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Abstract

This report presents results from the 2012 National Occupanst 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 2012 NOPUS found that male seat belt use increased significantly (up to 84 percent in 2012 from 81 percent in 2011) and that female seat belt use increased significantly (up to 88 percent in 2012 from 86 percent in 2011). Seat belt use among occupants age 25-69 years old increased significantly (up to 87 percent in 2012 from 84 percent in 2011). Restraint use for children in vans and SUVs decreased significantly down to 94 percent in 2012 from 97 percent in 2011. Seat belt use in rear seats stood at 75 percent in 2012.

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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 less than 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 CI Study, occupants of passenger vehicles without commercial or government markings are observed from the roadside at intersections controlled by stop signs or stop lights. 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 2012 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 2012 NOPUS Controlled Intersection Study:

Front-Seat Belt Use Among Occupants 8 and Older:

- Seat belt use among male occupants increased significantly from 81 percent in 2011 to 84 percent in 2012, and use among female occupants increased significantly from 86 percent in 2011 to 88 percent in 2012.
- Seat belt use among occupants 25 to 69 years old increased significantly from 84 percent in 2011 to 87 percent in 2012.
- Seat belt use among White occupants increased significantly from 84 percent in 2011 to 86 percent in 2012.

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

- Seat belt use in the rear seat continued to be significantly lower among occupants 16 to 24 than other age groups in 2012.

- 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 than those without such laws in 2012.

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

- Restraint use for children from birth to 7 years old remained unchanged at 91 percent in 2012.
- Restraint use for children in vans and SUVs decreased significantly from 97 percent in 2011 to 94 percent in 2012.
- The rear-seat placement rate for children 1 to 3 increased significantly to 100 percent in 2012 from 99 percent in 2011.

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 less than 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 Survey and the Controlled Intersection 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 2012 NOPUS MT Survey in November 2012.[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 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 2012 NOPUS data collection was conducted between 7 a.m. and 6 p.m. from June 4 to June 17, 2012. The 2012 NOPUS survey data is based on the results of 53,943 occupants observed in 37,813 vehicles at 1,366 data collection sites. Of these observed occupants, 3,062 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 estimate was 86 percent in 2012, a statistically significant increase from 84 percent in 2011.[1] This section presents the demographic breakdown of the occupants who used seat belts in 2012. Although the NOPUS controlled intersection data is collected solely from vehicles stopped at intersections controlled by stop signs or stoplights, the estimates in this publication concerning seat belt use in the front seat reflect use by occupants in transit on all types of roadways; this is accomplished by making adjustments using data from the MT Survey.

Table 1 presents results of passenger vehicle occupant seat belt use by demographic and other characteristics in 2011 and 2012, as well as the changes between the two years. Some major results are highlighted below.

Age

In 2012, seat belt use among occupants 25 to 69 years old increased significantly from 84 percent in 2011 to 87 percent in 2012. There was no significant change in seat belt use from the other age groups: 8 to 15 years old, 16 to 24, 25 to 69, and 70 and older. Figure 1 shows a comparison of the seat belt use rates between 2011 and 2012 across these age groups.

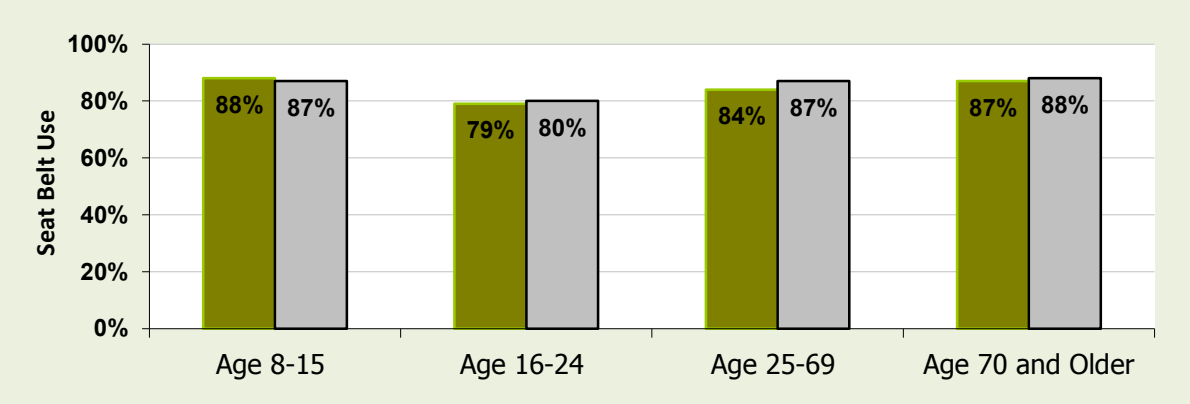

Figure 1: Seat Belt Use by Age for Occupants 8 and Older in 2011 and 2012

Figure 2 displays the trends of seat belt use for the four age groups over 10 years (2003 to 2012). It shows that in 2012, seat belt use continued to be lower among 16- to 24-year-olds than other age groups.

