Effects of the 65-mph Speed Limit on Traffic Accidents in Ohio

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The effects of the 65-mph speed limit on traffic accidents on rural Interstate highways posted at 65 or 55 mph and rural non-Interstate highways posted at 55 mph in Ohio were examined by analyzing the accident data for 36 months before the implementation of the speed change law and an equal number of months after the implementation. The changes in accident rates, that is, the average number of accidents per month, were examined relative to weather conditions and seasons as well as day of week, time of day, light conditions, and vehicle mix. It was found that fatal accident rates on rural Interstate highways posted at 65 mph or rural non-Interstate highways posted at 55 mph had not significantly changed after the implementation of the 65-mph speed limit. Fatal accident rates on rural Interstate highways posted at 55 mph showed an increase in the "after" period. However, when the data were categorized according to weather conditions, no significant change in fatal accident rates was found. There have been some increases in injury and property damage only (PDO) accident rates on rural Interstate highways posted at 65 mph. The injury and PDO accident rates on rural Interstate highways posted at 55 mph have decreased and shown no indication of adverse "spillover" effect. Injury and PDO accidents as well as the severity of accidents have decreased on the non-Interstate highways posted at 55 mph, perhaps indicating positive effects of the seat belt law, speed enforcement, and geometric and operational improvements in recent years.

In July 1987, the state of Ohio changed the speed limit on rural Interstate highways from 55 to 65 mph. Since then, efforts have been made to understand the impacts of the change in speed limit on vehicle operating speed, accident distributions, and the safety of motorists on the highways. In previous years, several other states with Interstate speed limit of 65 mph have performed studies on accident distributions in their respective states. The results of these studies are sometimes different, and even conflicting, among the states. Hence a study that considers the unique characteristics of highways, traffic, and weather conditions in Ohio would allow us to better understand the changes that have occurred in the state since the speed limit on rural Interstate highways was changed to 65 mph.

The objective of this study was to evaluate the impacts of the 65-mph speed limit on accident distributions in Ohio. In particular, the effects of the 65-mph speed limit were examined for the following categories of highways:

1. Rural Interstate highways posted at 65 mph (rural was defined as areas outside corporation limits),
2. Rural Interstate highways posted at 55 mph, and
3. Rural non-Interstate highways posted at 55 mph.

The last two categories were included in the study to determine whether there was any "spillover" effect of the 65-mph speed limit on Interstate and non-Interstate highways with 55-mph speed limit.

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RESEARCH APPROACH

The Ohio Department of Highway Safety (ODHS) provided access to the accident data existing in the mainframe computer, which was remotely and selectively downloaded to a personal computer for each month of the study periods. The list of Interstate highway segments along with the posted speed and log points in each county was provided by ODHS. Although accident analyses are generally performed by using control or comparison sites, the possibility of defining such sites when the treatment (the law change) is implemented at one point in time does not exist. Hence any analysis that is performed to examine the effects of the Interstate 65-mph speed limit must control for the effects of external factors that are acting on accident distributions at the same time.

"Before" and "After" Periods

The Interstate 65-mph speed limit went into effect on July 15, 1987. Two periods consisting of 36 months before July 1987 and an equal number of months after July 1987 were used in the analysis of the accident data. The month of July 1987 was excluded from the study. The two periods were (*a*) "before" (July 1984 to June 1987) and (*b*) "after" (August 1987 to July 1990).

Type of Accidents

Accident frequency was used as the criterion for evaluation. The following types of accidents were included: fatal, injury, and property damage only (PDO) accidents. Injury accidents were further subdivided into the following categories: serious visible injury, minor visible injury, and no visible injury.

Vehicles Miles Traveled

A list of daily vehicle miles traveled (VMT) for rural Interstate highways posted at 65 and 55 mph and rural non-Interstate

highways for each year was obtained from the Ohio Department of Transportation. Using 1985 as the base year, the accident frequency for each month was adjusted for change in VMT in that month. Thus the accident frequency for 1985 was kept constant and the frequencies for the remaining years were adjusted in proportion to the change in VMT relative to 1985.

