Effect of the 65-mph Speed Limit on Speeds in Three States

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Following the April 1987 enactment of federal law permitting 65-mph speed limits on rural Interstate highways, 40 states adopted higher speed limits by the middle of 1988. Nondetectable radar was used to measure speeds in three states to evaluate the effect of the 65-mph speed limit on speeds of free-flowing vehicles on Interstate highways during daytime off-peak periods (9:00 a.m. to 4:00 p.m.). In New Mexico, rural and urban speeds were measured at 2-month intervals over a 2-year period after the speed limit was increased in April 1987. In Virginia and Maryland, rural speed data were collected immediately before and after Virginia implemented the 65-mph limit in July 1988 and data collection was repeated at 3-month intervals for 1 year. Two weeks after the 65-mph speed limit began in Virginia, mean and 85th-percentile speeds of cars were higher by almost 3 mph, whereas the speed of tractor-trailers (still limited to 55 mph) was unchanged. The proportion of cars exceeding 70 mph nearly doubled. Speeds of cars and trucks in neighboring Maryland (with 55-mph speed limit) did not increase during the same 2 weeks. A longer-term trend of increasing speed was also found in Virginia. In contrast, car speeds in Maryland showed no upward trend, but tractor-trailer speeds have increased to the same level as in Virginia. In New Mexico, average speeds of passenger cars and light trucks on rural highways increased nearly 3 mph within 9 months of the 65-mph law and have since continued to increase. The proportion exceeding 70 mph grew nearly fivefold for cars and doubled for heavy trucks. Urban highway speeds in New Mexico have shown a slight net increase over 27 months, while also exhibiting pronounced seasonal variation.

When the 55-mph national speed limit was established in 1974 as part of a broad effort to reduce energy consumption in the United States, average speeds on rural Interstate highways (as determined by each state and reported by the FHWA) dropped from 65.0 mph in 1973 to 57.6 mph (*1*). Since 1974, speeds both on urban and rural Interstate highways have gradually increased. Although the procedures used by states to measure, analyze, and report speeds changed between 1980 and 1982, by 1986 the average speed on rural Interstate highways increased to 59.7 mph and the 85th-percentile speed (the speed at or below which 85 percent of the vehicles are traveling) was 66.2 mph (*1*). By 1986, 76 percent of drivers exceeded 55 mph and 18 percent exceeded 65 mph on rural Interstate highways. As many as 90 percent of vehicles were traveling faster than 55 mph and more than 30 percent surpassed 65 mph in some states (*1*).

In April 1987, Congress enacted the Surface Transportation and Uniform Relocation Act permitting states to set a maximum 65-mph speed limit on certain highways in the Interstate system located outside urbanized areas with populations of 50,000 or more. Further, in December 1987, Congress established a demonstration program that allowed up to 20 states to adopt a 65-mph speed limit on three additional classes of highways outside of urbanized areas. By late 1988, 40 states had raised speed limits to above 55 mph on almost 29,800 mi of Interstate highways and 16 states had done so on approximately 2,200 mi of non-Interstate highways (personal communication). Nearly all of these highways are posted at 65 mph for cars, whereas 15 states restrict certain vehicles (buses, trucks, and others) to lower speeds.

As speed increases, vehicles become more difficult to control, drivers have less time to react to other vehicles and roadway hazards, stopping distances are greater, and more energy is imparted in collisions thus increasing their severity. Research has shown that rates for injury and property damage in crashes increase exponentially with precrash speed and the percentage of drivers and front-seat passengers injured increases monotonically with speed at impact (*2,3*). Speed limits are intended to improve safety by preventing excessive speed. Reduced and more uniform travel speeds resulted in an estimated 3,000 to 5,000 fewer deaths in the year following implementation of the 55-mph national speed limit. In addition, an estimated 4,000 fatalities were prevented in 1983 by the lower speeds, even though average speeds had increased somewhat above the 1974 level (*4*).

Two time series studies are presented of speeds on rural (and some urban) Interstate highways in three states: Virginia and New Mexico, which changed to a 65-mph speed limit (although heavy trucks are still limited to 55 mph in Virginia), and Maryland, which retained the 55-mph speed limit. The objective of the speed studies was to determine the short- and longer-term effects of the 65-mph speed limit change on mean speed, speed distribution, and compliance for cars, light trucks, and tractor-trailers on rural Interstate highways. Virginia and Maryland data were also used to evaluate the immediate effect of the increased speed limit, and New Mexico data were used to examine urban Interstate highway speeds.

METHODS

The New Mexico study began in April 1987 two weeks after the speed limit was raised. Speeds were measured at about 2-month intervals for 27 months until June 1989. The Virginia study was performed 2 weeks before the speed limit increase to 65 mph (July 1, 1988) and 2 weeks after the new speed limit was posted with follow-up data collection every 3 months for 1 year until July 1989. Data were collected simultaneously in adjacent Maryland, which retained the 55-mph limit.

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Site Selection and Site Characteristics

For each state, sites were selected on the basis of geographic location, topography, roadway geometric characteristics, and observer safety (Table 1). Sites were generally located on roadway sections that had little or no gradient or curvature, except two sites in New Mexico were not closer than ½ mi to the nearest interchange. Sites were located on each of Virginia's five rural Interstate highways and were distributed to represent the state's range of topography. In neighboring Maryland, one site on I-95 was selected to match Virginia's I-95 site, and an I-70 site was matched to the more rural nature of Virginia's sites on I-64, I-81, and I-85. Four sites in New Mexico were chosen in the vicinity of Albuquerque on I-25 and I-40, with one urban and one rural site located on each Interstate.