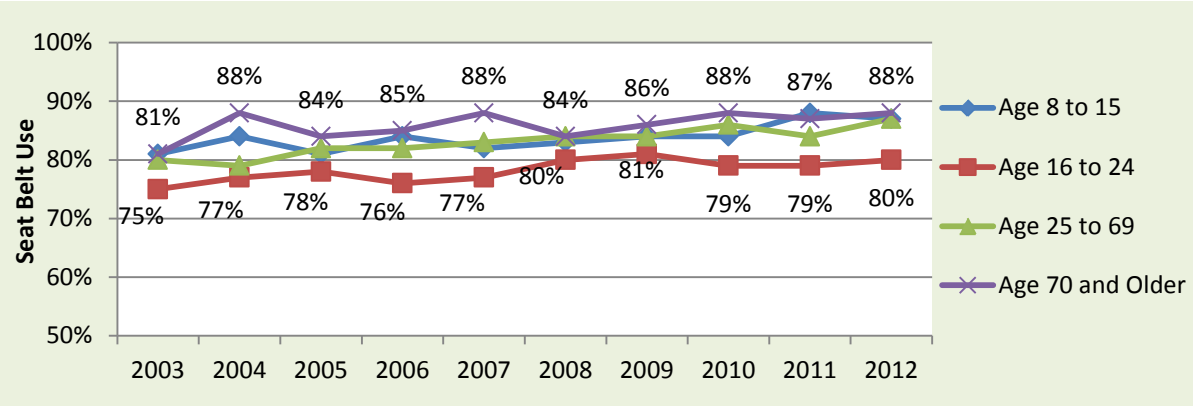

Figure 2: Seat Belt Use by Age for Occupants 8 and Older, 2003-2012

Gender

Figure 3 shows the trends of seat belt use for male and female occupants over 10 years (2003 to 2012). In 2012, seat belt use continued to be lower for males (84%) than females (88%).

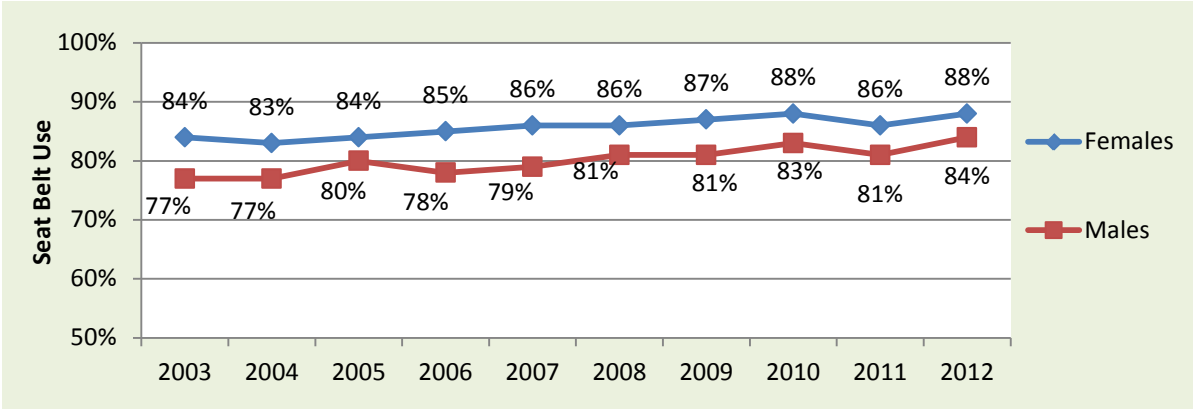

Figure 3: Seat Belt Use by Gender for Occupants 8 and Older, 2003-2012

Race

In NOPUS, vehicle occupant race is recorded as: black, white, and members of other races. The characterization is based on the visual assessment by 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 8 years (2005 to 2012). In 2012, 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.

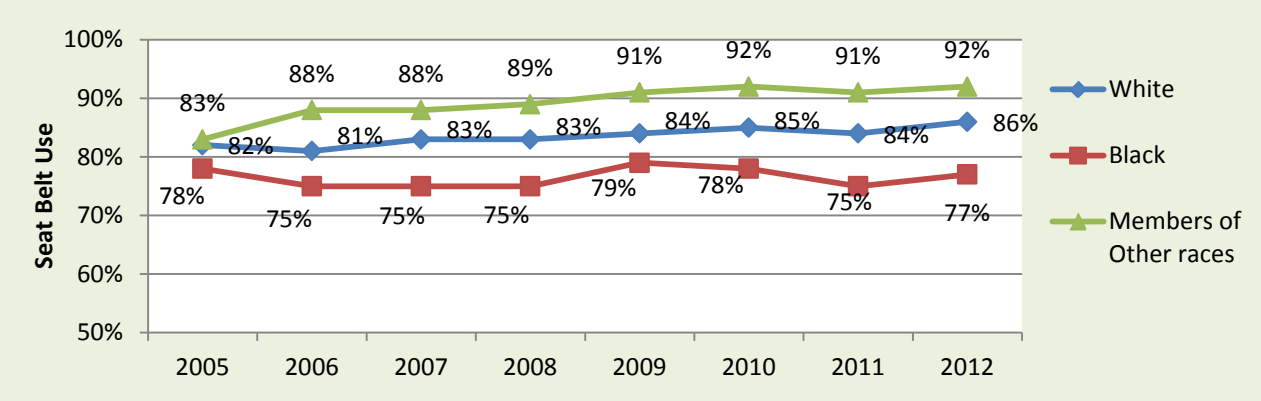

Figure 4: Seat Belt Use by Race for Occupants 8 and Older, 2005-2012

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.