Weather

When the time series plots of the monthly accident data for 6 years were examined, they clearly exhibited the effects of adverse weather conditions and seasons. It seemed that any attempt to analyze the accident data without filtering the effects of weather would not be meaningful. Hence the data were further subdivided into two categories: accidents under normal weather conditions and accidents under adverse weather conditions. The analysis is based on weather conditions that existed at the time and place of accidents during the study periods. The results cannot necessarily be extrapolated into future years because of the changing nature of weather conditions.

Seasons

After the data were categorized into the two groups according to weather conditions, they were divided into four quarters as follows: Quarter 1, January to March; Quarter 2, April to June; Quarter 3, July to September; and Quarter 4, October to December. The quarterly accident data were separately analyzed.

Other Factors

The effects of the following variables on accident rates were also examined:

- Day of week: The days were divided into weekdays and weekends.
- Time of day: The time of day was divided into 6:00 a.m.–6:00 p.m. and 6:00 p.m.–6:00 a.m.
- Light conditions: The light condition was divided into daylight and dark.
- Vehicle mix: The first two vehicles in the accidents were examined by dividing the vehicles into two subcategories: light vehicles (e.g., car and pickup truck) and heavy vehicles (e.g., straight truck, truck-trailer, bus, and recreational vehicles).

Hypothesis Testing

After adjusting the data into several categories and subcategories as described, the accident data were analyzed by using the STATGRAPHICS statistical package (*1*). The Comparison of Poisson Rates procedure was used to compare the mean rate of accidents (that is, the average number of accidents per month) for the 36 months of the "before" and "after" periods. For the quarterly data, the analysis was performed for 9 months in each period. The standardized test statistic z for equal rates was calculated to test the hypothesis that the accident rates during the "before" and "after" periods are the same. Finally, a probability level based on a large sample approximation was computed. The test was performed at the 0.05 level of significance. The results of the analysis that were found significant are discussed in the following sections.

RURAL INTERSTATE HIGHWAYS POSTED AT 65 mph

The results of the accident analysis for rural Interstate highways posted at 65 mph are described below (see Tables 1 to 3). The mean accident rates refer to the average number of accidents per month, after adjusting for the changes in VMT as described previously.

When the fatal accident data for the two periods before and after the implementation of the Interstate 65-mph speed limit were examined, the mean fatality rates were not significantly different in the two periods. The analysis showed that the 65-mph speed limit had not adversely affected the mean fatal accident rates on Interstate highways posted at 65 mph.

The mean accident rates for injury and PDO accidents were found to be significantly different in the "before" and "after" periods. They indicated that the Interstate 65-mph speed limit had increased injury accidents by 16 percent and PDO accidents by 10 percent. When the data were classified according to weather conditions, injury accidents increased by 12 and 23 percent for normal and adverse weather conditions, respectively, and the PDO accidents increased by 10 and 8 percent, respectively. A further analysis of the data by quarter showed that the increases in injury and PDO accident rates were limited to Quarters 3 and 4, indicating seasonal effects of the change in the speed limit.

No differences were found among the mean serious visible injury accident rates in the two periods. However, minor visible injury and no visible injury accidents increased by 6 and 28 percent, respectively. When classified according to weather conditions, the mean rates for minor visible injury accidents showed no significant difference between the two periods. The no visible injury accidents increased by 22 and 40 percent for normal and adverse weather conditions, respectively. "No visible injury" accidents are those claimed by individuals but unable to be verified by the reporting officers. Overall, the analysis showed that the increase in mean accident rates after the implementation of the 65-mph speed limit was mostly limited to injury and PDO accidents.