Data Collection

Procedures used for data collection were similar in all three states. In each state, the speed of free-flowing vehicles was measured using nondetectable K-band radar mounted in vehicles parked either on an overpass above the travel lanes (New Mexico rural sites), off the roadway shoulder behind the guardrail, or in the clear zone (urban New Mexico and all Virginia and Maryland sites). Data collectors recorded the speed, vehicle type, travel lane, registration state, and time of day for each observation. Observer vehicles included several minivans, a small passenger car, and a small pickup truck, none of which resembled vehicles used for local and state law enforcement. Radar units had been modified by their manufacturer so that the signal could not be received by commercial radar detectors (*5*). Observer vehicle locations were as inconspicuous as possible, and measurements were made with radar units aimed downstream at receding vehicles. Radar calibration was checked at the beginning and end of each data collection session, which was during one weekday between 9:00 a.m. and 4:00 p.m. at each site.

In Virginia and Maryland, speeds at each site were initially measured once during each of the two successive weeks before and two successive weeks after July 1, 1988, the date on which Interstate speed limit signs were changed to 65 mph. Speeds were measured for only 1 day at each site during each subsequent data collection period. Each measurement session at a particular site was performed on the same weekday (Tuesday through Thursday) throughout the study in Virginia and Maryland. Observations were made of traffic moving in one direction only. At New Mexico sites, data were collected for 90 min in one direction, then the observer moved and measured traffic speed in the opposite direction for 90 min. In Virginia and Maryland, data collectors maintained a log of police, emergency service vehicles, and other unusual activities near the sites. This information was later used to separately evaluate observations that may have been influenced by such events. At the New Mexico sites, virtually no police enforcement activities were observed during data collection.

Sampling Procedure

Sampling was restricted to free-flowing vehicles whose headway (time separation from the previous vehicle in the same lane) was at least 5 sec. Data collectors were directed to always choose the next free-flowing vehicles in any lane following completion of a speed measurement. The protocol did not attempt to systematically sample each vehicle type according to its proportion within the overall population of all vehicles.

Analysis Procedure

Raw data were corrected for two factors—angle of observation and radar frequency. Observation angle factor adjusts the speed upward to compensate for measured speed that decreases as a function of the cosine of the angle between the observed vehicle's path and the aim of the radar beam. Radar frequency factor accounts for the difference between speeds measured by standard radar compared with nondetectable radar, which reads 1.45 percent higher. The complete correction for observed speed is given by

$$\text{Speed} = (\text{observed speed}) \div (1.0145 * \text{cosine of observation angle}) \quad (1)$$

In order to ensure that only free-flowing, unconstrained vehicles were analyzed, observations that had been made within 2 min before and after any observed or suspected event that

TABLE 1 SPEED MEASUREMENT SITE CHARACTERISTICS

State	Location	Route	Direction	Milepost	Geographic Location	Distance to nearest Interchange (miles)
Virginia	Rural	I-64	Westbound	132.2	Charlottesville	2.0
		I-66	Westbound	41.6	Haymarket	2.0
		I-81	Northbound	163.7	Roanoke	1.0
		I-85	Northbound	39.6	Brunswick Co.	1.4
		I-95	Southbound			
Maryland	Rural	I-70	Eastbound	5.5	Millstone	0.5
		I-95	Southbound	38.7	Elkton	2.3
New Mexico	Rural	I-25	Northbound and Southbound	248	Algodones	at interchange
		I-40	Eastbound and Westbound	196	Moriarity	1.5
New Mexico	Urban	I-25	Northbound and Southbound	232	Albuquerque	1.5
		I-40	Eastbound and Westbound	165	Albuquerque	at interchange

may have influenced speed (such as presence or passage of a police vehicle, a breakdown, or citizen band radio communications that identified a radar or enforcement operation) were separated from the data base. Data from the remaining vehicles were analyzed in terms of mean speed, standard deviation, selected percentile values, and the frequency distribution of speed for each data group (*6*). Observations were grouped by state, observation phase, and vehicle type, and summary statistics were calculated for each group.

RESULTS

Immediate Effect of 65-mph Speed Limit

Drivers of cars and light trucks in free-flowing traffic in Virginia raised their speeds on the five rural Interstate highways immediately following implementation of the 65-mph speed limit. As presented in Table 2, the average speed of cars increased 2.8 mph to 65.9 mph. Tractor-trailer speeds did not increase (in fact, they decreased slightly) in Virginia because the new law still restricted them to 55 mph. Mean speeds on the two rural Interstates in Maryland did not increase but rather decreased for all vehicle types (Table 3). Speeds of cars and light trucks in Maryland after July 1 were 4.5 mph lower than those in Virginia.

In Virginia, the standard deviation (a statistical measure of the range of speed data) was virtually unchanged for cars but decreased slightly for light trucks. Coupled with the increase in mean speeds, this result suggests that the entire distribution of speeds shifted upwards for cars and light trucks because most sampled drivers simply drove faster. The 85th-percentile speed, often claimed as the basis for setting speed limits (*7*), increased 2.9 mph to 70.6 mph for cars. For tractor-trailers, the 85th-percentile speed was unchanged. The mean speed of