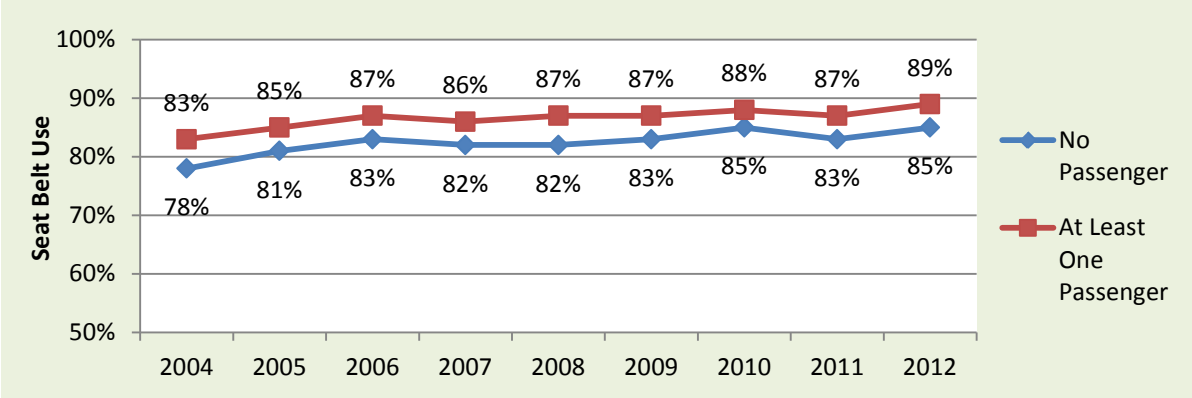

Figure 5: Passenger Effect on Seat Belt Use for Occupants 8 and Older, 2004-2012

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

Occupant Group[1]	2011		2012		2011 - 2012 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	84%		86%		2	**99%**
Males[5]	81%	**100%**	84%	**100%**	3	**98%**
Females[5]	86%	**100%**	88%	**100%**	2	**98%**
Occupants by Age Group[5]						
8 to 15	88%	**98%**	87%	59%	-1	35%
16 to 24	79%	**100%**	80%	**100%**	1	56%
25 to 69	84%	**94%**	87%	**100%**	3	**99%**
70 and Older	87%	**93%**	88%	**92%**	1	61%
Occupants by Race[5]						
White	84%	61%	86%	65%	2	**99%**
Black	75%	**100%**	77%	**98%**	2	62%
Members of Other Races	91%	**100%**	92%	**100%**	1	69%
Drivers With						
No Passengers	83%	**100%**	85%	**100%**	2	**99%**
At Least One Passenger	87%	**100%**	89%	**100%**	2	**91%**
Drivers With						
No Passengers	83%	**100%**	85%	**100%**	2	**99**%
Passengers All Under Age 8	86%	72%	89%	**99%**	3	75%
Passengers All 8 and Older	87%	**100%**	89%	**100%**	2	**92**%
Some Passengers Under Age 8 and Some 8 or Older	90%	**100%**	90%	**99%**	0	14%
Drivers Age 16-24 With						
No Passengers	80%	83%	82%	61%	2	71%
Passengers All Age 16-24	78%	83%	76%	**100**%	-2	45%
At Least One Passenger Not Age 16-24	87%	**100%**	88%	**100%**	1	32%
Occupants Age 16-24 When						
All Occupants Are Age 16-24	78%	**99%**	79%	**98%**	1	48%
At Least One Occupant Is Not Age 16-24	82%	**99%**	84%	**98%**	2	71%

[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 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 2012 use rate is different from the 2011 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 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 rear-seat occupants might be underestimated in NOPUS because 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 2011 and 2012 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 2004 to 2012. As in previous years, seat belt use in 2012 was lower in the rear seat than in the front seat.

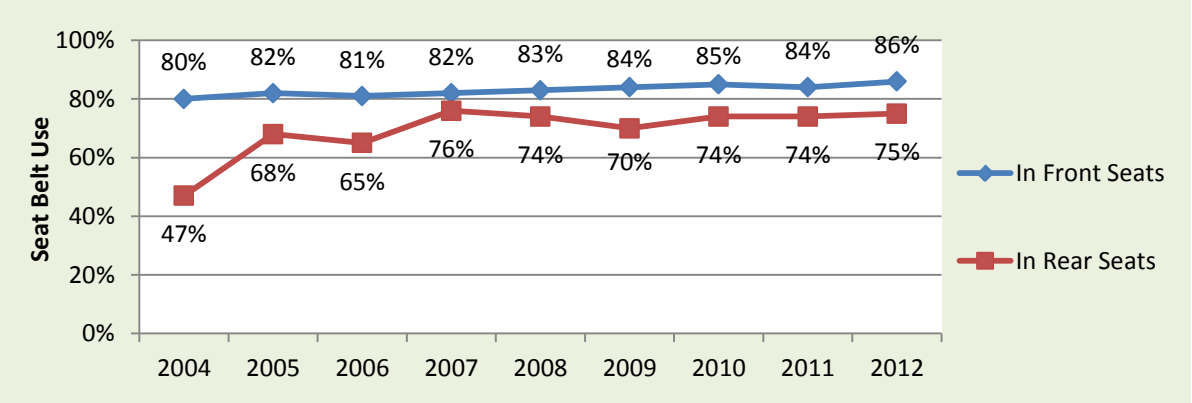

Figure 6: Seat Belt Use by Seating Position for Occupants 8 and Older, 2004-2012

State Laws and Rear-Seat Belt Use

At the time the 2012 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 seat. Please note that rear-seat belt use laws are secondary in Kansas, New Jersey, North Carolina, Idaho, Massachusetts, Montana, Nevada, Utah, Vermont, 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
Kentucky	Louisiana	Maine
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 30, 2012, 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 eight years (2005 to 2012). As in previous years, seat belt use in rear seats in 2012 was higher in the States with laws requiring belt use in all seating positions (84%) than in the States requiring belt use only in the front seat (67%).