Mean fatal accident rates experienced no changes during weekdays or weekends under normal and adverse weather conditions. Injury accidents under normal weather conditions increased by 8 percent during weekdays and 21 percent during weekends. Fatal accident rates between 6:00 a.m. and 6:00 p.m. and between 6:00 p.m. and 6:00 a.m. did not experience any change after the implementation of the 65-mph speed limit. However, serious visible injury accidents between 6:00 a.m. and 6:00 p.m. increased by 15 to 33 percent. (The two percentages represent accidents for normal and adverse weather conditions.) Minor visible injury accidents between 6:00 p.m. and 6:00 a.m. increased by 9 percent under normal weather

TABLE 1 Accident Frequency and Results of Significance Test—Interstate Highways Posted at 65 mph

		Fatal[a]	Injury[b]	PDO[c]	Type2[d]	Type3[e]	Type4[f]
3 Years	Before	98	3536	11058	395	2025	1714
	After	109	4097	12156	426	2158	2199
		NS[g]	S[h]	S[h]	NS[g]	S[h]	S[h]
Quarter 1	Before	24	975	3074	79	535	508
	After	23	1012	2894	96	493	590
		NS[g]	S[h]	S[h]	NS[g]	S[h]	S[h]
Quarter 2	Before	34	799	2668	111	460	361
	After	26	802	2670	96	442	397
		NS[g]	NS[g]	NS[g]	NS[g]	NS[g]	NS[g]
Quarter 3	Before	26	842	2056	109	535	367
	After	36	1023	2379	117	609	495
		NS[g]	S[h]	S[h]	NS[g]	S[h]	S[h]
Quarter 4	Before	14	920	3258	95	494	478
	After	24	1261	4212	117	613	718
		NS[g]	S[h]	S[h]	NS[g]	S[h]	S[h]

[a]Fatal accidents
[b]Injury accidents
[c]Property damage only accidents
[d]Serious visible injury
[e]Minor visible injury
[f]No visible injury
[g]Not significant at 0.05 level of significance
[h]Significant at 0.05 level of significance

TABLE 2 Accident Frequency by Weather Conditions and Results of Significance Test—Interstate Highways Posted at 65 mph

		Fatal[a]		Injury[b]		PDO[c]	
		Norm.[d]	Adv.[e]	Norm.[d]	Adv.[e]	Norm.[d]	Adv.[e]
3 Years	Before	80	18	2379	1157	7652	3406
	After	79	30	2672	1425	8463	3693
		NS[f]	NS[f]	S[g]	S[g]	S[g]	S[g]
Quarter 1	Before	20	4	437	538	1461	1613
	After	14	9	430	582	1383	1511
		NS[f]	NS[f]	NS[f]	NS[f]	NS[f]	NS[f]
Quarter 2	Before	26	8	646	153	2202	466
	After	21	5	667	135	2257	413
		NS[f]	NS[f]	NS[f]	NS[f]	NS[f]	NS[f]
Quarter 3	Before	23	3	732	110	1813	243
	After	29	7	845	178	2063	316
		NS[f]	NS[f]	S[g]	S[g]	S[g]	S[g]
Quarter 4	Before	11	3	563	357	2175	1083
	After	15	9	730	531	2759	1453
		NS[f]	NS[f]	S[g]	S[g]	S[g]	S[g]

[a]Fatal accidents
[b]Injury accidents
[c]Property damage only accidents
[d]Normal weather
[e]Adverse weather
[f]Not significant at 0.05 level of significance
[g]Significant at 0.05 level of significance

TABLE 3 Injury Accident Frequency by Weather Conditions and Results of Significance Test—Interstate Highways Posted at 65 mph