TABLE 2 SUMMARY STATISTICS FOR VIRGINIA

Observation Period	Sample Size	Mean Speed (mph)	Std. dev. (mph)	85th %ile (mph)	% exceeding 65 mph	% exceeding 70 mph
			PASSENGER CARS			
55 mph Limit						
June 1988	4,784	63.1	4.9	67.7	32.1	8.2
65 mph Limit						
July 1988	5,190	65.9	4.9	70.6	57.6	17.0
October 1988	2,3171	65.7	4.9	70.2	59.2	17.8
January 1989	1,589	67.4	5.1	72.4	69.8	30.5
April 1989	2,201	66.9	5.0	71.4	68.7	26.0
July 1989	2,020	66.9	4.8	71.2	69.3	25.2
			LIGHT TRUCKS*			
55 mph Limit						
June 1988	1,517	62.1	5.1	67.0	25.6	5.9
65 mph Limit						
July 1988	1,711	65.0	4.8	69.7	49.8	13.2
October 1988	790	65.0	5.2	69.4	53.8	13.8
January 1989	537	66.0	5.3	71.2	60.5	22.3
April 1989	823	65.5	5.0	70.2	58.9	17.4
July 1989	741	66.2	4.7	70.9	62.1	21.5
			TRACTOR-TRAILERS			
55 mph Limit						
June 1988	1,676	62.3	4.6	66.5	27.0	5.9
55 mph Limit (for Heavy Trucks; 65 mph for all others)						
July 1988	1,555	61.8	4.7	66.5	21.9	5.5
October 1988	1,382	61.4	4.5	66.1	20.6	4.0
January 1989	995	61.8	4.4	66.3	21.1	4.5
April 1989	1,475	61.0	4.4	65.3	17.8	2.8
July 1989	1,017	61.7	4.5	66.1	22.4	5.1

*Light trucks defined as pickups, utility vehicles, vans, and other trucks not exceeding 10,000 lbs. gross vehicle weight.

TABLE 3 SUMMARY STATISTICS FOR MARYLAND

Phase	Sample Size	Mean Speed (mph)	Std. dev. (mph)	85th %ile (mph)	% exceeding 65 mph	% exceeding 70 mph
			PASSENGER CARS			
55 mph Limit						
June 1988	2,047	61.7	5.1	66.5	23.5	6.6
65 mph Limit (Virginia)						
July 1988	2,525	61.4	5.2	66.5	23.5	5.7
October 1988	992	61.1	5.0	66.4	21.4	4.6
January 1989	559	63.4	5.6	68.5	39.3	10.7
April 1989	578	61.9	5.1	67.3	28.4	6.1
July 1989	575	61.6	5.4	67.1	27.8	6.3
			LIGHT TRUCKS*			
55 mph Limit						
June 1988	551	61.2	5.4	66.5	22.7	6.7
65 mph Limit (Virginia)						
July 1988	599	60.5	4.8	65.4	18.7	3.2
October 1988	281	60.2	5.3	66.3	20.3	6.0
January 1989	204	61.7	5.2	66.6	27.9	6.4
April 1989	195	61.3	4.8	66.3	24.1	4.6
July 1989	187	61.2	4.8	66.2	22.5	3.7
			TRACTOR-TRAILERS			
55 mph Limit						
June 1988	560	59.8	4.6	64.3	12.5	2.1
55 mph Limit (65 mph in Virginia for cars, light trucks and buses)						
July 1988	663	59.3	4.4	63.3	10.0	1.1
October 1988	308	59.6	4.6	64.3	14.0	1.9
January 1989	631	61.4	4.4	66.3	18.7	4.4
April 1989	583	61.4	4.3	65.5	19.7	2.2
July 1989	566	61.1	4.5	66.1	22.3	2.3

*Light trucks defined as pickups, utility vehicles, vans, and other trucks not exceeding 10,000 lbs. gross vehicle weight.

cars in Maryland was slightly lower, whereas the standard deviation and 85th-percentile speed remained unchanged after July 1. These measures for light trucks and tractor-trailers in Maryland were moderately lower after July 1.

The reported standard deviations do not represent speed variance because this term has been associated with the likelihood of a crash. Rather, these standard deviations are within-group measures combined across both free-flowing and constrained vehicles and across all vehicle types. The sampling and data collection methods do not allow estimation of the standard deviation of the population of all vehicles.

The issue of the immediate effect of compliance with the law can be examined through analysis of the mean speed and the percentage exceeding the speed limit. Following the change to a 65-mph speed limit, the mean speed of cars and light trucks in Virginia became more closely aligned with the speed limit. However, the proportions of free-flowing vehicles exceeding 65 and 70 mph each doubled (Table 2). The proportion of vehicles exceeding 65 and 70 mph in Maryland during this time was unchanged for cars and decreased for other vehicles.

Longer-Term Effects of the 65-mph Speed Limit

Virginia and Maryland

During the first full year following the speed limit increase in Virginia, the mean speed of cars and light trucks on rural Interstate highways increased an additional 1 mph above the initial increase, as shown in Figure 1. Speeds increased 2 to 3 mph by October 1988 and were highest in January 1989 (up 4 mph from their levels just before the speed limit increase),