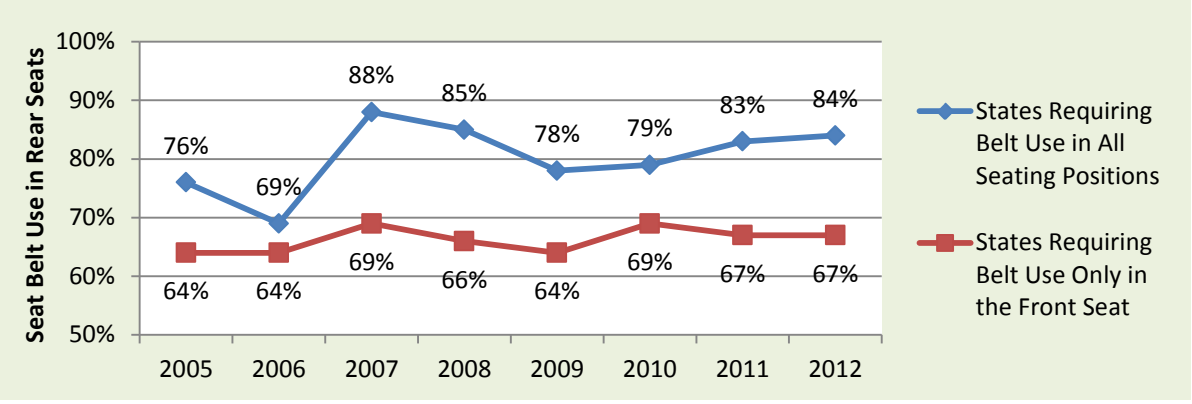

Figure 7: Seat Belt Use in Rear Seats by State Law Type for Occupants 8 and Older, 2005-2012

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

Passenger Group[1]	2011		2012		2011 – 2012 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 Percent-age[4]
All Passengers	74%		75%		1	17%
Males[5]	73%	86%	74%	89%	1	17%
Females[5]	76%	86%	77%	89%	1	18%
Passengers by Age Group [5]						
8 to 15	80%	**99%**	83%	**100%**	3	55%
16 to 24	71%	**94%**	67%	**100%**	-4	61%
25 to 69	70%	**92%**	71%	**93%**	1	19%
70 and Older	73%	59%	80%	82%	7	58%
Passengers by Race [5]						
White	76%	**99%**	76%	77%	0	6%
Black	57%	**100%**	60%	**100%**	3	28%
Members of Other Races	76%	61%	80%	**93%**	4	67%
Passengers in States With Laws Requiring Belts Be Used						
In All Seating Positions	83%	**100%**	84%	**100%**	1	24%
In the Front Seat Only	67%	**100%**	67%	**100%**	0	0%

[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 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 2012 use rate is different from the 2011 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 2012, 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 presents results of child restraint use in passenger motor vehicles by major characteristics in 2011 and 2012 as well as the changes between the two years. Table 7 divides the occupants into three age groups and reports restraint use by some other characteristics among these groups. Table 6 presents results on child rear placement by major characteristics in 2011 and 2012 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 Age Under 8

Restraint use for children under 8 in 2012 did not change from 2011, remaining at 91%. Figure 8 shows the child restraint use trend since 2004.

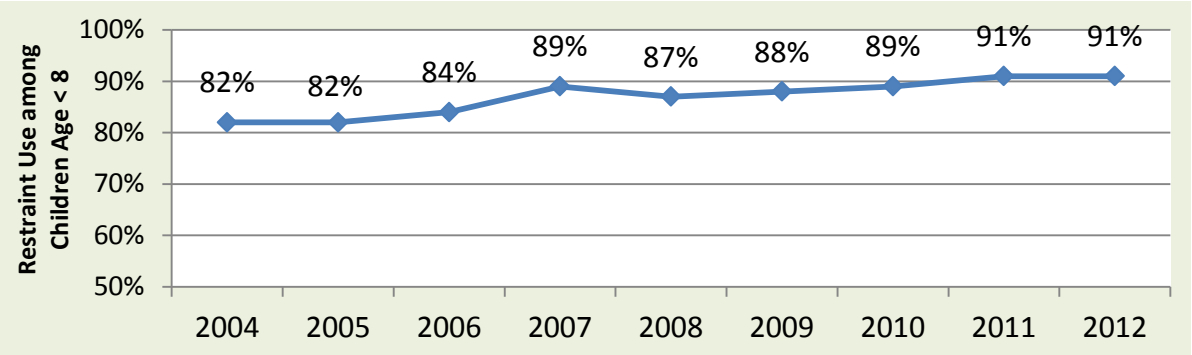

Figure 8: Child Restraint Use Among Children Under 8, 2004-2012

Child Rear Seat Placement

Figure 9 shows the trends of rear seat placement of children under 8 between 2004 and 2012. The 2012 NOPUS found that 95 percent of children under 8 rode in the rear seats of vehicles. In the infant group (from birth to 12 months), 98 percent rode in the rear seat. One hundred percent of 1- to 3-year-old and 92 percent of 4- to 7-year-old children were in the rear seats in 2012.

