

# Status Report

Insurance Institute for Highway Safety | Highway Loss Data Institute

More booster seats grab **top ratings**

## ALSO IN THIS ISSUE

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November 7, 2013

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- ▶ Decline in teen driving is linked to unemployment





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**C**hild restraint manufacturers continue to roll out new booster seats that do a good job of improving the way an adult safety belt fits a typical booster-age child. This year, 19 of 31 new models evaluated by IIHS earn the top rating of BEST BET, and one model is a GOOD BET.

A surprise came from Britax, a company whose boosters have consistently earned the top two ratings. This year, three new Britax models didn't make their debuts as BEST BETs or GOOD BETs. They are the Frontier 90, Pinnacle 90 and Pioneer 70. These highback seats replaced two Britax boosters that previously earned the top rating. At the same time, Britax improved the design of the Parkway SG to earn a BEST BET rating when it is used as a highback booster. It has a lower rating when it is used as a backless seat. The Britax Parkway SGL also is a BEST BET in highback mode.

The Institute began rating boosters five years ago

because research indicated that most seats weren't doing a good job of fitting safety belts correctly and consistently on children in a variety of vehicles. Boosters earn a rating of BEST BET, GOOD BET, Check Fit or Not Recommended, based on a protocol that involves measuring how three-point lap and shoulder belts fit a child-size test dummy seated in the booster on a stationary test fixture under four conditions that span the range of safety belt configurations in passenger vehicles. The evaluations focus on safety belt fit and don't involve crash tests.

"Parents should have an easy time finding a top-rated booster seat since there are more this year than ever before," says Anne McCartt, IIHS senior vice president for research. "At the same time, consumers should continue to consult our ratings before buying because name brand, price

and style don't always equate with proper lap and shoulder belt fit."

In all, there are 58 BEST BET and five GOOD BET boosters for 2013, including the newest seats and older models whose ratings carry over from prior years. The Institute assesses boosters as they are introduced to the market. Ratings of boosters with designs that carry over into the next model year remain on the list until the seats are discontinued. Dual-use seats that can be used as either a highback booster or a backless booster get two ratings, one for each mode. The Institute treats these as two distinct seats for ratings purposes, so the names of some models show up twice in the list. Consumers should pay attention to each rating and consider how they will use the seats in their vehicles.

A BEST BET booster correctly positions belts on a typical 4-to-8-year-old child in almost any car, minivan or SUV. A GOOD BET provides acceptable belt fit in most vehicles. Correct belt fit means that the lap belt lies flat across a child's upper thighs and the shoulder belt crosses snugly over the middle of the shoulder.

Among the booster seat designs introduced in 2013, 11 are categorized as Check Fit. The designation means that the booster may provide good belt fit for some children in some vehicles, but not as many as boosters that

Three new highback models by Britax, the Pinnacle 90, Pioneer 70 and Frontier 90, are designated as Check Fit boosters. Lap belt fit can vary by child size and vehicle model, so parents should try them out first before buying.



Britax Pinnacle 90

Britax Pioneer 70

Britax Frontier 90



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# Booster ratings

There are 31 new models for 2013, including 19 BEST BET seats, 1 GOOD BET and 11 Check Fit. Counting carry-over models, there are 58 BEST BET boosters for 2013, more than any prior year.

1. An IIHS engineer readies the test fixture and booster seat. 2. At 52 pounds and 45 inches tall, the dummy represents an average 6-year-old child. 3. A coordinate measuring machine is used to center the dummy in the booster seat before it is buckled in. 4. The safety belt is pulled out of the retractor and routed through the lap belt guides. Then it is buckled and routed over the shoulder and through the shoulder belt guide. 5. The Evenflo Right Fit, a BEST BET, correctly positions both the lap and shoulder belt.

earn either of the top two ratings. Belt fit can vary depending on child size and vehicle model. Before buying these boosters, parents should try them out to see if they properly position safety belts on their children in the vehicles they will be riding in.

## Industry progress

When the Institute published its first-ever ratings in 2008, only 10 of 41 models earned a BEST BET rating, and there were 13 seats on the Not Recommended list (see *Status Report*, Oct. 1, 2008, at [iihs.org](http://iihs.org)). Now only two seats aren't recommended and when the Institute evaluates a new design, more often than not it lands in BEST BET territory. That is largely because manufacturers have taken note of the ratings and work with the Institute to build seats to do what they are supposed to do — elevate children so safety belts that were designed for adults better fit their smaller frames and put lap/shoulder belts in the proper place for the best protection in a crash.