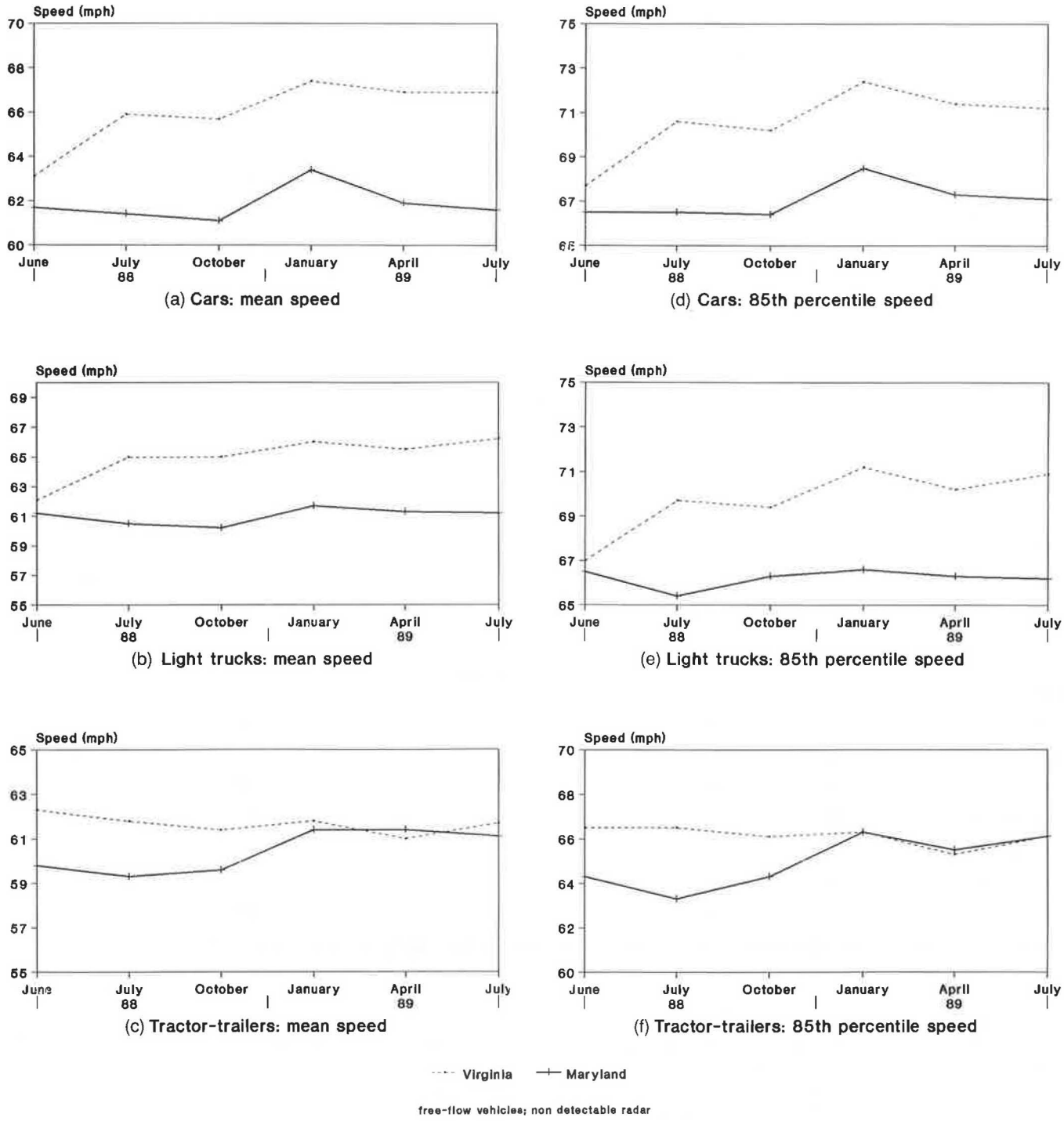

FIGURE 1 Mean and 85th-percentile speeds on Virginia and Maryland rural Interstates.

but they subsequently decreased slightly for cars. In contrast, neighboring Maryland's car and light truck speeds were slightly lower during the 4th month after Virginia's speed limit increased. Longer-term trends of the percentages of cars and light trucks exceeding 65 and 70 mph paralleled the speed trends in Maryland and Virginia. The proportions of these vehicles exceeding 65 and 70 mph both doubled initially, whereas Virginia experienced a continuing upward trend (Figure 2). For cars, the proportion exceeding 65 mph increased to a peak of 69.8 percent in January 1989 and remained at nearly 70 percent through April and July 1989. The proportion exceeding 70 mph also increased to a January peak of 30.5 percent, which subsequently leveled off to about 25 percent. Maryland drivers demonstrated no initial increases in the proportion exceeding 65 and 70 mph between June and July 1988. Peak values were observed in January 1989 and by April