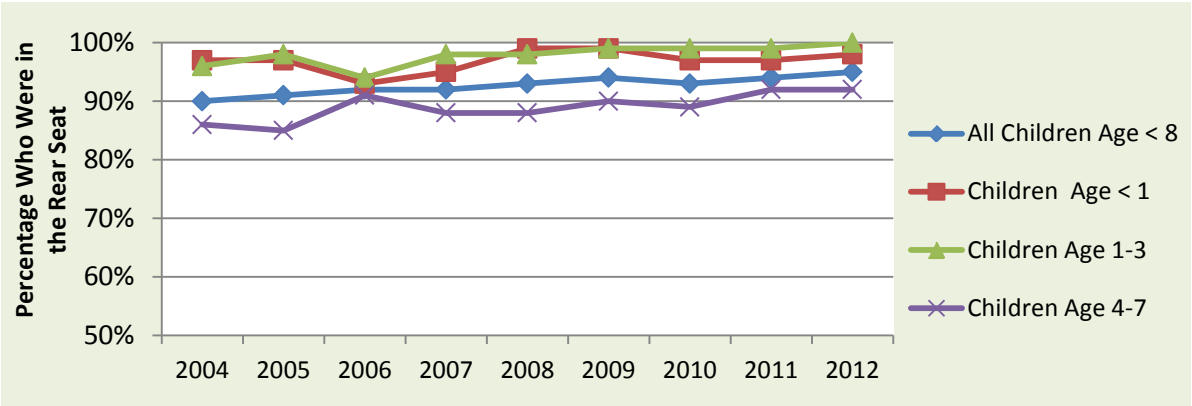

Figure 9: Child Rear-Seat Placement, 2004 - 2012

At the time the 2012 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 30, 2012. In no other States did such laws take effect during the period July 1, 2011, to June 30, 2012. 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

Child restraint use did not change significantly by region in 2012, as shown in Figure 10.

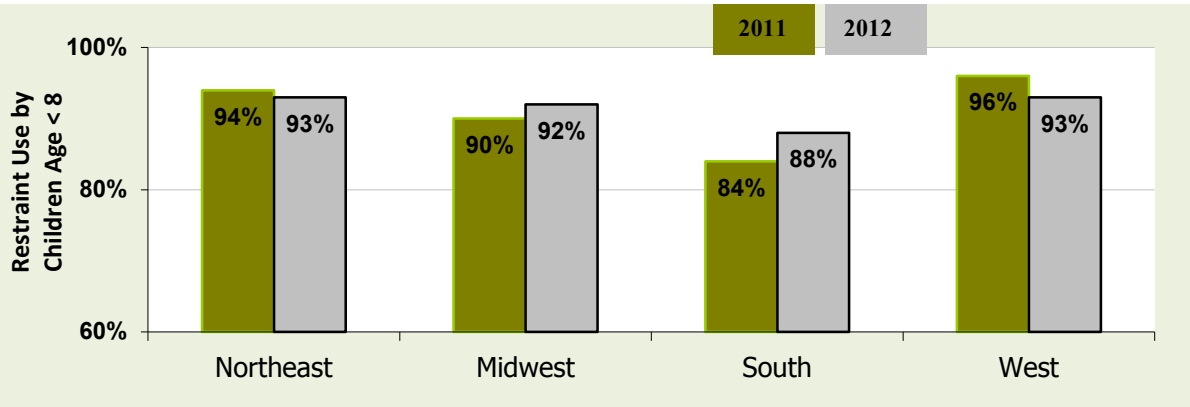

Figure 10: Child Restraint Use by Region in 2011 and 2012

Figure 11 shows that child restraint use was higher in the Northeast and West than in the other regions in 2012.

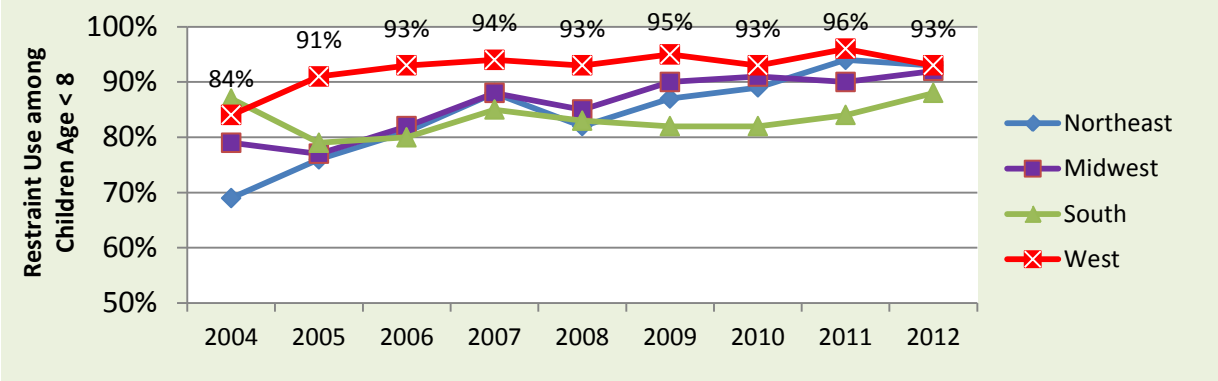

Figure 11: Child Restraint Use by Region, 2004-2012

Child Restraint Use by Time of Week

As shown in Figure 12, child restraint use did not change significantly by time of week in 2012.

