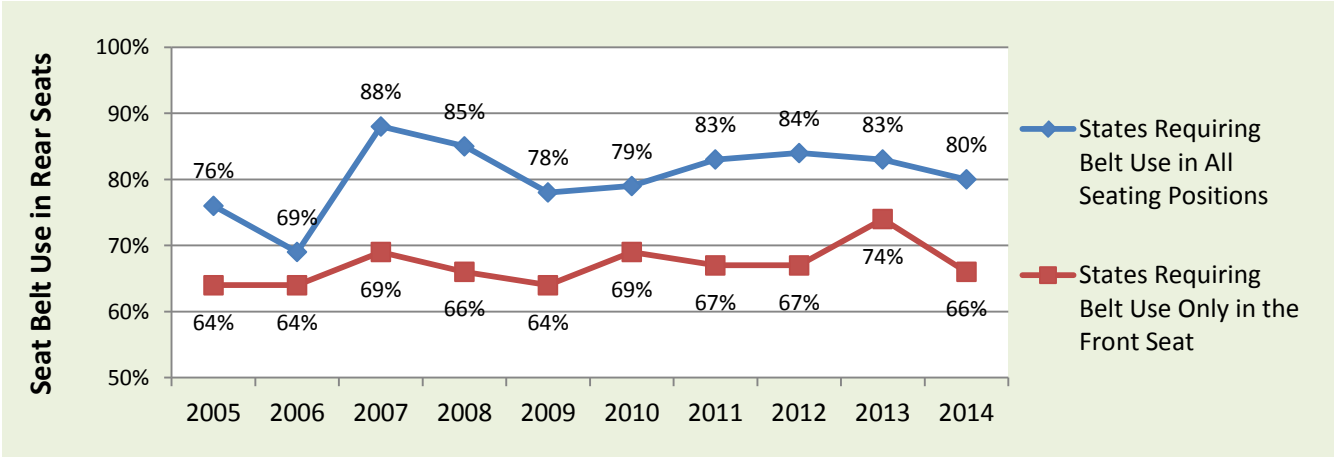

Figure 7: Seat Belt Use in Rear Seats by State Law Type for Occupants 8 and Older, 2005-2014

Table 3: Seat Belt Use in the Rear Seat of Passenger Vehicles, by Major Characteristics

Passenger Group[1]	2013		2014		2013 – 2014 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 Percentage[4]
All Passengers	78%		73%		-5	**99%**
Males[5]	74%	**99%**	71%	87%	-3	63%
Females[5]	82%	**99%**	75%	87%	-7	**99%**
Passengers by Age Group [5]						
8 to 15	83%	**100%**	82%	**100%**	-1	12%
16 to 24	78%	64%	68%	**99%**	-10	**99%**
25 to 69	73%	**100%**	64%	**100%**	-9	**98%**
70 and Older	82%	75%	81%	**97%**	-1	14%
Passengers by Race [5]						
White	80%	**100%**	73%	68%	-7	**99%**
Black	62%	**100%**	59%	**98%**	-3	31%
Members of Other Races	78%	52%	78%	84%	0	1%
Passengers in States With Laws Requiring Belts Be Used						
In All Seating Positions	83%	**94%**	80%	**99%**	-3	68%
In the Front Seat Only	74%	**94%**	66%	**99%**	-8	**98%**

[1] Up to two passengers observed in the second row of seats in passenger vehicles with no commercial or government markings.
[2] Use of shoulder belts observed between 7 a.m. and 6 p.m.
[3] The statistical confidence that seat belt use in the passenger group (e.g., passengers who are members of other races) is higher or lower than use in the corresponding complementary passenger groups (e.g., combined black and white passengers). Confidences that meet or exceed 90 percent are formatted in boldface type. Confidences are rounded to the nearest percentage point, and so confidences reported as "100 percent" are between 99.5 percent and 100.0 percent.
[4] The degree of statistical confidence that the 2014 use rate is different from the 2013 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
[5] The age, gender, and racial classifications are based on the subjective assessments of roadside observers.
Source: NOPUS

4. Child Restraint Use

In 2014, NOPUS continued to collect roadside observational data on child restraint use for all children under 8 years old. Detailed results of child restraint use are presented in Tables 5, 6, and 7. Table 5 on page 13 presents the results of child restraint use in passenger motor vehicles by major characteristics in 2013 and 2014 as well as the changes between the two years. Table 7 on page 15 divides the occupants into three age groups and reports restraint use by some other characteristics among these groups. Table 6 on page 14 presents results on child rear placement by major characteristics in 2013 and 2014 as well as the changes between the two years. Some of the major results of child restraint use are discussed below.

Child Restraint Use Among All Children Under 8

Restraint use for children under 8 in 2014 is 91 percent, up from 89 percent in 2013. Figure 8 shows the child restraint use trend since 2005.