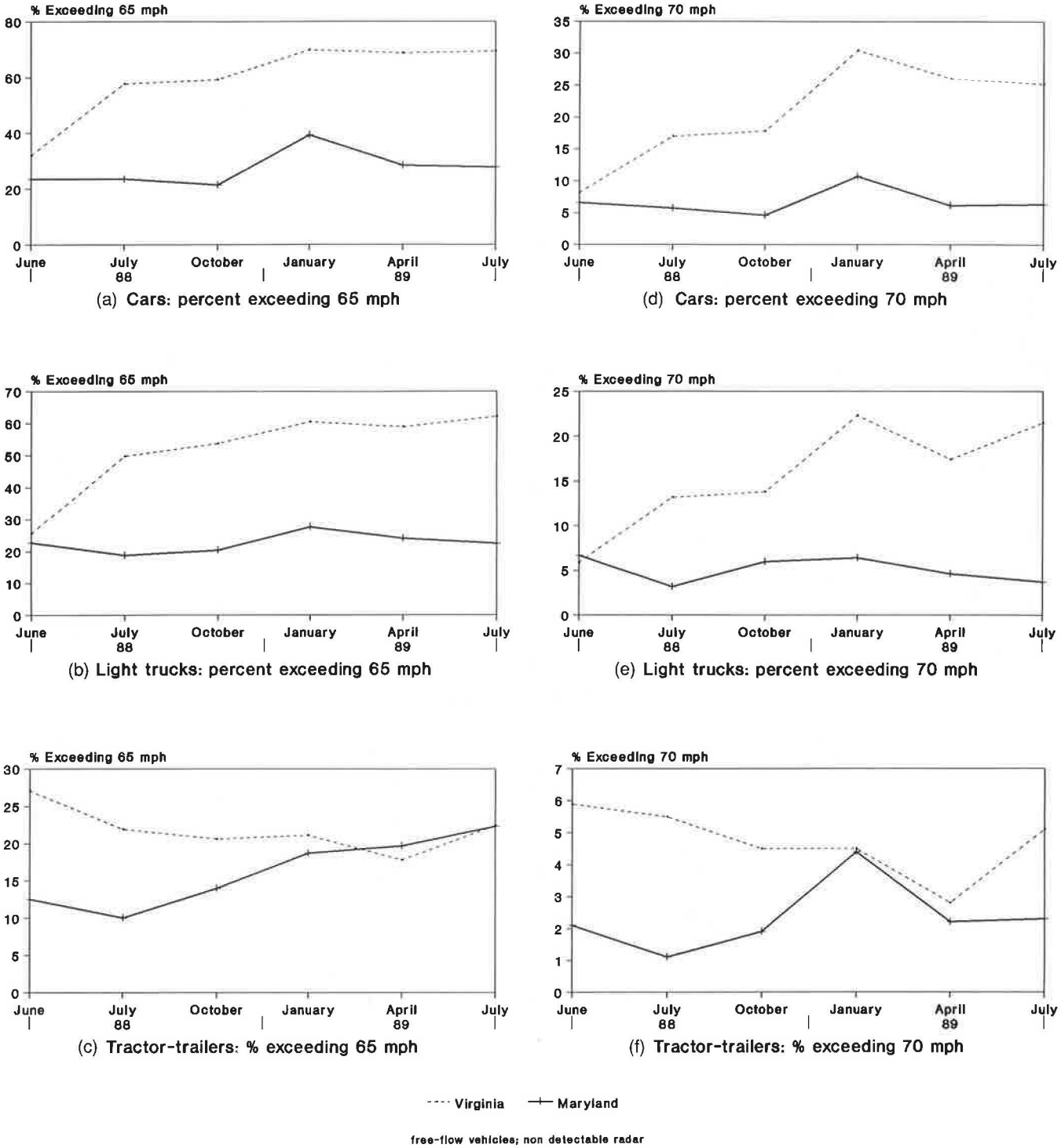

FIGURE 2 Proportion of vehicles exceeding 65 and 70 mph on Virginia and Maryland Interstates.

returned to levels similar to those before Virginia's speed limit increased.

For tractor-trailers, little change occurred during the year in either speed distribution or percentage exceeding 65 and 70 mph in Virginia, whereas in Maryland both showed an increased trend. By July 1989, distributions of tractor-trailer speeds in Virginia and Maryland were nearly identical.

New Mexico

In New Mexico, the longer-term trend (27 months) of free-flowing car and truck speeds on rural Interstate highways posted at 65 mph was gradually upward, with annual peaks evident each December (Table 4). As shown in Figure 3, speeds for cars, light trucks, and tractor-trailers increased

TABLE 4 SUMMARY STATISTICS FOR NEW MEXICO RURAL INTERSTATE SITES FOLLOWING IMPLEMENTATION OF 65-mph SPEED LIMIT

Phase	Sample Size	Mean Speed (mph)	Std. dev. (mph)	85th %ile (mph)	% exceeding 65 mph	% exceeding 70 mph
			PASSENGER CARS			
April 1987	766	63.5	4.3	67.3	36.8	5.1
June 1987	718	64.8	4.6	69.3	49.4	12.3
August 1987	760	64.3	4.4	68.3	45.4	10.3
November 1987	777	66.1	5.0	71.2	60.9	21.0
December 1987	887	66.8	5.3	71.2	64.8	22.8
February 1988	776	66.0	4.9	71.2	59.1	19.6
April 1988	824	66.4	5.5	71.2	62.0	22.2
June 1988	817	66.4	4.8	71.2	61.9	21.3
August 1988	843	66.9	5.3	71.2	66.3	23.4
October 1988	791	66.9	5.0	71.2	66.6	25.7
December 1988	794	67.8	5.4	72.2	72.3	29.3
February 1989	842	66.9	5.2	71.2	65.3	23.3
April 1989	827	66.8	5.2	71.2	64.8	22.9
June 1989	774	66.7	4.9	71.2	66.1	23.6
			LIGHT TRUCKS*			
April 1987	661	63.0	5.8	68.3	40.1	8.6
June 1987	484	64.2	5.3	69.3	46.9	13.4
August 1987	599	64.2	5.2	69.3	43.4	12.2
November 1987	579	64.8	5.6	70.3	49.4	16.6
December 1987	696	66.0	5.3	71.2	58.6	21.7
February 1988	654	65.3	4.9	70.3	57.2	17.9
April 1988	610	65.2	6.1	70.3	52.3	18.2
June 1988	629	65.2	5.9	71.2	51.5	19.6
August 1988	605	65.5	5.6	70.3	55.5	19.8
October 1988	572	65.9	5.5	71.2	56.1	21.7
December 1988	622	66.7	5.3	72.2	53.7	24.4
February 1989	577	66.1	5.4	71.2	58.2	21.8
April 1989	609	65.4	5.7	70.3	56.3	19.7
June 1989	638	65.7	5.8	71.2	56.4	21.6
			TRACTOR-TRAILERS			
April 1987	445	62.9	4.8	67.3	33.7	7.2
June 1987	560	63.9	4.9	68.3	41.6	10.7
August 1987	485	63.7	4.9	69.3	40.8	10.7
November 1987	511	64.5	5.3	69.3	46.6	13.7
December 1987	371	64.0	5.2	69.3	42.6	12.7
February 1988	496	63.9	5.1	69.3	42.1	11.7
April 1988	467	64.2	4.8	69.3	43.9	10.9
June 1988	449	64.6	5.0	69.3	47.7	14.5
August 1988	499	64.3	5.1	69.3	43.7	14.0
October 1988	549	64.9	5.3	70.3	51.9	16.9
December 1988	533	64.7	5.2	69.3	48.0	14.1
February 1989	537	64.0	4.8	68.3	40.2	9.1
April 1989	502	64.6	4.8	69.3	48.2	13.3
June 1989	536	64.7	5.1	69.3	48.5	14.0