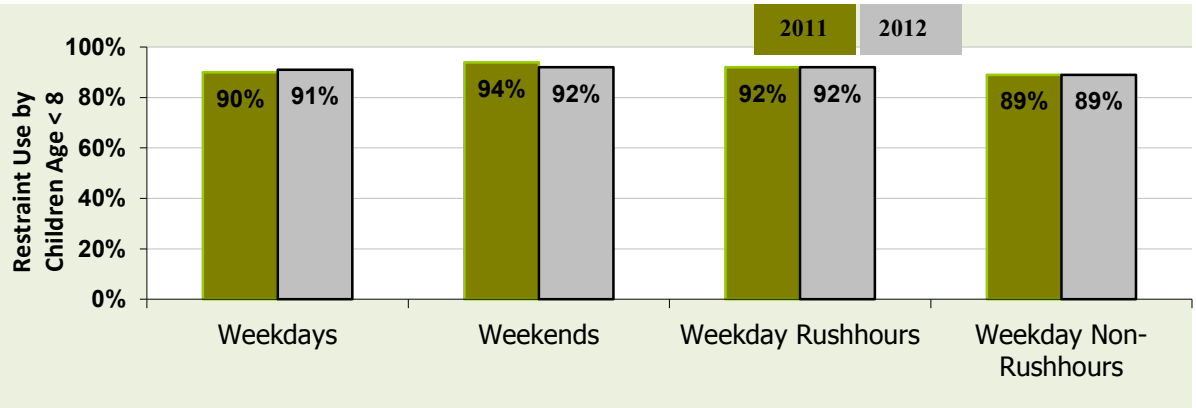

Figure 12: Child Restraint Use by Time of Week in 2011 and 2012

Child Restraint Use by Vehicle Type

As shown in Figure 13, restraint use for children traveling in vans and SUVs decreased significantly from 97 percent in 2011 to 94 percent in 2012.