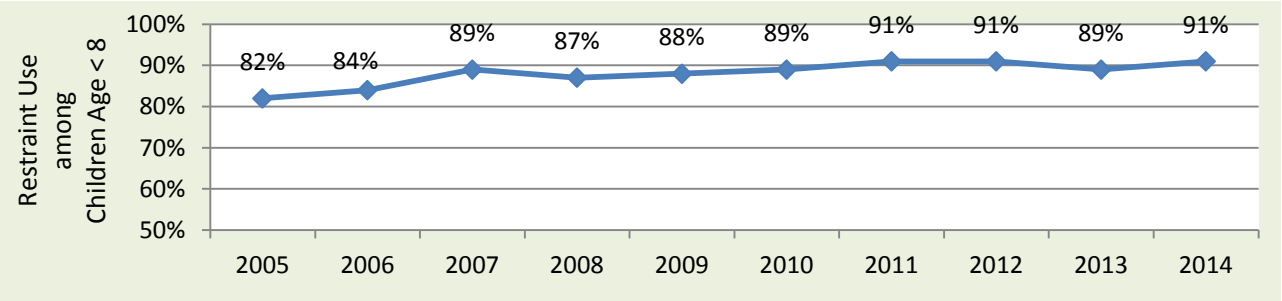

Figure 8: Child Restraint Use Among Children Under 8, 2005-2014

Child Rear Seat Placement

Figure 9 shows the trends of rear seat placement of children under age 8 between 2005 and 2014. The 2014 NOPUS found that 93 percent of children under 8 rode in the rear seats of vehicles. In the infant group (from birth to 12 months), 100 percent rode in the rear seat. Ninety-nine percent of 1- to 3-year-olds and 88 percent of 4- to 7-year-olds were in the rear seats in 2014. Note that the child restraint use in the rear seats increased to 92 percent in 2014 from 90 percent in 2013 (Table 5).

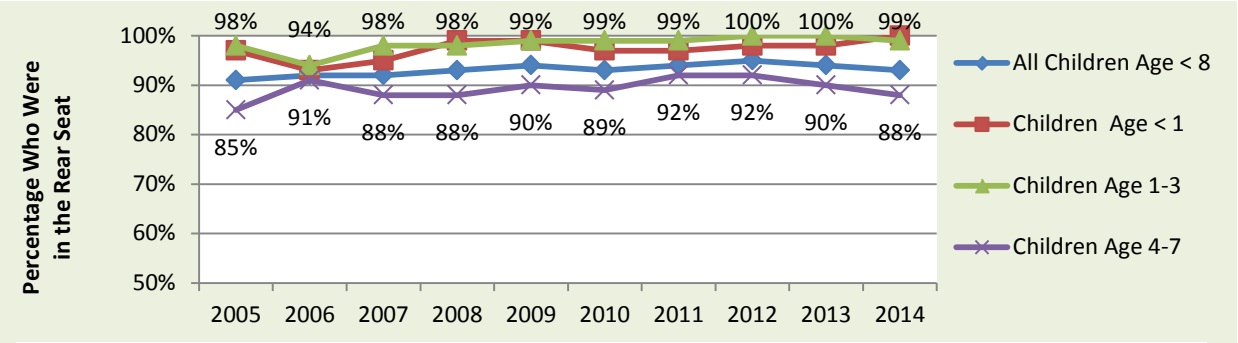

Figure 9: Child Rear Seat Placement, 2005 - 2014

At the time the 2014 survey was conducted, 9 States required children 5 and younger who weighed less than 80 pounds and were less than 54 inches tall to ride in the rear seats of vehicles. Table 4 lists the States with child rear placement laws.

Table 4: States With Laws Requiring Children 5 and Younger Be in the Rear Seat*

California	Georgia	Maine
New Jersey	Rhode Island	South Carolina
Tennessee	Washington	Wyoming

* Among children less than 80 pounds and less than 54" tall. States with laws in effect as of June 27, 2014. In no other States did such laws take effect during the period June 13, 2013, to June 27, 2014. In Delaware, children 11 and younger and 65 inches or less must be the rear seat if passenger air bag is active.

Child Restraint Use by Region

Seat belt use among children increased significantly to 88 percent in 2014 from 81 percent in 2013 in the South. There were no significant changes in child restraint use from 2013 to 2014 in the other three regions (Northeast, Midwest, and West), as shown in Figure 10.

