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DRIVERS ON UNFAMILIAR ROADS AND TRAFFIC CRASHES

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16. Abstract <p>This study was designed to investigate whether there is an increased risk of traffic crashes in the U.S. for out-of-state drivers—those drivers whose driver license was not issued by the state in which they were involved in a crash. Two analyses were performed. In the first analysis, we examined the percentages of out-of-state drivers among those involved in fatal crashes using the data from the Fatal Analysis Reporting System (FARS). In the second analysis, we correlated these percentages with the states' fatality rates per distance driven. Both analyses used the data for 2008.</p> <p>There are two main findings of this study. First, there is wide variability across the 50 U.S. states in the percentage of all drivers involved in fatal crashes who were out-of-state drivers, with a minimum of 5.0% in California and a maximum of 41.2% in Wyoming. Second, there is a positive correlation between this percentage and the corresponding fatality rate per distance driven. This later finding is consistent with the hypothesis that unfamiliarity with the road increases the likelihood of a traffic crash.</p>					
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Contents

Acknowledgment	ii
Introduction.....	1
Method	2
Results.....	2
Conclusions.....	7
References.....	8

Introduction

There is some evidence that foreign drivers might have an increased likelihood of being involved in traffic crashes. Suggestive evidence for this comes, for example, from Finland (Leviäkangas, 1998) and Greece (Petridou et al., 1999). Furthermore, the issue has been discussed with respect to traffic crashes in other countries, such as Austria (Hoefner, 1987) and Germany (Lenz, 1987). However, it is important to point out that a nonfatal crash is more likely to be reported if a foreign driver is involved, and especially so for less severe crashes.

The offered explanations for the overinvolvement of foreign drivers span a wide variety of potential factors, including different “traffic culture” (Leviäkangas, 1998); longer travel distances, younger age, and more frequent nighttime driving (Petridou et al., 1999); lack of knowledge concerning the intended route and poorer vehicle condition (Hoefner, 1987); and difficulties in maintaining proper headway (Lenz, 1987).

The increased risk of traffic crashes appears to apply not only to foreign drivers, but also to drivers of the same nationality, who are not local to the area in which the crash occurred. This has been shown, for example, for crashes in German cities (Engels and Dellen, 1989), with the increased risk attributed, in part, to unfamiliarity with the local roads.

The present study was designed to investigate whether there is an increased risk of traffic crashes in the U.S. for out-of-state drivers—those drivers whose driver license was not issued by the state in which they were involved in a crash.

Method

Two analyses were performed. In the first analysis, we examined the percentages of out-of-state drivers among those involved in fatal crashes¹ using the data from FARS (Fatal Analysis Reporting System) for 2008 (FARS, 2010). Drivers were considered *out-of-state* if their driver's license was issued by a state (or country) different from the state in which the fatal crash occurred. Conversely, drivers were considered *in-state* if the driver's license state and crash state matched. (The District of Columbia was excluded because of the unusually high percentage of out-of-state drivers.) Driver license information was available for 49,304 drivers of the 50,416 drivers involved in a fatal crash.

In the second analysis, we correlated the percentages of out-of-state drivers involved in fatal crashes with the states' fatality rates per distance driven (NHTSA, 2009). The information for both the proportion of out-of-state drivers and the fatality rate were for 2008.

Results

The percentages of all drivers involved in fatal crashes who were out-of-state drivers for each of the 50 states are listed in Table 1. The results indicate wide variability in this measure across the states, with a minimum of 5.0% in California and a maximum of 41.2% in Wyoming.

The geographical distribution of these percentages is shown in Figure 1. The information in Figure 1 is consistent with two general expectations. First, the percentage of drivers involved in fatal crashes that were out-of-state tends to be lower in coastal states (because coastal states are not fully surrounded by other states). Second, this percentage tends to be higher in states with substantial tourist population (e.g., skiers in Vermont).

¹ Not every driver involved in a fatal crash becomes a fatality.