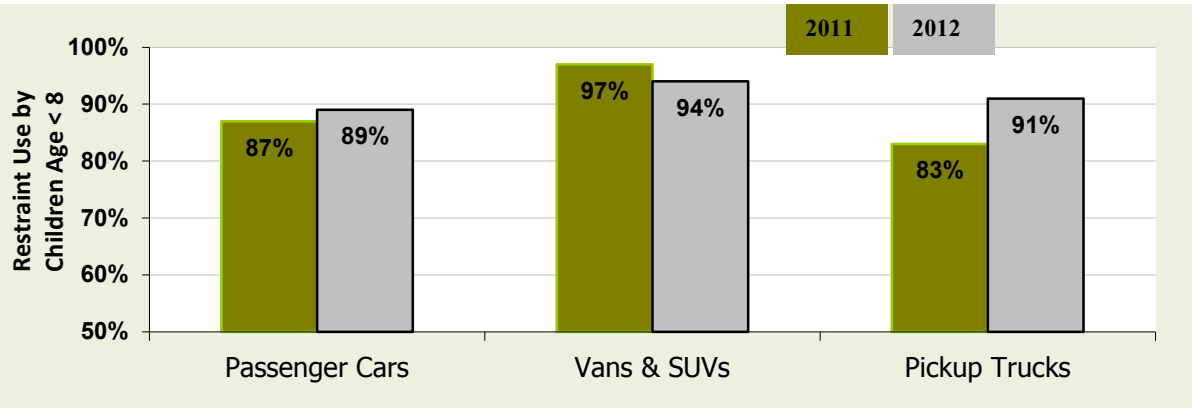

Figure 13: Child Restraint Use by Vehicle Type in 2011 and 2012

Child Restraint Use by Driver Belt Status

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

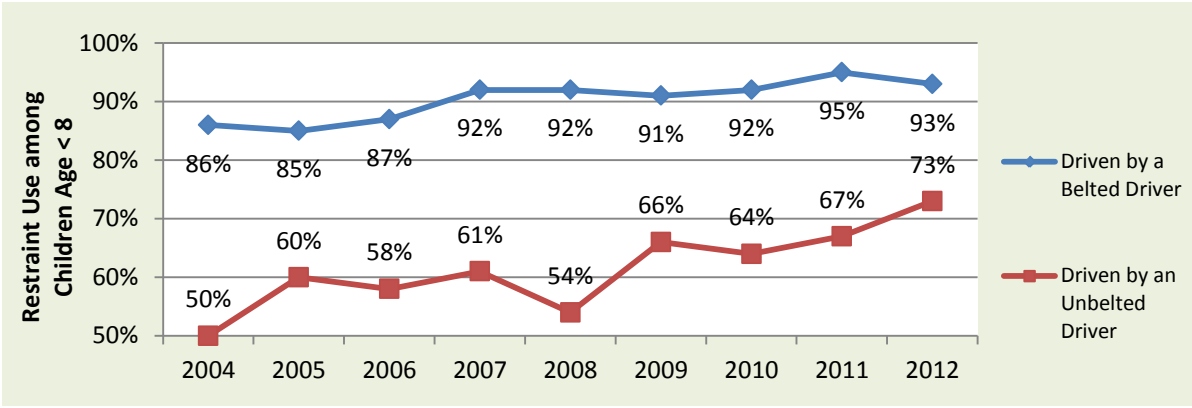

Figure 14: Child Restraint Use by Driver Belt Status, 2004-2012

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

Child Passenger Group[1]	2011		2012		2011–2012 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)	91%		91%		0	5%
Children Driven by						
a Belted Driver	95%	**100%**	93%	**100%**	-2	68%
an Unbelted Driver	67%	**100%**	73%	**100%**	6	73%
a Male Driver	92%	82%	92%	60%	0	17%
a Female Driver	91%	82%	91%	60%	0	17%
a Driver Age 16 to 24	89%	77%	92%	57%	3	46%
a Driver 25 to 69	92%	73%	91%	66%	-1	9%
a Driver 70 and Older	92%	58%	95%	80%	3	35%
a White Driver	93%	**99%**	92%	76%	-1	50%
a Black Driver	75%	**100%**	86%	**99%**	11	**93%**
a Driver who is a Member of Other Races	93%	72%	93%	83%	0	10%
Children in						
the Front Seat	72%	**100%**	70%	**100%**	-2	14%
the Rear Seat	93%	**100%**	92%	**100%**	-1	1%
Child Passengers on						
Expressways	95%	**99%**	93%	**91%**	-2	65%
Surface Streets	89%	**99%**	90%	**91%**	1	30%
Child Passengers Traveling in						
Fast Traffic	93%	89%	92%	81%	-1	37%
Medium-Speed Traffic	90%	73%	90%	88%	0	8%
Slow Traffic	89%	72%	92%	51%	3	39%
Child Passengers in						
Passenger Cars	87%	**100%**	89%	**99%**	2	62%
Vans & SUVs	97%	**100%**	94%	**99%**	-3	**94%**
Pickup Trucks	83%	89%	91%	57%	8	66%
Child Passengers in the						
Northeast	94%	**93%**	93%	**92%**	-1	39%
Midwest	90%	62%	92%	68%	2	36%
South	84%	**99%**	88%	95%	4	79%
West	96%	**100%**	93%	70%	-3	64%
Child Passengers in						
Urban Areas	92%	53%	89%	80%	-3	42%
Suburban Areas	92%	64%	92%	83%	0	15%
Rural Areas	90%	67%	91%	64%	1	11%
Child Passengers Traveling During						
Weekdays	90%	**100%**	91%	76%	1	29%
Rush Hours	92%	86%	92%	82%	0	16%
Nonrush Hours	89%	86%	89%	82%	0	10%
Weekends	94%	**100%**	92%	76%	-2	65%

[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 stop light. 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 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 2012 use rate is different from the 2011 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]	2011		2012		2011–2012 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%		95%		1	68%
Age 0 (Infants)	97%	**99%**	98%	**99%**	1	40%
Age 1-3	99%	**100%**	100%	**100%**	1	**96%**
Age 4-7	92%	**100%**	92%	**100%**	0	40%
Child Passengers in States With[5]						
Law Requiring Children From Birth to 5 Years Be in the Rear Seat	95%	72%	97%	**90%**	2	80%
No Such Law	94%	72%	95%	**90%**	1	48%
Children Driven by						
a Belted Driver	95%	**98%**	96%	**99%**	1	69%
an Unbelted Driver	90%	**98%**	90%	**99%**	0	13%
a Male Driver	96%	**93%**	96%	73%	0	4%
a Female Driver	93%	**93%**	95%	73%	2	83%
a Driver Age 16 to 24	96%	85%	96%	64%	0	8%
a Driver 25 to 69	94%	55%	95%	64%	1	66%
a Driver 70 and Older	89%	79%	96%	54%	7	64%
a White Driver	94%	89%	95%	67%	1	77%
a Black Driver	95%	60%	96%	69%	1	21%
a Driver who is a Member of Other Races	96%	**91%**	95%	53%	-1	51%
Child Passengers on						
Expressways	97%	**100%**	98%	**100%**	1	88%
Surface Streets	93%	**100%**	94%	**100%**	1	34%
Child Passengers Traveling in						
Fast Traffic	94%	51%	97%	**100%**	3	**96%**
Medium-Speed Traffic	94%	60%	94%	89%	0	9%
Slow Traffic	95%	57%	94%	84%	-1	33%
Child Passengers in						
Passenger Cars	94%	59%	96%	64%	2	72%
Vans & SUVs	96%	**99%**	97%	**99%**	1	59%
Pickup Trucks	82%	**99%**	83%	**100%**	1	1%
Child Passengers in the						
Northeast	97%	**96%**	98%	**100%**	1	66%
Midwest	93%	79%	95%	63%	2	58%
South	91%	**99%**	95%	71%	4	84%
West	96%	**94%**	94%	82%	-2	89%
Child Passengers in						
Urban Areas	95%	78%	96%	59%	1	16%
Suburban Areas	96%	**98%**	96%	90%	0	12%
Rural Areas	91%	**97%**	94%	**97%**	3	83%
Child Passengers Traveling During						
Weekdays	93%	**100%**	94%	**100%**	1	72%
Rush Hours	93%	53%	95%	85%	2	79%
Nonrush Hours	93%	53%	93%	85%	0	7%
Weekends	97%	**100%**	98%	**100%**	1	55%
Child Passengers in a						
Rear-Facing Car Seat	99%	**100%**	99%	**100%**	0	34%
Forward-Facing Car Seat	99%	**100%**	100%	**100%**	1	82%
High-Backed Booster Seat	98%	**100%**	100%	**100%**	2	**92%**
Seat Belt or Backless Booster Seat	92%	**100%**	92%	**100%**	0	36%
No Restraint Observed	82%	**100%**	84%	**100%**	2	36%

[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 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 2012 is different from the analogous percentage from 2011.

