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The Dramatic Failure of U.S. Traffic Safety Policy

Engineering Is Important, Public Policy Is Crucial

LEONARD EVANS

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[The Dramatic Failure of US Safety Policy](#)

of

[Traffic Safety](#)

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The Dramatic Failure of U.S. Traffic Safety Policy

Engineering Is Important, Public Policy Is Crucial

LEONARD EVANS

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The dramatic failure of U.S. traffic safety policy is one of our best-kept national secrets. Policies aimed at reducing the toll of 42,000 Americans killed each year rarely make the news. When they do, usually the institutions responsible for the policy failure are announcing that impressive progress is being made. To gain a realistic view, however, we need to compare our own progress with that of other countries.

My 2004 book, *Traffic Safety*, presents such a comparison (1). This article summarizes the main findings of that comparison and my interpretation of the findings. The book presents in detail the numerical calculations, the data sources, the references, and the documentation. The material in the book led to comments in a recent *TR News* editorial by Brian O'Neill (2). I am responding to those comments.

Until the mid-1960s, the United States had the safest traffic in the world, whether measured by deaths per registered vehicle or by deaths for the

same distance of travel. By 2002, in terms of deaths per registered vehicle, the United States had dropped from 1st to 16th place. Australia, Austria, Canada, Denmark, Finland, Germany, Great Britain, Iceland, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Sweden, and Switzerland posted lower rates.

Comparing Fatalities, 1979–2002

The decline in U.S. safety relative to other countries can be explored by comparing changes in specific fatality rates with the changes in the same rates in other countries. Three traffic fatality rates are examined:

1. Fatalities per year—the raw fatality rate;
2. Fatalities per 1,000 registered vehicles—the vehicle rate; and
3. Fatalities per 100 million vehicle-miles of travel—the distance rate.



U.S. traffic safety policy, the author notes, has focused on vehicle factors and on surviving crashes—for example, by mandating airbags, shown here deploying in a crash test—instead of preventing crashes.

Great Britain, Canada, and Australia are selected for comparison because they have much in common with the United States in terms of language, beliefs, and traditions. Performance is compared for the 23-year period from 1979 to 2002. In the late 1970s and early 1980s, the safety policies of the United States began to diverge from those of the three other countries. The results are not much different if the beginning and end of the period are a few years earlier or later, or if other countries are chosen for comparison.

Fatalities per Year

Figure 1 shows the change in the simplest measure of safety performance, the total number of traffic deaths per year. Fatalities in the 23-year period declined in the United States by 16.2 percent, but declines of 46.0, 49.9, and 51.1 percent occurred in Britain, Canada, and Australia. If U.S. fatalities had declined by the same percentage as in Britain, the total would have been 27,598 fatalities instead of the 42,815 reported. If the United States had matched the British rate of decline, 15,217 fewer Americans would have been killed in 2002. Matching the Canadian and the Australian performance would have reduced fatalities by 17,229 and 17,837.

Fatalities per Vehicle

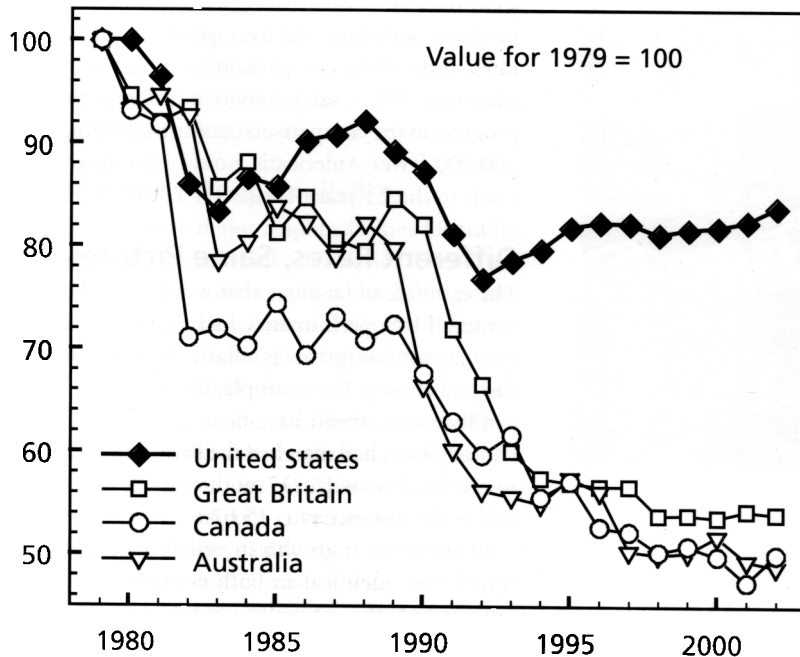
Rates such as fatalities per 1,000 registered vehicles can be plotted without a reference year, as shown in Figure 2. Until the late 1970s, the comparison countries—like all other countries—had rates higher than those in the United States.