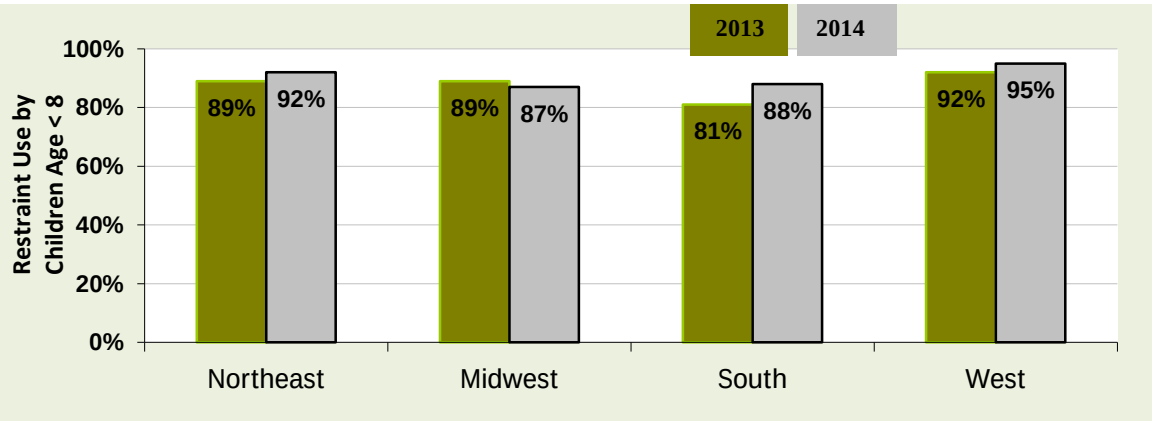

Figure 10: Child Restraint Use by Region in 2013 and 2014

Figure 11 shows that child restraint use continued to be higher in the West than in the other regions in 2014.

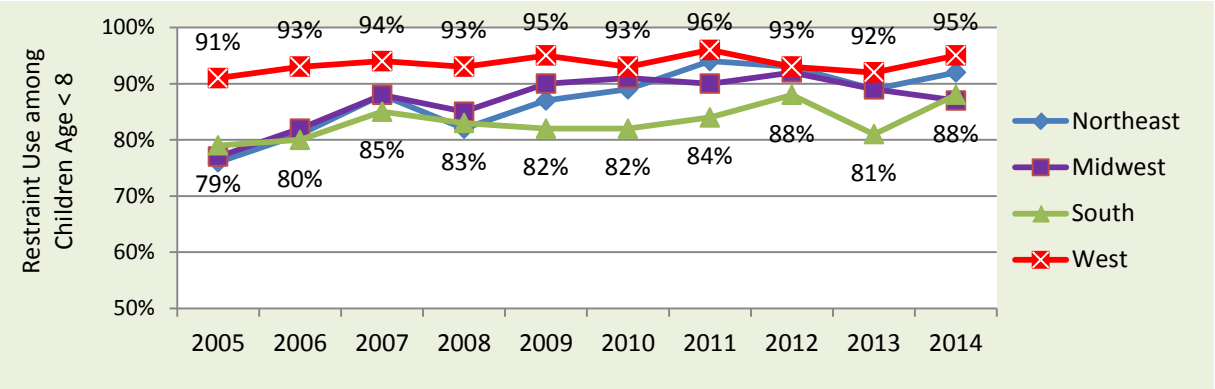

Figure 11: Child Restraint Use by Region, 2005-2014

Child Restraint Use by Time of Week

Seat belt use among child passengers increased significantly to 92 percent in 2014 from 89 percent in 2013 during weekdays. There were no significant changes in child restraint use from 2013 to 2014 during other time periods of the week, as shown in Figure 12.

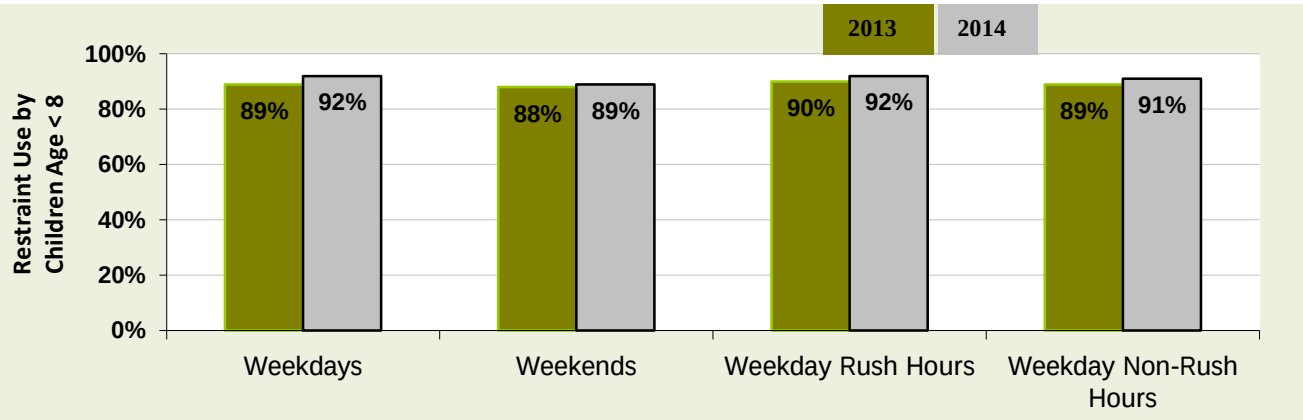

Figure 12: Child Restraint Use by Time of Week in 2013 and 2014

Child Restraint Use by Vehicle Type

As shown in Figure 13, restraint use for children traveling in vans and SUVs increased significantly from 91 percent in 2013 to 94 percent in 2014.

