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Evaluation of the Reinstatement of the Motorcycle Helmet Law in Louisiana

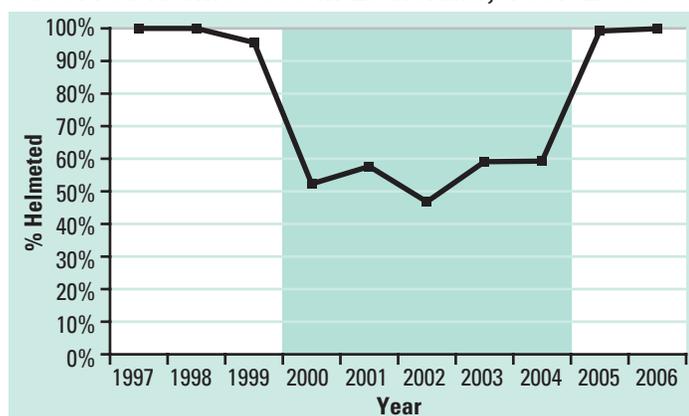
Louisiana first adopted a motorcycle helmet law applicable to all riders in 1968. That law was amended in 1976 to require helmet use only by riders under the age of 18. Then, in 1982, Louisiana reenacted a universal helmet law, but amended that law in August 1999 to require helmet use only by motorcyclists under the age of 18 and riders over the age of 18 who did not have a minimum of \$10,000 in medical insurance coverage.

In August 2004 Louisiana reinstated its universal helmet law. This reinstatement required all motorcyclists, riders and passengers, to wear helmets all the time. Preusser Research Group evaluated the reinstatement of Louisiana's helmet law for NHTSA. This study examined rates of motorcycle helmet use, fatalities, and injuries following reinstatement of the motorcycle helmet law in August 2004.

Helmet Use and Observational Surveys

When the State of Louisiana was under the universal helmet law (years including 1997, 1998, 1999, 2005, and 2006) virtually all riders were compliant with the law and wore helmets. However, during the years that the

Observed Helmet Use in Louisiana, 1997-2006



*Shaded area represents the lack of a universal helmet law.
Source: Louisiana State University

Louisiana helmet law was repealed, (years including 2000, 2001, 2002, 2003, and 2004), helmet use declined to around 50 percent, similar to trends observed in other States.

Crash Data

There was a consistent increase in the number of motorcycle crashes in Louisiana from 1999 to 2005. Statewide, the number of motorcycles in crashes in 1999 (n=957) approximately doubled in 2005 (n=1,877).

Motorcycle crashes during the pre-law period (January 1, 1999, to August 14, 2004) were compared to motorcycle crashes during the post-law period (August 15, 2004, to August 24, 2005). Only data from prior to August 25, 2005, was included in the analyses as a result of the devastation caused by Hurricane Katrina. Helmet use by crash-involved motorcyclists before the reinstatement was 42 percent (n=3,218). After the reinstatement of the law, helmet use rose to 87 percent (n=1,390).

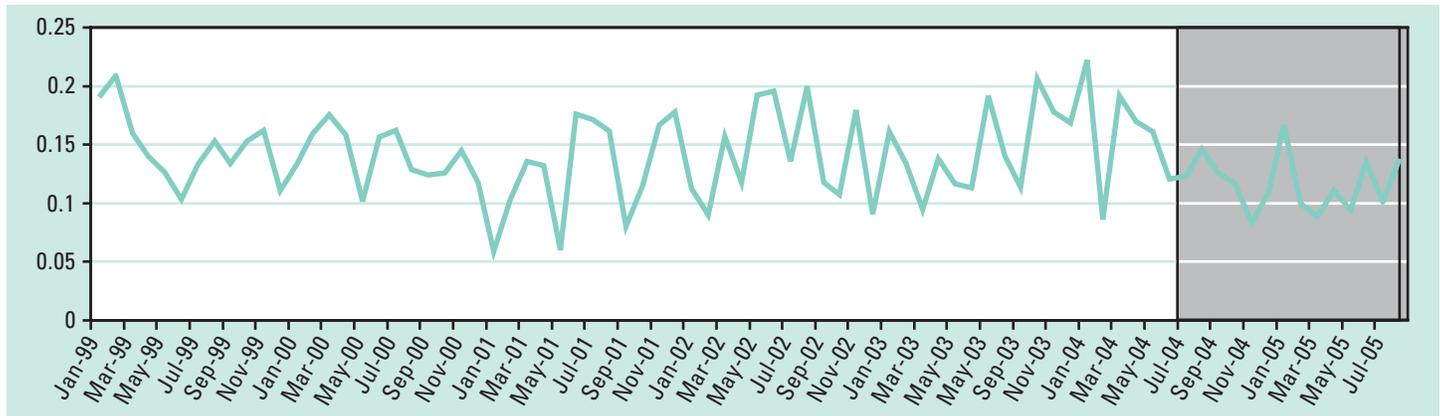
Motorcycle Crashes Pre- and Post-Law Reinstatement for Louisiana, January 1999–August 2005

	Pre-Law (January 1, 1999– August 14, 2004) % (n)	Post-Law (August 15, 2004– August 24, 2005) % (n)
Helmet Use (Yes)	42.3% (3,218)	87.0% (1,390)
Injury Status		
Fatal	5.0% (377)	4.4% (81)
Severe	9.4% (713)	7.2% (133)
Moderate	38.0% (2,894)	34.7% (645)
Complaint	32.1% (2,445)	34.9% (649)
None	15.6% (1,185)	18.9% (352)

Source: Louisiana State University

Multiple logistic regression analyses were conducted to compare helmet use and injury levels before the law change to after the law change. The analyses showed no significant effects of gender or race. The logistic

Proportion of Fatal and Serious Injuries to All Motorcycle Crashes Before and After the Law Change in Louisiana, January 1999–August 2005



Source: Louisiana State University

regression showed a strong positive effect of helmet use post-law reinstatement. The odds of wearing a helmet in a crash after the law was reinstated were 11.7 times greater compared to wearing a helmet during the pre-law time period. Injuries were significantly lower in the post-law period compared to the pre-law period after adjusting for age, gender, and race. Fatalities were 30 percent less likely post-law as compared to pre-law. There were similar findings for severe injuries and moderate injuries.