Most booster makers assess their new designs using the IIHS protocol, and designers from several manufacturers have made the trek to Ruckersville, Va., home of the Institute's Vehicle Research Center,

with prototypes in tow. There, they try out their creations — some little more than clay models — on the Institute's test fixture using a special test dummy that represents an average-size 6-year-old child.

One big maker sought advice on where to position guides to route a lap and shoulder belt to provide the correct fit — over the armrest or under it? The Institute worked with the firm's designers to determine that under the armrest was best.

Philip Floyd, the senior technician who leads the booster evaluations, points to another sign of progress. Thanks to IIHS tests, the clip strap that most backless boosters need to route shoulder belts the right way is now located in the middle of the seat instead of on the sides, which was the typical placement when the Institute published its first ratings. Mounting the strap in the center routes it behind a child's back so the clip is in the right position to properly place the shoulder belt at midshoulder. If the clip strap is mounted on the side of the booster, the belt often slips off the shoulder.

"We don't see that design anymore," Floyd says. In fact, he says, "booster seats have consistently improved. We've never had a seat go the wrong way."

That is, until this year.

## BEST BET

Britax Parkway SG (highback mode)  
 Britax Parkway SGL (highback mode)  
 Evenflo Amp (backless)  
 Evenflo Big Kid LX (backless mode)  
 Evenflo Chase (highback)  
 Evenflo Right Fit (highback and backless modes)  
 Ferrari Beline SP (backless mode)  
 Graco Affix (highback and backless modes)  
 Graco Argos 70 Elite (highback mode)  
 Graco Connex (backless)  
 Graco Nautilus Elite (highback mode)  
 Graco Nautilus Plus (highback mode)  
 Graco Nautilus with Safety Surround (highback mode)  
 Harmony Transit Deluxe (backless)  
 Recaro Performance SPORT (highback)  
 Recaro ProSPORT II (highback)  
 Safety 1st BoostAPak (backless)

## GOOD BET

Ferrari Beline SP (highback mode)

## Check Fit

Britax Frontier 90 (highback)  
 Britax Parkway SG (backless mode)  
 Britax Parkway SGL (backless mode)  
 Britax Pinnacle 90 (highback)  
 Britax Pioneer 70 (highback)  
 Cosco Stack-It (backless)  
 Evenflo Big Kid LX (highback mode)  
 Graco Argos 70 Elite (backless mode)  
 Graco Nautilus Elite (backless mode)  
 Graco Nautilus Plus (backless mode)  
 Graco Nautilus with Safety Surround (backless mode)