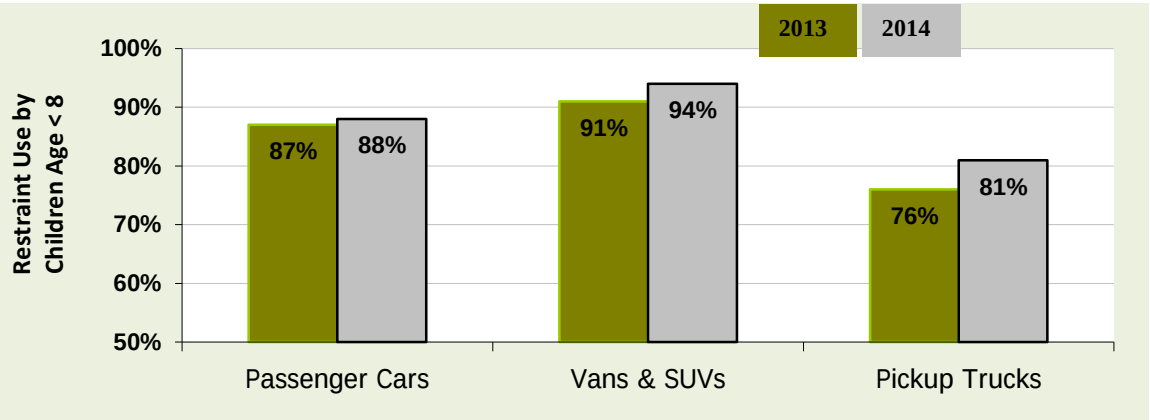

Figure 13: Child Restraint Use by Vehicle Type in 2013 and 2014

Child Restraint Use by Driver Type and Belt Status

Table 5 shows that the restraint use for children driven by male drivers and drivers 25 to 69 increased significantly, from 87 percent in 2013 to 91 percent in 2014 for male drivers and from 89 percent in 2013 to 92 percent in 2014 for drivers 25 to 69, respectively.

As shown in Figure 14, restraint use for children driven by belted drivers continued to be significantly higher than for those driven by unbelted drivers.

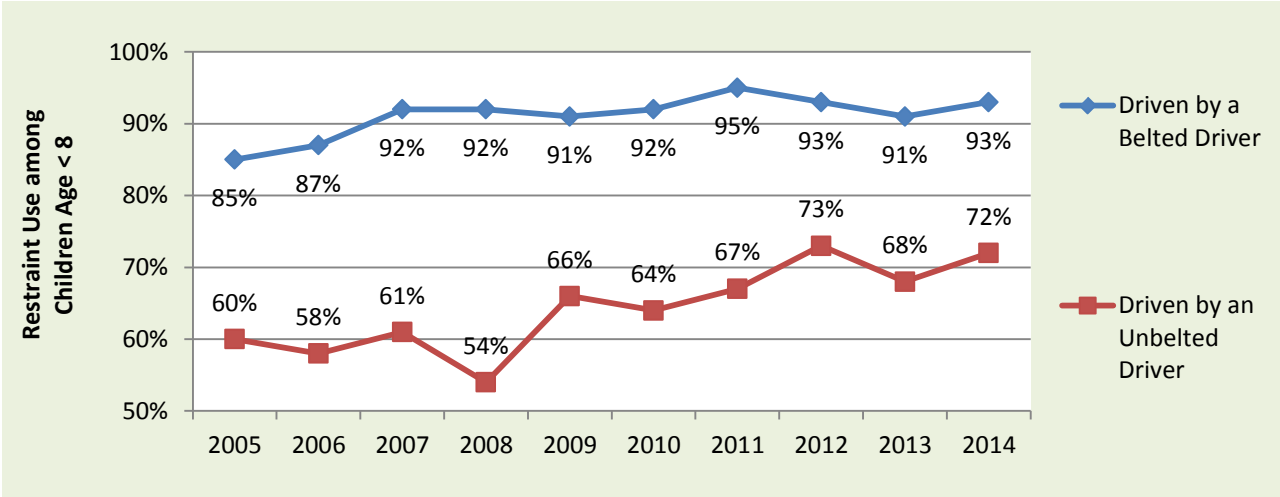

Figure 14: Child Restraint Use by Driver Belt Status, 2005-2014

Table 5: Child Restraint Use in Passenger Motor Vehicles, by Major Characteristics