		Type2 Injury[a]		Type3 Injury[b]		Type4 Injury[c]	
		Norm.[d]	Adv.[e]	Norm.[d]	Adv.[e]	Norm.[d]	Adv.[e]
3 Years	Before	301	94	1419	606	1078	636
	After	318	108	1492	666	1311	888
		NS[f]	NS[f]	NS[f]	NS[f]	S[g]	S[g]
Quarter 1	Before	43	36	252	283	208	300
	After	51	45	236	257	212	378
		NS[f]	NS[f]	NS[f]	NS[f]	NS[f]	S[g]
Quarter 2	Before	97	14	375	85	282	79
	After	84	12	372	70	319	78
		NS[f]	NS[g]	NS[f]	NS[f]	NS[f]	NS[f]
Quarter 3	Before	96	13	465	70	320	47
	After	108	9	513	96	394	101
		NS[f]	NS[f]	NS[f]	S[g]	S[g]	S[g]
Quarter 4	Before	64	31	326	168	268	210
	After	75	42	370	243	386	332
		NS[f]	NS[f]	NS[f]	S[g]	S[g]	S[g]

[a]Serious visible injury
[b]Minor visible injury
[c]No visible injury
[d]Normal weather
[e]Adverse weather
[f]Not significant at 0.05 level of significance
[g]Significant at 0.05 level of significance

conditions. Mean fatal accident rates experienced no change during daylight or dark conditions. Injury accidents in daylight conditions increased by 13 to 35 percent. PDO accidents under dark and normal weather conditions increased by 16 percent. Finally, accidents involving only light vehicles increased by 34 to 45 percent. Mean accident rates involving light and heavy vehicles were not different.

RURAL INTERSTATE HIGHWAYS POSTED AT 55 mph

The results of the analysis of accidents on rural Interstate highways posted at 55 mph (existing outside corporation lines) are described below (see Tables 4 to 6).

When fatal accident data for the two periods before and after the implementation of the Interstate 65-mph speed limit were examined, the mean fatality rates were found to be significantly different at the 0.06 level of significance. Accident frequency had increased from 53 in the "before" period to 75 in the "after" period (an increase of 41 percent). However, when the accident data were categorized by normal and adverse weather conditions, no significant difference in the mean accident rates was found. The only significant difference in mean fatal accident rates occurred under normal weather conditions during Quarter 1. (The number of accidents increased threefold, from 5 to 15, during Quarter 1.) No significant differences in fatal accident rates were found during the remaining three quarters.

The analysis showed that injury and PDO accidents decreased by 5 and 3 percent, respectively. Serious visible injury accidents decreased by 23 percent, and minor visible accidents decreased by 15 percent. There was no significant difference between the "no visible injury" accident rates in the two periods. An exception was the mean PDO accident rate during adverse weather conditions, which showed a decrease of 12 percent in the "after" period.

The data were further analyzed according to injury severity under normal and adverse weather conditions. Serious visible injury accidents under normal weather conditions decreased by 27 percent, with no difference in accident rates under adverse weather conditions. In addition, minor visible injury accidents under normal and adverse weather conditions decreased by 15 percent. Although the decreases in accidents cannot be directly related to the Interstate 65-mph speed limit, perhaps they can be attributed to other factors such as seat belt law, speed enforcement, and so forth. When the data were further analyzed by quarter, it was found that the majority of the reductions in injury rates occurred under normal weather conditions.

Mean fatal accident rates were not significantly different during weekdays or weekends under normal and adverse weather conditions. However, fatal accidents between 6:00 a.m. and 6:00 p.m. under normal weather conditions increased by 123 percent, from 13 to 29. Whereas the increase in accident rates could, at least partially, be attributed to the Interstate 65-mph speed limit, the effects of other factors such as heavy traffic volumes during these hours should be considered. Serious visible injury accidents between 6:00 p.m. and 6:00 a.m. decreased by 9 to 12 percent. Fatal accidents under daylight and normal weather conditions increased from 15 to 30, an increase of 100 percent. The number of accidents

TABLE 4 Accident Frequency and Results of Significance Test—Interstate Highways Posted at 55 mph