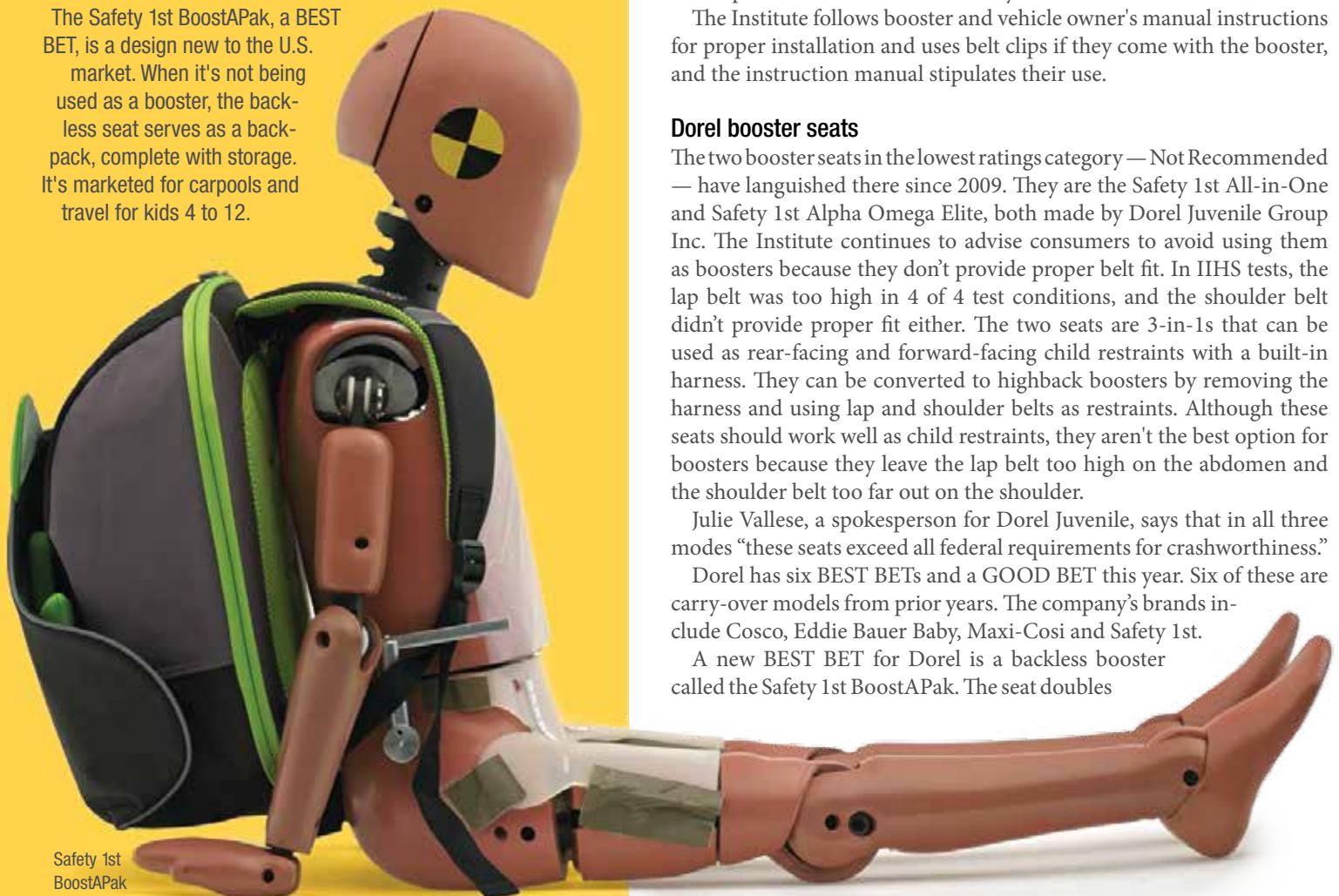
The Britax Frontier 85 (top) was a BEST BET last year. In IIHS evaluations, the seat correctly positioned the lap belt across the dummy's thighs in all test conditions.



Britax introduced the Frontier 90 in 2013. The geometry of the highback booster's armrest doesn't consistently provide the same lap belt fit as the earlier model. In 2 of 4 test conditions the lap belt was too high on the dummy's abdomen, although the shoulder belt fit was good.



The Safety 1st BoostAPak, a BEST BET, is a design new to the U.S. market. When it's not being used as a booster, the backless seat serves as a backpack, complete with storage. It's marketed for carpools and travel for kids 4 to 12.



When Floyd started evaluating the Britax Frontier 90, he was taken aback by what he found: The lap belt was too high on the dummy's abdomen in 2 of 4 test conditions that represent a range of vehicle safety belt setups. A booster seat needs good lap belt fit, in addition to good shoulder belt fit, in all four conditions to earn a BEST BET rating.

"Britax surprised me," Floyd says. "I did the test and then got the Frontier 85 out of storage to compare the designs. Britax changed the armrest's geometry, and that put the lap belt in the wrong place to earn a BEST BET or GOOD BET." The Frontier 85 was a BEST BET for 2012.

Floyd found the same issue with the Pinnacle 90 and Pioneer 70. While all three seats offer good shoulder belt fit, low average lap belt scores put them in the Check Fit category. The Parkway SG and SGL also are a Check Fit when used as backless boosters.

"We promote use of the five-point harness for as long as possible," says Ron Marsilio, vice president of engineering and new product development at Britax. The Frontier 90, Pinnacle 90 and Pioneer 70 Harness-2-Booster seats are equipped with an internal harness for use as a child restraint for children as heavy as 70 to 90 pounds. The weight limits for booster use are even higher.

Marsilio adds that kids who use these Britax models tend not to graduate to boosters until at least age 8. For parents who elect to use boosters at an earlier age, Britax sells a \$19.99 accessory clip called SecureGuard to adjust the lap belt so it is in the right position to prevent submarining in a crash. The clip is included with the Parkway SG and SGL boosters.

The Institute follows booster and vehicle owner's manual instructions for proper installation and uses belt clips if they come with the booster, and the instruction manual stipulates their use.