Child Passenger Group[1]	2013		2014		2013–2014 Change	
	Restraint Use[2]	Confidence That Use Is High or Low in Group[3]	Restraint Use[2]	Confidence That Use Is High or Low in Group[3]	Change in Percentage Points	Confidence in a Change in Use[4]
All Child Passengers (From Birth to 7 Years)	89%		91%		2	82%
Children Driven by						
a Belted Driver	91%	**100%**	93%	**100%**	2	89%
an Unbelted Driver	68%	**100%**	72%	**100%**	4	45%
a Male Driver	87%	**98%**	91%	53%	4	**98%**
a Female Driver	90%	**98%**	91%	53%	1	35%
a Driver 16 to 24	84%	**96%**	83%	89%	-1	6%
a Driver 25 to 69	89%	**97%**	92%	90%	3	**93%**
a Driver 70 and Older	83%	67%	90%	58%	7	37%
a White Driver	89%	**94%**	91%	75%	2	65%
a Black Driver	77%	**100%**	85%	**92%**	8	82%
a Driver who is a Member of Other Races	91%	83%	93%	80%	2	32%
Children in						
the Front Seat	66%	**100%**	82%	**97%**	16	88%
the Rear Seat	90%	**100%**	92%	**97%**	2	57%
Child Passengers on						
Expressways	89%	58%	91%	54%	2	37%
Surface Streets	88%	58%	91%	54%	3	85%
Child Passengers Traveling in						
Fast Traffic	91%	**98%**	90%	72%	-1	27%
Medium-Speed Traffic	88%	69%	91%	53%	3	85%
Slow Traffic	85%	**94%**	93%	83%	8	**98%**
Child Passengers in						
Passenger Cars	87%	88%	88%	**98%**	1	29%
Vans & SUVs	91%	**99%**	94%	**100%**	3	**94%**
Pickup Trucks	76%	**100%**	81%	**100%**	5	59%
Child Passengers in the						
Northeast	89%	62%	92%	73%	3	56%
Midwest	89%	58%	87%	83%	-2	30%
South	81%	**99%**	88%	85%	7	**92%**
West	92%	**99%**	95%	**97%**	3	86%
Child Passengers in						
Urban Areas	85%	88%	91%	55%	6	81%
Suburban Areas	91%	**98%**	94%	**98%**	3	**99%**
Rural Areas	87%	81%	86%	**95%**	-1	27%
Child Passengers Traveling During						
Weekdays	89%	76%	92%	76%	3	**93%**
Rush Hours	90%	68%	92%	76%	2	90%
Non-Rush Hours	89%	68%	91%	76%	2	74%
Weekends	88%	76%	89%	76%	1	30%

[1] Passengers under age 8 observed between 7 a.m. and 6 p.m. in the right-front seat or the second row of seats in passenger vehicles with no commercial or government markings that are stopped at a stop sign or stoplight. Age, gender, and racial classifications are based on the subjective assessments of roadside observers.

[2] Use of child car seats (forward- or rear-facing), booster seats, and seat belts.

[3] The statistical confidence that seat belt use in the passenger group (e.g., child passengers in the Northeast) is higher or lower than use in the corresponding complementary passenger group (e.g., combined child passengers in the Midwest, in the South and in the West). Confidences that meet or exceed 90 percent are formatted in boldface type. Confidences are rounded to the nearest percentage point, and so confidences reported as "100 percent" are between 99.5 percent and 100.0 percent.

[4] The degree of statistical confidence that the 2014 use rate is different from the 2013 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.

Source: NOPUS

Table 6: The Percent of Children Who Rode in the Rear Seat, by Major Characteristics