		Fatal[a]	Injury[b]	PDO[c]	Type2[d]	Type3[e]	Type4[f]
3 Years	Before	53	4312	9600	423	2021	2460
	After	75	4094	9257	326	1721	2582
		S[i]	S[h]	S[h]	S[h]	S[h]	NS[g]
Quarter 1	Before	7	1049	2652	91	450	615
	After	19	971	2253	60	381	636
		S[h]	NS[g]	S[h]	S[h]	S[h]	NS[g]
Quarter 2	Before	19	983	2112	113	481	544
	After	24	932	2154	91	406	575
		NS[g]	NS[g]	NS[g]	NS[g]	S[h]	NS[g]
Quarter 3	Before	15	1134	2120	121	556	627
	After	13	1009	2126	89	444	615
		NS[g]	S[h]	NS[g]	S[h]	S[h]	NS[g]
Quarter 4	Before	13	1148	2717	99	535	673
	After	20	1181	2724	86	491	755
		NS[g]	NS[g]	NS[g]	NS[g]	NS[g]	S[h]

[a]Fatal accidents
[b]Injury accidents
[c]Property damage only accidents
[d]Serious visible injury
[e]Minor visible injury
[f]No visible injury
[g]Not significant at 0.05 level of significance
[h]Significant at 0.05 level of significance
[i]Significant at 0.06 level of significance

TABLE 5 Accident Frequency by Weather Conditions and Results of Significance Test—Interstate Highways Posted at 55 mph

		Fatal[a]		Injury[b]		PDO[c]	
		Norm.[d]	Adv.[e]	Norm.[d]	Adv.[e]	Norm.[d]	Adv.[e]
3 Years	Before	45	8	3056	1256	6721	2879
	After	61	14	2926	1168	6737	2520
		NS[f]	NS[f]	NS[f]	NS[f]	NS[f]	S[g]
Quarter 1	Before	5	2	566	483	1341	1311
	After	15	4	579	392	1283	970
		S[g]	NS[f]	NS[f]	NS[f]	S[g]	S[g]
Quarter 2	Before	17	2	817	166	1744	368
	After	21	3	744	188	1759	395
		NS[f]	NS[f]	NS[f]	NS[f]	NS[f]	NS[f]
Quarter 3	Before	13	2	976	158	1851	269
	After	12	1	838	171	1845	281
		NS[f]	S[g]	NS[f]	NS[f]	NS[f]	NS[f]
Quarter 4	Before	11	2	698	450	1786	931
	After	14	6	764	417	1850	874
		NS[f]	NS[f]	NS[f]	NS[f]	NS[f]	NS[f]

[a]Fatal accidents
[b]Injury accidents
[c]Property damage only accidents
[d]Normal weather
[e]Adverse weather
[f]Not significant at 0.05 level of significance
[g]Significant at 0.05 level of significance

TABLE 6 Injury Accident Frequency and Results of Significance Test—Interstate Highways Posted at 55 mph

		Type2 Injury[a]		Type3 Injury[b]		Type4 Injury[c]	
		Norm.[d]	Adv.[e]	Norm.[d]	Adv.[e]	Norm.[d]	Adv.[e]
3 Years	Before	348	75	1454	567	1704	756
	After	254	72	1244	477	1822	760
		S[g]	NS[f]	S[g]	S[g]	S[g]	NS[f]
Quarter 1	Before	56	35	251	199	320	295
	After	42	18	240	141	358	278
		NS[f]	S[g]	NS[f]	S[g]	NS[f]	NS[f]
Quarter 2	Before	101	12	397	84	442	102
	After	73	18	325	81	459	116
		S[g]	NS[f]	S[g]	NS[f]	NS[f]	NS[f]
Quarter 3	Before	114	7	484	72	530	97
	After	78	11	370	74	509	106
		NS[f]	NS[f]	NS[f]	S[g]	S[g]	S[g]
Quarter 4	Before	77	22	322	213	411	262
	After	61	25	309	182	496	259
		NS[f]	NS[f]	NS[f]	NS[f]	S[g]	NS[f]