*Light trucks defined as pickups, utility vehicles, vans, and other trucks not exceeding 10,000 lbs. gross vehicle weight.

during the first 9 months of the 65-mph speed limit but then increased at a slower pace through the last data collection period in June 1989. The mean speed of cars increased approximately 3 mph between April and December 1987 and stabilized at about 67 mph except for winter peaks. The 85th-percentile speeds of cars followed a more accelerated trend, increasing 2 mph in the first 2 months to 69.3 mph, then increasing another 2 mph to 71.2 mph by November 1987, where it remained. Tractor-trailer speeds increased a total of about 2 mph for mean and 85th-percentile speeds. The standard deviation of speed for cars and light trucks varied considerably from 4.3 to 6.1 mph, whereas for trucks a smaller range was observed. However, no apparent correlation existed between speed and standard deviation within each vehicle type.

The proportion of vehicles exceeding 65 and 70 mph on New Mexico rural Interstate highways increased more sharply than did mean and 85th-percentile speeds (Figure 3). For cars, the proportion exceeding 65 mph doubled over the 27-month period, first sharply increasing to 64.8 percent by December 1987 and eventually reaching the 65 to 66 percent level of the last 6 months. The proportion exceeding 70 mph increased almost fivefold.

Urban Interstate Speeds

New Mexico's urban Interstate mean and 85th-percentile speeds increased only slightly, as shown in Figure 4. The mean speed

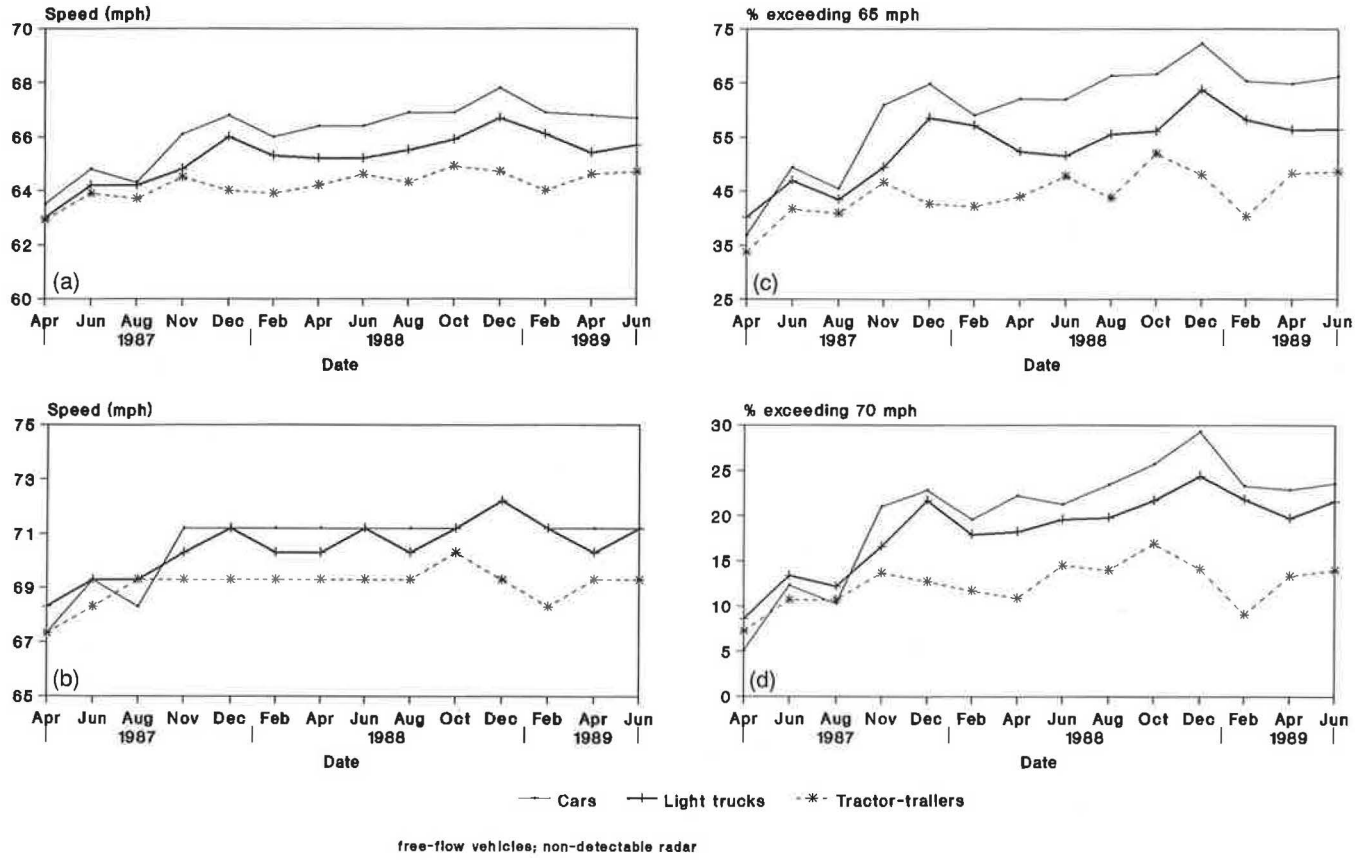

FIGURE 3 Speeds and proportion of vehicles exceeding 65 and 70 mph on New Mexico rural Interstates.