Child Passenger Group[1]	2013		2014		2013–2014 Change	
	Percentage Who Were in Rear Seat[2]	Confidence That Use Is High or Low in Group[3]	Percentage Who Were in Rear Seat[2]	Confidence That Use Is High or Low in Group[3]	Change in Percentage Points	Confidence in a Change in Rear Seat Occupancy[4]
All Child Passengers (From Birth to 7 Years)	94%		93%		-1	40%
0 (Infants)	98%	**99%**	100%	**100%**	2	75%
1-3	100%	**100%**	99%	**100%**	-1	81%
4-7	90%	**100%**	88%	**100%**	-2	61%
Child Passengers in States With[5]						
Law Requiring Children From Birth of 5 Years Be in the Rear Seat	93%	78%	97%	**100%**	4	**100%**
No Such Law	94%	78%	92%	**100%**	-2	86%
Children Driven by						
a Belted Driver	94%	**97%**	94%	**100%**	0	21%
an Unbelted Driver	89%	**97%**	86%	**100%**	-3	70%
a Male Driver	95%	75%	93%	57%	-2	39%
a Female Driver	94%	75%	93%	57%	-1	33%
a Driver 16 to 24	94%	51%	97%	**98%**	3	74%
a Driver 25 to 69	94%	79%	93%	**97%**	-1	55%
a Driver 70 and Older	83%	81%	94%	55%	11	59%
a White Driver	94%	**94%**	94%	**94%**	0	8%
a Black Driver	99%	**100%**	89%	**92%**	-10	**100%**
a Driver who is a Member of Other Races	94%	56%	92%	67%	-2	31%
Child Passengers on						
Expressways	97%	**100%**	96%	**100%**	-1	43%
Surface Streets	92%	**100%**	91%	**100%**	-1	44%
Child Passengers Traveling in						
Fast Traffic	96%	**100%**	95%	**95%**	-1	49%
Medium-Speed Traffic	94%	63%	92%	82%	-2	84%
Slow Traffic	88%	**99%**	91%	**93%**	3	59%
Child Passengers in						
Passenger Cars	95%	**100%**	94%	77%	-1	66%
Vans & SUVs	95%	**99%**	95%	**98%**	0	34%
Pickup Trucks	72%	**100%**	78%	**100%**	6	56%
Child Passengers in the						
Northeast	97%	**100%**	95%	**91%**	-2	81%
Midwest	95%	70%	95%	89%	0	19%
South	92%	84%	91%	83%	-1	31%
West	93%	74%	92%	72%	-1	23%
Child Passengers in						
Urban Areas	96%	**99%**	93%	51%	-3	68%
Suburban Areas	94%	74%	93%	58%	-1	20%
Rural Areas	93%	77%	93%	60%	0	10%
Child Passengers Traveling During						
Weekdays	93%	**100%**	93%	70%	0	5%
Rush Hours	93%	70%	93%	63%	0	24%
Non-Rush Hours	93%	70%	93%	63%	0	15%
Weekends	96%	**100%**	94%	70%	-2	85%
Child Passengers in a						
Rear-Facing Car Seat	100%	**100%**	100%	**100%**	0	69%
Forward-Facing Car Seat	100%	**100%**	99%	**100%**	-1	79%
High-Backed Booster Seat	100%	**100%**	99%	**100%**	-1	61%
Seat belt or Backless Booster Seat	90%	**100%**	86%	**100%**	-4	74%
No Restraint Observed	82%	**100%**	86%	**97%**	4	47%

[1]Passengers under 8 observed between 7 a.m. and 6 p.m. in the right-front seat or the second row of seats in passenger vehicles with no commercial or government markings that are stopped at a stop sign or stoplight. Age, gender, and racial classifications are based on the subjective assessments of roadside observers.

[2] The percentage of the child passenger group who were in the second row of seats at the time of observation.

[3] The statistical confidence that seat belt use in the passenger group (e.g., child passengers in the Northeast) is higher or lower than use in the corresponding complementary passenger group (e.g., combined child passengers in the Midwest, in the South and in the West). Confidences that meet or exceed 90 percent are formatted in boldface type. Confidences are rounded to the nearest percentage point, and so confidences reported as "100 percent" are between 99.5 percent and 100.0 percent.

[4] The degree of statistical confidence that the percentage of the child passenger group who were in the rear seat in 2014 is different from the analogous percentage from 2013.

[5] Use rates reflect the law in effect at the time data was collected.

Source: NOPUS

Table 7: Child Restraint Use in Passenger Motor Vehicles, by Age and Other Characteristics