Table 1
 Percentage of all drivers involved in fatal crashes who were out-of-state drivers
 and fatality rate per distance driven, by state.

State	Percentage of all drivers involved in fatal crashes who were out-of-state drivers	Fatality rate per 100 million miles
Alabama	12.8	1.63
Alaska	12.4	1.27
Arizona	14.6	1.52
Arkansas	14.6	1.81
California	5.0	1.05
Colorado	14.3	1.15
Connecticut	14.6	0.83
Delaware	17.4	1.35
Florida	6.7	1.50
Georgia	10.2	1.37
Hawaii	12.4	1.04
Idaho	20.3	1.52
Illinois	9.0	0.98
Indiana	14.0	1.15
Iowa	13.4	1.34
Kansas	15.9	1.30
Kentucky	13.7	1.74
Louisiana	12.7	2.02
Maine	7.4	1.06
Maryland	14.4	1.07
Massachusetts	12.3	0.67
Michigan	5.4	0.96
Minnesota	8.5	0.79
Mississippi	9.7	1.79
Missouri	13.9	1.41
Montana	22.6	2.12

(continued)

Table 1 (continued)

State	Percentage of all drivers involved in fatal crashes who were out-of-state drivers	Fatality rate per 100 million miles
Nebraska	17.4	1.09
Nevada	21.3	1.56
New Hampshire	17.9	1.07
New Jersey	13.8	0.80
New Mexico	24.2	1.39
New York	9.5	0.92
North Carolina	9.7	1.41
North Dakota	13.9	1.33
Ohio	7.8	1.10
Oklahoma	13.7	1.54
Oregon	13.1	1.24
Pennsylvania	9.8	1.36
Rhode Island	18.4	0.79
South Carolina	14.0	1.85
South Dakota	27.1	1.32
Tennessee	11.5	1.49
Texas	7.2	1.44
Utah	13.3	1.06
Vermont	22.5	1.00
Virginia	14.2	1.00
Washington	8.8	0.94
West Virginia	24.0	1.83
Wisconsin	10.2	1.05
Wyoming	41.2	1.68