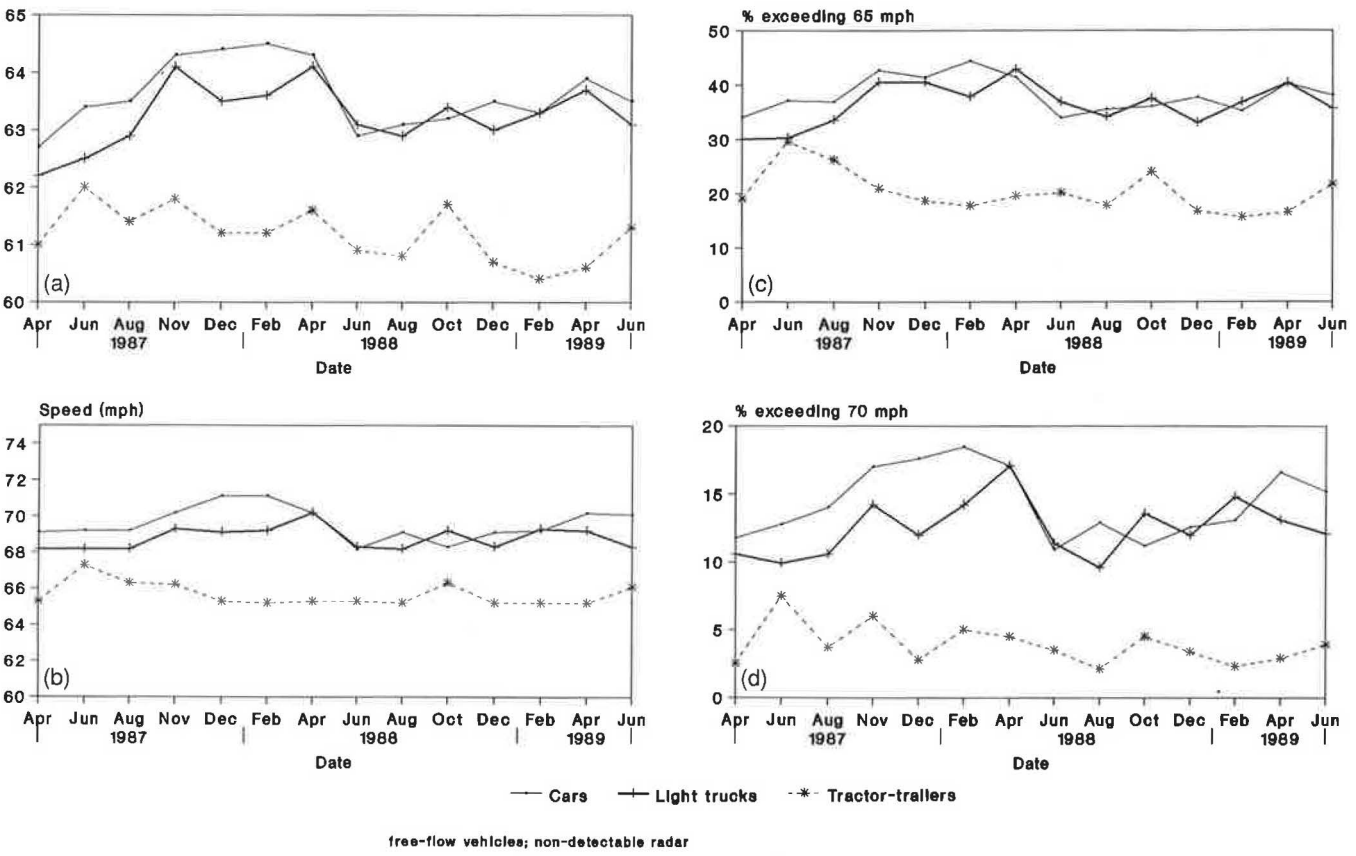

FIGURE 4 Speeds and proportion of vehicles exceeding 65 and 70 mph on New Mexico urban Interstates.

of cars increased just 0.8 mph and the 85th-percentile speed of cars increased 1.0 mph by June 1989. Tractor-trailer speeds also showed little change during the 27-month period (Table 5).

The proportion of vehicles exceeding 65 and 70 mph on urban Interstates increased slightly in New Mexico over the study period. Approximately one-third of cars exceeded 65 mph with little change over 27 months. Similarly, slightly more than 1 in 10 cars exceeded 70 mph throughout the study period. The proportion of tractor-trailers traveling in excess of 65 mph fluctuated between a high of almost 30 percent in June 1987 and a low of about 15 percent in February 1989, but was generally about 20 percent. The proportion of those exceeding 70 mph fluctuated between 2.1 and 7.5 percent, but was most often in the range of 3 to 5 percent.

DISCUSSION

The analysis indicates that the change to a 65-mph speed limit on rural Interstate highways in Virginia and New Mexico was associated with substantial increases in the speeds of vehicles permitted to travel at 65 mph.

Speeds were measured in Maryland and Virginia just before and after the speed limit was raised in Virginia, so the speed increases that occurred in Virginia were clearly related to the change in the speed limit. Furthermore, the speeds of tractor-trailers in Virginia, where a speed limit of 55 mph was retained, did not increase.