[a]Serious visible injury
[b]Minor visible injury
[c]No visible injury
[d]Normal weather
[e]Adverse weather
[f]Not significant at 0.05 level of significance
[g]Significant at 0.05 level of significance

TABLE 7 Accident Frequency and Results of Significance Test—Non-Interstate Highways Posted at 55 mph

		Fatal[a]	Injury[b]	PDO[c]	Type2[d]	Type3[e]	Type4[f]
3 Years	Before	1258	37440	71025	5436	22292	17281
	After	1181	34444	68763	4679	19921	16887
		NS[g]	S[h]	S[h]	S[h]	S[h]	S[h]
Quarter 1	Before	233	8323	19048	1049	4639	4224
	After	229	7951	17601	931	4301	4171
		NS[g]	S[h]	S[h]	S[h]	S[h]	NS[g]
Quarter 2	Before	315	9145	14866	1427	5642	3989
	After	209	8055	13850	1190	4840	3762
		S[h]	S[h]	S[h]	S[h]	S[h]	S[h]
Quarter 3	Before	373	9997	25991	1348	5699	4890
	After	295	9532	24655	1211	5253	4981
		NS[g]	S[h]	S[h]	S[h]	S[h]	NS[g]
Quarter 4	Before	337	9976	25991	1348	5699	4890
	After	295	9532	24655	1211	5253	4981
		NS[g]	S[h]	S[h]	S[h]	S[h]	NS[g]

[a]Fatal accidents
[b]Injury accidents
[c]Property damage only accidents
[d]Serious visible injury
[e]Minor visible injury
[f]No visible injury
[g]Not significant at 0.05 level of significance
[h]Significant at 0.05 level of significance

TABLE 8 Accident Frequency by Weather Conditions and Results of Significance Test—Non-Interstate Highways Posted at 55 mph

		Fatal[a]		Injury[b]		PDO[c]	
		Norm.[d]	Adv.[e]	Norm.[d]	Adv.[e]	Norm.[d]	Adv.[e]
3 Years	Before	1020	246	28115	9325	52193	18832
	After	976	205	25665	8779	51350	17413
		NS[f]	S[g]	S[g]	S[g]	S[g]	S[g]
Quarter 1	Before	152	81	5088	3235	11425	7623
	After	173	56	4962	2989	10976	6625
		NS[f]	NS[f]	S[g]	S[g]	S[g]	S[g]
Quarter 2	Before	270	45	7806	1339	12574	2292
	After	169	40	6549	1506	11475	2375
		NS[f]	S[g]	S[g]	NS[f]	S[g]	NS[f]
Quarter 3	Before	343	30	8617	1380	11298	1822
	After	312	36	7457	1450	10567	2090
		NS[f]	NS[f]	S[g]	S[g]	S[g]	S[g]
Quarter 4	Before	247	90	6605	3371	16896	9095
	After	222	73	6698	2834	18332	6323
		NS[f]	NS[f]	S[g]	NS[f]	S[g]	S[g]

[a]Fatal accidents
[b]Injury accidents
[c]Property damage only accidents
[d]Normal weather
[e]Adverse weather
[f]Not significant at 0.05 level of significance
[g]Significant at 0.05 level of significance

involving only light vehicles increased by 9 percent under normal weather conditions. There were no differences in mean accident rates involving light and heavy vehicles. The number of accidents involving only heavy vehicles decreased by 48 percent.

RURAL NON-INTERSTATE HIGHWAYS POSTED AT 55 mph

The traffic accidents on rural non-Interstate highways posted at 55 mph during the "before" and "after" periods were analyzed. The results are described below (see Tables 7 to 9).