Child Passenger Group[1]	2013		2014		2013–2014 Change	
	Restraint Use[2]	Confidence That Use Is High or Low in Group[3]	Restraint Use[2]	Confidence That Use Is High or Low in Group[3]	Change in Percentage Points	Confidence in a Change in Use[4]
Infants (From Birth to 12 Months)						
Infants Driven by						
a Belted Driver	96%	70%	97%	89%	1	18%
an Unbelted Driver	91%	70%	100%	89%	9	74%
a Male Driver	87%	**97%**	92%	90%	5	37%
a Female Driver	100%	**97%**	100%	90%	0	0%
Infants in						
Passenger Cars	97%	80%	100%	88%	3	86%
Vans & SUVs	97%	83%	94%	88%	-3	40%
Pickup Trucks	71%	88%	100%	89%	29	82%
Infants in the						
Northeast	95%	53%	100%	89%	5	82%
Midwest	94%	61%	88%	85%	-6	35%
South	88%	79%	100%	86%	12	72%
West	100%	**95%**	99%	80%	-1	34%
Infants in						
Urban Areas	95%	52%	98%	62%	3	51%
Suburban Areas	97%	79%	100%	88%	3	67%
Rural Areas	91%	75%	89%	84%	-2	14%
Children 1 to 3						
Children 1-3 Driven by						
a Belted Driver	94%	**99%**	97%	**97%**	3	84%
an Unbelted Driver	80%	**99%**	79%	**97%**	-1	4%
a Male Driver	95%	88%	98%	82%	3	77%
a Female Driver	92%	88%	94%	82%	2	44%
Children 1-3 in						
Passenger Cars	91%	**95%**	93%	87%	2	28%
Vans & SUVs	95%	**93%**	98%	89%	3	81%
Pickup Trucks	96%	79%	95%	55%	-1	14%
Children 1-3 in the						
Northeast	94%	58%	97%	77%	3	86%
Midwest	96%	87%	86%	**92%**	-10	70%
South	92%	59%	99%	**96%**	7	**97%**
West	91%	80%	98%	87%	7	**96%**
Children 1-3 in						
Urban Areas	84%	**98%**	96%	56%	12	**97%**
Suburban Areas	94%	83%	97%	89%	3	89%
Rural Areas	98%	**100%**	91%	85%	-7	71%
Children 4 to 7						
Children 4-7 Driven by						
a Belted Driver	88%	**100%**	89%	**100%**	1	58%
an Unbelted Driver	57%	**100%**	63%	**100%**	6	43%
a Male Driver	82%	**98%**	87%	71%	5	**91%**
a Female Driver	86%	**98%**	86%	71%	0	22%
Children 4-7 in						
Passenger Cars	83%	88%	83%	**99%**	0	13%
Vans & SUVs	88%	**98%**	92%	**100%**	4	80%
Pickup Trucks	71%	**99%**	73%	**100%**	2	21%
Children 4-7 in the						
Northeast	85%	54%	87%	59%	2	25%
Midwest	84%	56%	87%	55%	3	33%
South	75%	**99%**	81%	**94%**	6	64%
West	91%	**100%**	91%	**96%**	0	8%
Children 4-7 in						
Urban Areas	83%	64%	84%	68%	1	9%
Suburban Areas	87%	**93%**	90%	**98%**	3	82%
Rural Areas	82%	86%	82%	**93%**	0	2%

[1] Passengers under 8 observed between 7 a.m. and 6 p.m. in the right-front seat or the second row of seats in passenger vehicles with no commercial or government markings that are stopped at a stop sign or stoplight. Age, gender, and racial classifications are based on the subjective assessments of roadside observers.

[2] Use of child car seats (forward- or rear-facing), booster seats, and seat belts.

[3] The statistical confidences that seat belt use in the passenger group (e.g., child passengers in the Northeast) is higher or lower than use in the corresponding complementary passenger group (e.g., combined child passengers in the Midwest, in the South and in the West). Confidences that meet or exceed 90 percent are formatted in boldface type. Confidences are rounded to the nearest percentage point, and so confidences reported as "100 percent" are between 99.5 percent and 100.0 percent.

[4] The degree of statistical confidence that the 2014 use rate is different from the 2013 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.

Source: NOPUS

5. NOPUS Methodology

This section briefly discusses the sample design, data collection, and estimation used in the 2014 NOPUS Controlled Intersection Study. Data collection, estimation, and variance estimation for NOPUS are conducted by Westat, Inc., under the direction of the NCSA under Federal contract number DTNH22-13-D-00284.

Sample Design

The NOPUS uses a complex multistage probability sample, statistical data editing, imputation for unknown values, and complex estimation procedures. The sample sites for the 2014 NOPUS were entirely from the 2006 NOPUS sample redesign without incorporating any sites from the old design. During the transitional years between 2006 and 2010, sample sites were chosen both from the new design and the old design. Prior to 2006, sample sites were from the old design only.

The NOPUS sample was selected using a two-stage design with stratified probability proportional to size (PPS) sampling at each stage. The sampling frame of PSUs for the 2006 redesigned sample included all counties in the U.S. but excluded Puerto Rico and the U.S. Territories. In the redesigned sample, only one PSU was designated as a certainty sampling unit (i.e., probability one) due to its large vehicle miles traveled (VMT). In order to decrease the variances associated with the survey estimates, the remaining PSUs were stratified according to their predicted rates of restraint use based on a regression model that used primary enforcement law status, ratio of fatal crashes to VMT, percentage of college graduates, and several other relevant variables as predictors. The non-certainty PSUs were selected by systematic PPS sampling from these primary strata using VMT as the measure of size. The secondary sampling units (SSUs) consisted of road segments that lie at least partly inside the selected PSUs. To define road segments, the selected PSUs were divided into grids, usually of one-acre in size.

Table 8 shows the observed sample sizes of the 2014 NOPUS. A total of 50,736 occupants were observed in 35,992 vehicles at 1,379 data collection sites. Of these observed occupants, 2,441 were children under 8. Please note that due to ineligibility, construction, danger in the area, or road closure, observations could not be completed at some of the sampled observation sites.