### Dorel booster seats

The two booster seats in the lowest ratings category — Not Recommended — have languished there since 2009. They are the Safety 1st All-in-One and Safety 1st Alpha Omega Elite, both made by Dorel Juvenile Group Inc. The Institute continues to advise consumers to avoid using them as boosters because they don't provide proper belt fit. In IIHS tests, the lap belt was too high in 4 of 4 test conditions, and the shoulder belt didn't provide proper fit either. The two seats are 3-in-1s that can be used as rear-facing and forward-facing child restraints with a built-in harness. They can be converted to highback boosters by removing the harness and using lap and shoulder belts as restraints. Although these seats should work well as child restraints, they aren't the best option for boosters because they leave the lap belt too high on the abdomen and the shoulder belt too far out on the shoulder.

Julie Vallese, a spokesperson for Dorel Juvenile, says that in all three modes "these seats exceed all federal requirements for crashworthiness."

Dorel has six BEST BETs and a GOOD BET this year. Six of these are carry-over models from prior years. The company's brands include Cosco, Eddie Bauer Baby, Maxi-Cosi and Safety 1st.

A new BEST BET for Dorel is a backless booster called the Safety 1st BoostAPak. The seat doubles

as a child's backpack and is marketed for carpools and travel for children 4 to 12 years old and up to 80 pounds. The BoostAPak retails in the U.S. for about \$70. Dorel holds the North American distribution rights for the BoostAPak.

The backpack booster fills a niche, Vallese says.

"We know children often fight using the booster seat. Once they get to be a certain age they want to be seen as a big kid. The BoostAPak really delivers that cool factor that booster-age kids are looking for," Vallese says.

### Booster basics

Booster seats are available in both highback and backless styles and at a variety of price points. Highbacks have guides to route lap and shoulder belts and can offer some head support. Backless models have lap belt guides but usually need a plastic clip to properly position shoulder belts. Older children may be more comfortable in—and less likely to object to—a backless booster. Either style is effective as long as it provides good belt fit.

Two new dual-use boosters are BEST BETs in both backless and highback modes. They are the Evenflo Right Fit and the Graco Affix.

Some boosters also can be converted for use as a harness-style child restraint for children who aren't big enough to use safety belts. Parents looking for a convertible seat that earns a BEST BET rating as a highback booster could consider four Graco models—the Argos 70 Elite, Nautilus Elite, Nautilus Plus and Nautilus with Safety Surround—or the Recaro Performance SPORT and ProSPORT II.

The newest top-rated boosters retail for as little as \$18 to as much as \$300. Among 2013 BEST BETs, the backless Graco Connex can be bought for about \$18, the backless Harmony Transit Deluxe sells for about \$25, the Evenflo Right Fit retails for about \$75, and the Graco Affix starts at about \$85. The priciest BEST BET seats are the Ferrari Beline SP, a dual-use booster that is a BEST BET in backless mode, and the Recaro Performance SPORT. Both sell for about \$300.

Besides style and price, an important thing to consider before shopping for a booster is whether a child is old enough and big enough to graduate to one.

"Parents shouldn't be in a rush to move their young children from a forward-facing restraint to a booster seat or a safety belt alone," says Jessica Jermakian, senior research scientist at the Institute and an expert on child passenger safety. "It's best to keep kids seated in the back seat in a harness-equipped child restraint as long as possible, up to the height and weight limits of the seat."

When children outgrow child restraints, they should use boosters until adult belts fit properly. For some children, that's not until about age 12.