Previous studies of motorcycle helmet laws have used registrations as a proxy measure for exposure. Reliable registration data from Louisiana was unavailable to use in the analysis. However, there was a trend toward increasing registrations as reported by R. L. Polk and Company. In the year following reinstatement of the law, the number of fatal and serious injury motorcycle crashes declined. Thus there was a decline in severity despite rising exposure that followed reinstatement of the motorcycle helmet law in Louisiana.

Another way to consider the impact of helmet usage after the reinstatement of the universal helmet law is to calculate the number of fatal and serious injuries as a proportion of all motorcycle crashes (fatal crashes, serious injuries, moderate injuries, complaint of injury, and property damage only). This proportion is independent of changes in exposure. The following figure shows that the proportion of monthly fatal and serious injury motorcycle crashes declined after the helmet law was reinstated, when all motorcycle crashes are considered.

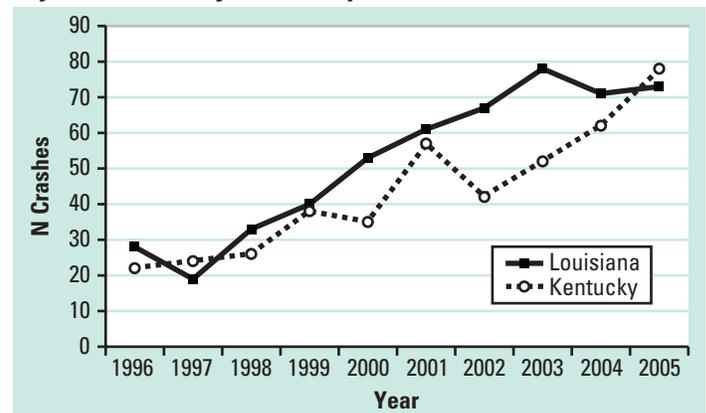
FARS Data

There were a total of 523 fatal crashes in Louisiana from 1996 through 2005 in which at least one motorcycle occupant was killed for each crash. Kentucky was chosen as

a comparison State to explore possible regional effects and because its universal helmet law was repealed in 1998. Kentucky had less than a hundred fewer fatal crashes (N=436) between 1996 and 2005 than Louisiana (N=523).

In 2004, following the law change there was the first decrease in crashes in Louisiana since the 1999 repeal. There was a slight increase in crashes in 2005 but there were still fewer crashes than before the law was reinstated. Kentucky, during the same time period, also showed a general increase in crashes. There was a major shift in Kentucky's crashes in 1999 perhaps due to its repeal of its universal helmet law in 1998. After a decline in 2002, Kentucky's crashes increased steadily. It appears that the drop in fatal crashes in Louisiana was not replicated in a nearby State, and is therefore likely attributable to the law change.

Crashes in Louisiana and Kentucky with a Fatally Injured Motorcycle Occupant.



Source: FARS (1996–2005)

Conclusion

The 1999 helmet law repeal in Louisiana dramatically decreased observed helmet use from almost 100-percent compliance to approximately 50 percent. Observed helmet use doubled upon reinstatement of the universal helmet law in August 2004.

The years following the repeal showed a sharp increase in the number of motorcyclist fatalities in Louisiana. Crash data showed that the odds of wearing a helmet in a crash after the Louisiana motorcycle helmet law was reinstated were more than double compared to pre-law. This increase in helmet use after the reinstatement of the universal helmet law by crash-involved riders was associated with a significantly lower proportion of fatalities, severe injuries, and moderate injuries during the post-reinstatement period compared to the pre-law period. The analyses indicated that there were also fewer severe and fatal crashes following the law change.

Louisiana experienced the first decline in motorcyclist fatalities in six years when the universal helmet law was reinstated. These results support the supposition that the decrease in fatal motorcycle crashes in Louisiana after the helmet law was reinstated was directly

affected by the law change. Time series analysis suggested that there were approximately 9.4 fewer fatal and serious-injury crashes per month.

Nationally, there is a relationship between the passage and repeals of helmet laws and the number of motorcycle registrations. Motorcycle registrations have been increasing since 1997, coincident with the repeal of universal helmet laws in some States. When a greater proportion of the population was not covered by the laws in their States, motorcycle registrations also increased. This relationship has been used as an explanation for rising fatalities after repealing helmet laws. Further analysis suggests that regardless of this trend, the lack of a universal helmet requirement leads to increased motorcycle fatalities well beyond what might be expected from an increase in registrations.

How to Order

To order *Evaluation of the Reinstatement of the Motorcycle Helmet Law in Louisiana* (29 pages plus appendices), prepared by Preusser Research Group, write to NHTSA, NTI-111, 1200 New Jersey Avenue SE., Washington, DC 20590, fax 202-366-7096, or download from www.nhtsa.dot.gov. Patty Ellison-Potter, Ph.D., was the Contracting Officer's Technical Representative for this project.



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