Both in Virginia and Maryland, tractor-trailers are limited to 55 mph. The mean speed of tractor-trailers increased in

TABLE 5 SUMMARY STATISTICS FOR NEW MEXICO URBAN INTERSTATE SITES FOLLOWING IMPLEMENTATION OF 65-mph SPEED LIMIT

Phase	Sample Size	Mean Speed (mph)	Std. dev. (mph)	85th %ile (mph)	% exceeding 65 mph	% exceeding 70 mph
			PASSENGER CARS			
April 1987	1,013	62.7	6.2	69.1	34.1	11.8
June 1987	1,064	63.4	6.0	69.2	37.1	12.8
August 1987	1,100	63.5	6.0	69.2	36.9	14.0
November 1987	1,115	64.3	6.0	70.2	42.7	17.0
December 1987	1,056	64.4	6.0	71.1	41.4	17.6
February 1988	1,125	64.5	6.2	71.1	44.4	18.5
April 1988	1,057	64.3	6.1	70.2	41.4	17.1
June 1988	1,092	62.9	5.4	68.2	34.0	10.9
August 1988	1,136	63.1	5.7	69.1	35.5	12.9
October 1988	1,050	63.2	5.5	68.3	36.0	11.2
December 1988	1,046	63.5	5.5	69.1	37.7	12.6
February 1989	1,031	63.3	6.0	69.2	35.2	13.1
April 1989	1,063	63.9	6.3	70.2	40.2	16.6
June 1989	1,086	63.5	5.7	70.1	38.0	15.2
			LIGHT TRUCKS*			
April 1987	611	62.2	5.9	68.2	30.1	10.6
June 1987	548	62.5	5.8	68.2	30.3	9.9
August 1987	575	62.9	6.0	68.2	33.6	10.6
November 1987	650	64.1	5.8	69.3	40.5	14.2
December 1987	669	63.5	5.4	69.1	40.5	12.0
February 1988	569	63.6	5.5	69.2	37.8	14.2
April 1988	624	64.1	5.6	70.2	42.9	17.1
June 1988	633	63.1	5.6	68.3	36.8	11.4
August 1988	561	62.9	5.3	68.2	34.2	9.6
October 1988	579	63.4	5.9	69.2	37.5	13.6
December 1988	632	63.0	5.8	68.3	33.1	12.0
February 1989	636	63.3	5.6	69.3	36.8	14.8
April 1989	632	63.7	5.9	69.2	40.3	13.1
June 1989	610	63.1	5.4	68.3	35.6	12.1
			TRACTOR-TRAILERS			
April 1987	321	61.0	4.6	65.9	19.0	2.5
June 1987	318	62.0	5.3	67.3	29.6	7.5
August 1987	271	61.4	5.1	66.3	26.2	3.7
November 1987	215	61.8	4.5	66.2	20.9	6.0
December 1987	247	61.2	4.0	65.3	18.6	2.8
February 1988	260	61.2	4.4	65.2	17.7	5.0
April 1988	292	61.6	4.2	65.3	19.5	4.5
June 1988	254	60.9	4.4	65.3	20.1	3.5
August 1988	286	60.8	4.4	65.2	17.8	2.1
October 1988	334	61.7	4.5	66.3	24.0	4.5
December 1988	294	60.7	4.2	65.2	16.7	3.4
February 1989	307	60.4	4.3	65.2	15.6	2.3
April 1989	272	60.6	4.2	65.2	16.5	2.9
June 1989	258	61.3	4.6	66.1	21.7	3.9

*Light trucks defined as pickups, utility vehicles, vans, and other trucks not exceeding 10,000 lbs. gross vehicle weight.

Maryland to the same level (about 61 mph) as in Virginia, where tractor-trailer speeds did not change over a 1-year period. One reason may be that a general trend of higher speed among tractor-trailer drivers is emerging because of widespread exposure to 65-mph speed limits in many states (at least 29 states allow 65 mph for heavy trucks), a strong interest in minimizing trip time, and a desire to keep up with car traffic. Continued monitoring of speeds in these and other states may provide additional insight into the causes and consequences of this phenomenon.

The reported standard deviations are for specific vehicle types—free-flowing cars, light trucks, and tractor-trailers—and do not represent estimates of the speed variance of the population of all vehicles because of intermixing in the traffic stream. However, the reported standard deviations do support conclusions regarding the range of speeds of each vehicle type sampled, but cannot be used to evaluate the interactions among vehicles.

The consequence of the 65-mph speed limit and higher speeds has been more deaths. For the 38 states that increased speed limits, 15 to 16 percent more fatalities occurred on rural Interstate highways in 1987 than would have been expected had the 55-mph speed limit been retained (*8*,*9*). In 1988, these same 38 states experienced 26 to 29 percent more deaths than they would have if the 55-mph speed limit had been retained (*10*). The trend in speeds in Virginia and New Mexico has been gradually upward since the initial large speed increases were observed in those states. Speeds are probably increasing in other states that have adopted the 65-mph speed limit. Consequently, the mortality consequences of higher speed limits will continue to increase.

The 65-mph speed limit has not been found to eliminate speeders (i.e., vehicles traveling in excess of the posted speed limit). One effect of changing from the 55-mph speed limit to the 65-mph speed limit on rural Interstate highways has been to reduce the proportion of traffic technically in violation of the speed limit law. However, the new speed limit has greatly increased the number of high-speed vehicles. The number of automobile drivers exceeding 70 mph has increased fivefold in New Mexico and threefold in Virginia. Approximately two-thirds of the cars observed on these rural highways in Virginia and New Mexico exceeded the 65-mph speed limit during the most recent data collection period in each state. The 65-mph speed limit has had only limited success in recasting drivers who were speeding violators on 55-mph roadways as law-abiding drivers. Instead, because average speeds have increased and, as evidenced by 85th-percentile speeds, the fastest drivers are going even faster, more high-speed violators now exist than when speeds were limited to 55 mph.

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