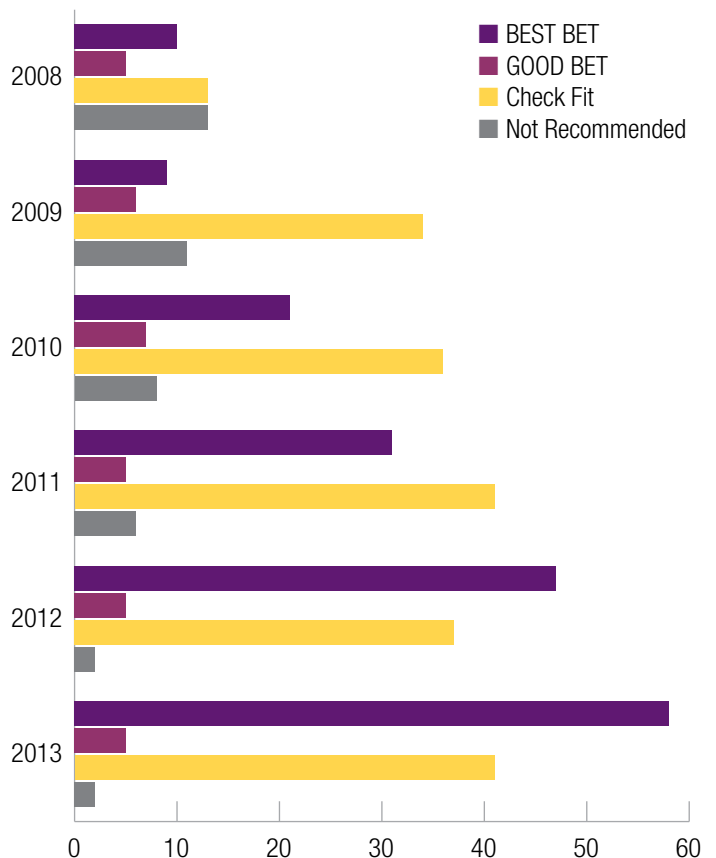
"A belt-positioning booster seat provides the best protection for a child who has outgrown a harness restraint," Jermakian says.

Children ages 4-8 in boosters are 45 percent less likely to sustain injuries in crashes than kids restrained by belts alone. Children who are using improperly fitted belts are at risk of a host of crash injuries known as "seat belt syndrome." These include spine injuries and internal organ injuries. Boosters help by elevating a child into position and guiding the belts for better protection.

For more information on booster seat ratings, including a breakdown by manufacturer, go to [iivs.org](http://iivs.org). ■



How booster seat ratings have improved since 2008



**Boost in ratings:** The number of BEST BET booster seats has risen fivefold since the Institute released its first ratings in 2008. That year more boosters were on the Not Recommended list than on the BEST BET list—13 vs. 10. By 2010, BEST BET boosters outnumbered seats the Institute couldn't recommend. Now only two boosters aren't recommended, and there are 58 BEST BETs.



# Vehicle vandalism peaks on Halloween with nearly twice as many claims as usual



As Americans carve pumpkins and stock up on candy ahead of Halloween, they also might want to think about finding a secure place to park their car. Personal vehicles are almost twice as likely to be vandalized on Oct. 31 as on an average day, a recent HLDI analysis has found.

HLDI looked at insurance claims for vandalism made under comprehensive coverage from 2008 through 2012. Such claims include things like tires being slashed and windows being smashed. Data on vandalism claims were supplied by 28 companies representing more than two-thirds of the insurance market for private passenger vehicles. The average number of claims per day for those companies combined was 692. The average cost per claim

was \$1,528, for a total average daily cost of more than \$1 million per day.

Halloween had the highest average number of claims for any day of the year with 1,253. Other days with high claim numbers were July Fourth (987) and New Year's (944). Thanksgiving and Christmas had below-average claim numbers.

Holidays aside, vandalism seems to occur more often on weekends and in the summer. The number of claims was 16 percent higher than average on Saturdays and 7 percent higher on Sundays. The other days of the week all had an average or below-average number of claims. Looked at by month, claim numbers were highest in July, followed by August and June. ■

Average daily vandalism claims, 2008-12



**Holidays and vandalism: Halloween has the highest average number of claims for vehicle vandalism for any day of the year. Claims are high on July Fourth and New Year's Day, too.**

## New IIHS/HLDI website makes navigating research and ratings information easier

Regular visitors to [iihs.org](http://iihs.org) know it to be a treasure trove of information about the latest highway safety research, statistics and vehicle ratings. Now the IIHS/HLDI website has a new look, and the information it serves up is even more comprehensive and easier to navigate.

Launched in September, the new [iihs.org](http://iihs.org) includes a simplified presentation of IIHS ratings. All information pertaining to a specific model from a specific year is presented on a single page. Navigational tabs allow users to get more in-depth information on any single test. Other features are organized by topic. Want to learn more about child safety? Go to the child safety topic area to see relevant Q&As, fatality statistics and state laws. While there, browse past news releases, *Status Report* articles and presentations on child safety. A bibliography provides abstracts of relevant research papers. Full papers are available upon request or, in some cases, for immediate download. ■



# Drop in teen driving tracks with teenage unemployment

A recent drop in teen driving likely comes down to simple economics. Young people today may want to drive just as much as they did a generation ago but simply can't afford it, a new HLDI report suggests.