[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]	2011		2012		2011–2012 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	99%	87%	98%	84%	-1	1%
an Unbelted Driver	97%	87%	90%	84%	-7	34%
a Male Driver	99%	70%	98%	52%	-1	55%
a Female Driver	99%	70%	97%	52%	-2	79%
Infants in						
Passenger Cars	98%	**98%**	98%	69%	0	83%
Vans & SUVs	100%	**98%**	98%	54%	-2	82%
Pickup Trucks	NA	NA	91%	77%	NA	NA
Infants in the						
Northeast	100%	87%	100%	**98%**	0	78%
Midwest	96%	**96%**	96%	68%	0	**96%**
South	99%	61%	93%	**92%**	-6	25%
West	100%	**98%**	99%	**94%**	-1	68%
Infants in						
Urban Areas	99%	78%	98%	51%	-1	42%
Suburban Areas	99%	84%	98%	66%	-1	60%
Rural Areas	98%	86%	97%	65%	-1	51%
Children Age 1 to 3						
Children Age 1-3 Driven by						
a Belted Driver	97%	**98%**	97%	88%	0	**95%**
an Unbelted Driver	85%	**98%**	92%	88%	7	38%
a Male Driver	96%	54%	97%	67%	1	77%
a Female Driver	96%	54%	97%	67%	1	34%
Children Age 1-3 in						
Passenger Cars	94%	**95%**	96%	**96%**	2	53%
Vans & SUVs	97%	**96%**	98%	**93%**	1	64%
Pickup Trucks	97%	66%	100%	**100%**	3	44%
Children Age 1-3 in the						
Northeast	96%	51%	97%	63%	1	32%
Midwest	96%	62%	99%	**97%**	3	3%
South	93%	**91%**	92%	**98%**	-1	47%
West	97%	88%	99%	**97%**	2	31%
Children Age 1-3 in						
Urban Areas	94%	71%	92%	**99%**	-2	79%
Suburban Areas	95%	65%	98%	**96%**	3	20%
Rural Areas	97%	88%	97%	51%	0	74%
Children Age 4 to 7						
Children Age 4-7 Driven by						
a Belted Driver	92%	**100%**	90%	**100%**	-2	**99%**
an Unbelted Driver	51%	**100%**	61%	**100%**	10	7%
a Male Driver	89%	**91%**	87%	61%	-2	**99%**
a Female Driver	86%	**91%**	87%	61%	1	35%
Children Age 4-7 in						
Passenger Cars	81%	**100%**	82%	**100%**	1	31%
Vans & SUVs	96%	**100%**	91%	**100%**	-5	**100%**
Pickup Trucks	73%	**91%**	89%	68%	16	38%
Children Age 4-7 in the						
Northeast	92%	**96%**	90%	**95%**	-2	**99%**
Midwest	86%	58%	88%	61%	2	7%
South	77%	**97%**	84%	80%	7	28%
West	93%	**99%**	86%	56%	-7	84%
Children Age 4-7 in						
Urban Areas	88%	59%	88%	59%	0	**99%**
Suburban Areas	88%	58%	88%	58%	0	43%
Rural Areas	86%	66%	86%	66%	0	28%

[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 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 2012 use rate is different from the 2011 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
NA: Data not sufficient to produce a reliable estimate. Source: NOPUS

5. NOPUS Methodology

This section briefly discusses the sample design, data collection, and estimation used in the 2012 NOPUS Controlled Intersection Study. Data collection, estimation, and variance estimation for NOPUS are conducted by Westat, Inc., under the direction of NHTSA's National Center for Statistics and Analysis under Federal contract number DTNH22-07-D-00057.

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 2012 NOPUS were entirely from the 2006 NOPUS sample redesign without incorporating any sites from the old design. During the transitional years 2006 to 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 United States 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 2012 NOPUS. A total of 53,943 occupants were observed in 37,813 vehicles at 1,366 data collection sites. Of these observed occupants, 3,062 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 2011 NOPUS

Numbers of	2011	2012	Percentage Change
Sites Observed	1,356	1,366	1%
Vehicles Observed	38,215	37,813	-1%
Occupants Age 8 and Older	51,616	50,881	-1%
In Front Seat	48,890	48,408	-1%
In Rear Seat	2,726	2,473	-9%
Occupants Under Age 8	2,859	3,062	7%
Children Under Age 1	383	384	0%
Children Age 1 to 3	937	1,011	8%
Children Age 4 to 7	1,539	1,667	8%

Data Collection

The 2012 NOPUS data collection was conducted during the period from June 4 to June 17, 2012.

In the NOPUS Controlled Intersection Study, trained data collectors observe restraint use of drivers and other occupants of passenger vehicles 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 alternative. The data collectors move down the roadside and record vehicle and occupant characteristics. Once 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.

Regardless of road type, the data collectors observe vehicles at the assigned intersections for 40 minutes. Since data collection for the CI Study immediately follows the MT Survey, no additional vehicle counts are conducted at controlled intersections. Instead, the independent counts from the MT Survey observation sites are used for the corresponding CI Study sites.

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% (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., & Ye, T. J. (2012, November). *Seat Belt Use in 2012 – Overall Results*, (Report No. DOT HS 811 691). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/811691

[2] Pickrell, T. M., & Ye, T. J. (2012, January). *Occupant Restraint Use in 2010 – Results from the National Occupant Protection Use Survey Controlled Intersection Study*. (Report No. DOT HS 811 527). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/811527

[3] Pickrell, T. M., & Ye, T. J. (2009, August). *Seat Belt Use in 2008 – Demographic Results*. (Report No. DOT HS 811 183). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/811183

[4] Pickrell, T. M., & Ye, T. J. (2009, May). *Seat Belt Use in Rear Seats in 2008*. (Report No. DOT HS 811 133). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/811133

[5] Pickrell, T. M., & Ye, T. J. (2009, May). *Child Restraint Use in 2008 – Overall Results*. (Report No. DOT HS 811 135). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/811135

Appendix: Definitions

- Vehicle occupants observed in the NOPUS survey are counted as "belted" if they appeared 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, 25 to 69, 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 are 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 some 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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