Table 8: Sites, Vehicles, and Occupants in the 2014 NOPUS

Numbers of	2013	2014	Percentage Change
Sites Observed	1,382	1,379	-0.22%
Vehicles Observed	37,428	35,992	-3.84%
Total Occupants	52,701	50,736	-3.73%
Occupants 8 and Older	50,078	48,295	-3.56%
In Front Seat	47,705	45,967	-3.64%
In Rear Seat	2,373	2,328	-1.90%
Occupants Under 8	2,623	2,441	-6.94%
Children Under 1	276	270	-2.17%
Children 1 to 3	852	807	-5.28%
Children 4 to 7	1,495	1,364	-8.76%

Data Collection

The 2014 NOPUS data collection was conducted during the period from June 2, 2014, to June 27, 2014.

In the NOPUS Controlled Intersection Study, trained data collectors observe restraint use of drivers and other occupants of passenger vehicles (passenger cars, pickup trucks, SUVs, and vans) having no commercial or government markings which have stopped at a stop sign or stoplight during daylight hours between 7 a.m. and 6 p.m. Observations are made both on the surface streets and at the ends of the expressway exit ramps (where there are controlled intersections). Only stopped vehicles are observed based on the time required to collect the variety of information required by the survey, including subjective assessments of the vehicle occupants' age and race. Observers collect data on the driver, right-front passenger, and up to two passengers in the second row of seats. Observers do not interview vehicle occupants intentionally, allowing NOPUS to capture the uninfluenced behavior of the occupants.

The NOPUS Controlled Intersection Study is always done following NOPUS Moving Traffic Survey and is usually scheduled for all surface streets and limited access highway ramps, where NOPUS data from previous years indicates that a controlled intersection exists. If the data collectors arrive at an assigned surface street site and the site is not controlled, they are instructed to search for an alternate data collection site further along the same road segment. After the data collectors have located a controlled intersection, they position themselves at the traffic signal or stop sign, facing the oncoming traffic from the side of the road. The data collectors walk in the direction of the oncoming traffic, away from the intersection to make their observations. When the traffic light turns green or they finish observing all vehicles, the data collectors return to the intersection to wait for the next traffic light cycle or next vehicle. They observe vehicles in the lane closest to their observational position, even if the closest lane is an exclusive turn lane (which is often the case at the controlled intersections.) When possible and if

visibility allows, the data collectors also observe the other lanes of traffic. The data collectors are instructed to record the first behavior of the driver in which they observe.

Estimation

NOPUS estimates the rate of occupants restrained in restraint type (R) among the occupants having characteristic (C) using the formula,

$$\text{Restraint Use}_{\mathrm{CR}} = \frac{\sum_{i,j,k} w_{ijk} F_{ijk} CR_{ijk}}{\sum_{i,j,k} w_{ijk} F_{ijk} C_{ijk}},$$

where w_{ijk} and F_{ijk}, respectively, denote the base weight and the product of various weight adjustment factors at the site k in the stratum j of the PSU i. CR_{ijk} stands for the number of observed occupants having characteristic C and restrained in restraint type R and C_{ijk} denotes the number of observed occupants having characteristic C at the site k in the stratum j of the PSU i. For example, the seat belt use by vehicle type is estimated using the above formula, where CR_{ijk} is the number of observed belted occupants in certain type of vehicles (such as passenger cars, vans & SUVs, or pickup trucks) and C_{ijk} is the number of ALL (belted and unbelted) occupants observed in that type of vehicles at the site k in the stratum j of the PSU i.

In certain instances, NHTSA does not provide estimates. These are typically restraint use estimates whose numerator is based on fewer than five persons observed, whose denominator is based on fewer than 30 people observed, or the estimates are not statistically different from 0 percent (i.e., the standard error is at least half the point estimate). These are reported as “NA” in publications. Any related estimate (i.e., change in use and confidence estimates) is not reported as well. The same criteria are used in reporting estimates from the National Survey of Use of Booster Seats (NSUBS).

6. References

[1] Pickrell, T. M., & Choi, E.-H. (2015, February). *Seat belt use in 2014 – Overall results* (Traffic Safety Facts Research Note. Report No. DOT HS 812 113). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/812113

[2] Pickrell, T. M., & Liu, C. (2014, January). *Seat belt use in 2013 – Overall results* (Report No. DOT HS 811 875). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/811875

[3] Highway Loss Data Institute. (2015, April). Safety belts (Web page). Arlington, VA: Insurance Institute for Highway Safety. Available at www.iihs.org/iihs/topics/laws/safetybeltuse?topicName=safety-belts

DOT HS 812 244
February 2016

U.S. Department
of Transportation

**National Highway
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11898-021616-v3