While some observers have speculated that the rise of cellphones and social media has made driving less of an imperative in teens' eyes, the study shows that the decline in teen driving coincided with the economic

same period (see *Status Report*, June 27, 2013, at [ihs.org](http://ihs.org)).

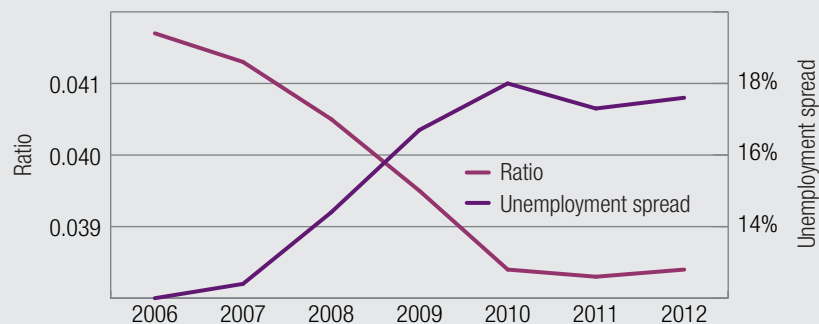
Relying on insurance data, the HLDI study confirms the drop in teen driving. Analysts looked at changes in the number of rated drivers ages 14-19 under collision insurance policies in 49 states and the District of Columbia. A rated driver on a policy is typically the driver in the household considered to represent the greatest loss potential for the insured vehicle (usually the teen driver if there is one). From 2006 to 2012, the number of rated drivers ages 14-19

as the percentage of the total labor force that is unemployed and actively seeking employment, increased for both groups between 2006 and 2010. However, the rise was steeper for teens — 11 percentage points compared with 5 percentage points for prime-age workers. The unemployment spread — the difference in unemployment rates for the two groups — increased during the height of the recession and then leveled off after 2010.

Looked at together, there was an inverse relationship between the growing unemployment spread and the falling ratio of teen



Ratio of teenage drivers to prime-age drivers and unemployment spread between teens and prime-age workers



slowdown, and the shortage of work has disproportionately affected teenage job seekers.

"It looks like teens just can't afford to drive," says HLDI Vice President Matt Moore. "Paying for their own cars, gas and insurance is hard if they can't find a job. At the same time, kids who count on Mom and Dad to help them also may be out of luck if their parents have been affected by the recession."

A recent study from the U.S. Centers for Disease Control based on survey data estimated that the proportion of high school seniors with a driver's license fell from 85 percent in 1996 to 73 percent in 2010. The proportion of seniors who reported that they didn't drive during an average week rose from 15 percent to 22 percent over the

declined 12 percent. During that same period, the population of teens of these ages declined by only 3 percent.

Rated drivers ages 35-54, referred to in the study as prime-age drivers, were looked at for comparison. Their numbers also fell, but not as sharply as teen drivers. The result was fewer teen drivers relative to prime-age drivers. The ratio of teen drivers to prime-age drivers fell from 0.042 in 2006 to 0.038 in 2010 and then remained relatively constant through 2012. Using a ratio provided a control for changes in the number of teen drivers due to factors not specific to teenagers.

HLDI also looked at the differences in unemployment rates of teens and prime-age workers. The unemployment rate, defined

drivers to prime-age drivers. Population changes and changes in state licensing ages contributed somewhat to the decline in the teen driver ratio, but HLDI estimated that 79 percent of it was connected with the increasing unemployment spread. A majority of states had graduated licensing laws in place before 2006, so most of the laws' impact on teen driving rates would have been felt earlier.

"As the economy picks up again, it's possible that more teenagers will get behind the wheel," Moore says. "Unfortunately, that may also mean a rise in teen crash fatalities, which have been trending downward."

For a copy of "Evaluation of changes in teenage driver exposure," email [publications@ihs.org](mailto:publications@ihs.org). ■

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Vol. 48, No. 8  
November 7, 2013

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The **Insurance Institute for Highway Safety** is an independent, nonprofit scientific and educational organization dedicated to reducing the losses — deaths, injuries and property damage — from crashes on the nation's roads.

The **Highway Loss Data Institute** shares and supports this mission through scientific studies of insurance data representing the human and economic losses resulting from the ownership and operation of different types of vehicles and by publishing insurance loss results by vehicle make and model.

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