No significant difference in mean fatal accident rates was found on rural non-Interstate highways posted at 55 mph. When the accident data were categorized by weather conditions, fatal accidents under adverse weather conditions decreased by 17 percent in the "after" period. The injury and PDO accidents decreased by 8 and 3 percent, respectively, in the "after" period. When injury accidents were classified by severity, the frequency of serious visible, minor visible, and no visible accidents in the "after" period were found to decrease by various amounts ranging from 2 to 14 percent. When quarterly data were analyzed, it was found that most of the quarters experienced a decrease in injury and PDO accidents, indicating a change in the pattern of accidents in the "after" period.

When the data were categorized by weather conditions and tested for the effects of day of week, time of day, light condition, and vehicle mix, a similar pattern of decrease in accidents was found in the "after" period. Obviously, the reductions in accident rates cannot be attributed to the change in the speed limit. However, the changes can perhaps be attributed to several countermeasures including the seat belt law, speed enforcement, geometric and operational improvements, and so forth that have been implemented on the non-Interstate highways during recent years. An examination of these factors was outside the scope of the study.

CONCLUSIONS

The interaction of speed and accident is a complex phenomenon, which becomes more complicated because of the effects of weather, season, day of week, time of day, light conditions, and vehicle mix. The statistical analysis calculated the mean rates of accidents (that is, the number of accidents per month) and tested the hypothesis that the rates during the "before" and "after" periods are the same.

On the basis of the statistical analysis, it is concluded that the mean fatal accident rate on rural Interstate highways posted at 65 mph in Ohio has not adversely changed after the implementation of the 65-mph speed limit. There were some increases in mean injury and PDO accident rates on these highways during the 36 months after the increase in the speed limit.

Mean fatal accident rates on rural Interstate highways posted at 55 mph increased in the "after" period. However, when the data were categorized according to weather conditions, no adverse change in mean fatal accident rates was found.

TABLE 9 Injury Accident Frequency by Weather Conditions and Results of Significance Test—Non-Interstate Highways Posted at 55 mph

		Type2 Injury[a]		Type3 Injury[b]		Type4 Injury[c]	
		Norm.[d]	Adv.[e]	Norm.[d]	Adv.[e]	Norm.[d]	Adv.[e]
3 Years	Before	4335	1101	17037	5255	12505	4766
	After	3765	914	15280	4641	12059	4828
		S[g]	S[g]	S[g]	S[g]	S[g]	NS[f]
Quarter 1	Before	709	340	2908	1731	2459	1765
	After	659	272	2802	1499	2457	1714
		NS[f]	S[g]	NS[f]	S[g]	NS[f]	NS[f]
Quarter 2	Before	1243	184	4855	787	3334	655
	After	1025	165	4035	805	2924	838
		S[g]	NS[f]	S[g]	NS[f]	S[g]	S[g]
Quarter 3	Before	1448	163	5468	844	3550	630
	After	1167	179	4663	864	3292	680
		S[g]	NS[f]	S[g]	NS[f]	S[g]	NS[f]
Quarter 4	Before	934	414	3806	1893	3164	1726
	After	913	298	3780	1473	3386	1595
		NS[f]	S[g]	NS[f]	S[g]	S[g]	S[g]

[a]Serious visible injury
[b]Minor visible injury
[c]No visible injury
[d]Normal weather
[e]Adverse weather
[f]Not significant at 0.05 level of significance
[g]Significant at 0.05 level of significance

Injury and PDO accident rates on rural Interstate highways posted at 55 mph decreased and showed no indication of an adverse spillover effect in the "after" period.

The mean fatal accident rate on non-Interstate highways posted at 55 mph has not adversely changed after the implementation of the 65-mph speed limit and has decreased under adverse weather conditions. Injury and PDO accidents as well as the severity of accidents have decreased, perhaps indicating the positive effects of the seat belt law, speed enforcement, and geometric and operational improvements during recent years. Whether the accidents would have further decreased in the (hypothetical) absence of the 65-mph speed limit can only be speculated on. Some effects of time of day, day of week, and light conditions have been noted in the results; however, further study is needed to isolate the exact relationships among these factors.

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