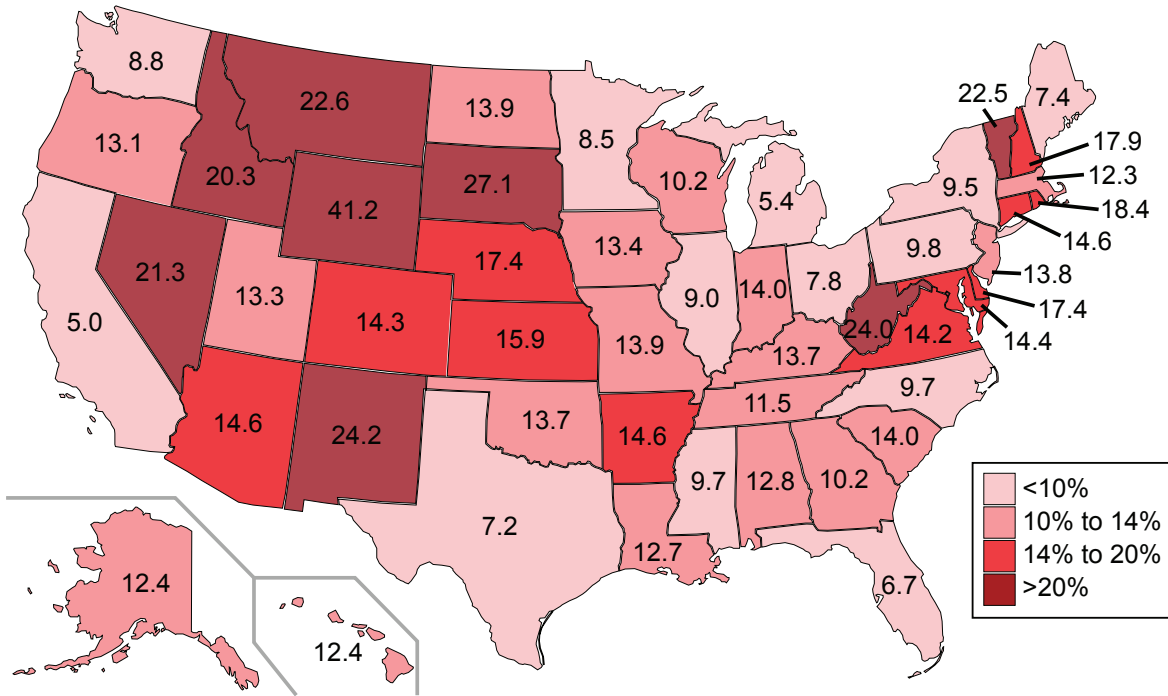


Figure 1. Percentage of all drivers involved in fatal crashes who were out-of-state drivers.

The states' fatality rates per distance driven are listed in the third column of Table 1. This rate ranged from a minimum of 0.67 in Massachusetts to a maximum of 2.12 in Montana.

A scatter plot of the relationship between the states' percentages of all drivers involved in fatal crashes who were out-of-state drivers and the corresponding fatality rates per distance driven is shown in Figure 2. The correlation between these two variables was $r(48) = 0.30, p < 0.05$.

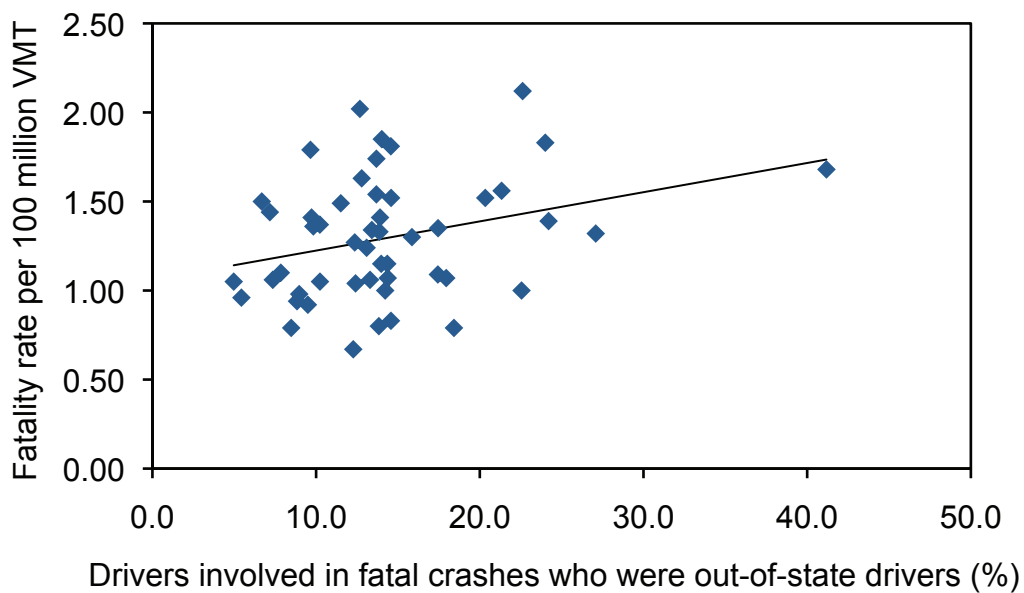


Figure 2. The relationship between the states' percentages of all drivers involved in fatal crashes who were out-of-state drivers and the corresponding fatality rates per distance driven. (The line represents the best fitting linear-regression equation.)

Conclusions

There are two main findings of this study. First, there is wide variability across the 50 U.S. states in the percentage of all drivers involved in fatal crashes who were out-of-state drivers, with a minimum of 5.0% in California and a maximum of 41.2% in Wyoming. Second, there is a positive correlation between this percentage and the corresponding fatality rate per distance driven. This later finding is consistent with the hypothesis that unfamiliarity with the road increases the likelihood of a traffic crash.

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