The U.S. rate shows no drop in response to the requirement that all 1968 and later models satisfy Federal Motor Vehicle Safety Standards. The only notable downward spike, in 1974, is unrelated to vehicles—it reflects behavior changes stimulated by the 1973 oil embargo, notably reductions in travel speed because of changes in speed limits.

The U.S. vehicle rate declined by 46.2 percent, but in Britain, Canada, and Australia the rates declined by 67.1, 63.5, and 71.9 percent. If the U.S. rate had declined by these same percentages, fatalities in 2002 would have been lower by 16,605, 13,718, or 20,429.

Fatalities by Same Travel Distance

The best estimates for distance of vehicle travel are for Great Britain, from observations at 50 sites by the Department of Transport. Reliable estimates for a long period are not available for most countries; therefore the travel distance comparison is limited to Great Britain. Figure 3 shows that the distance rate in Britain started out higher than the rate in the United States, but in 2002 the British rate was lower. If the United States had matched the British rate of



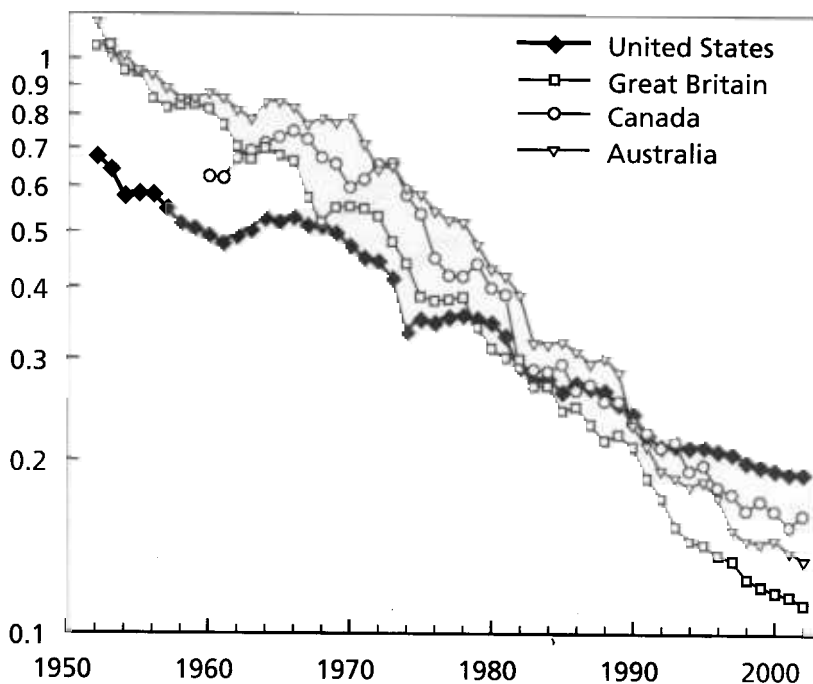
decline, 15,670 fewer Americans would have been killed in 2002.

Additional Americans Killed, 1979–2002

The estimates cited are for the number of Americans who would not have been killed in 2002 if traffic fatality rates in the United States had declined by the same percentages as in the comparison countries. Calculating the corresponding differences for each of the intervening years and adding them up produces

FIGURE 1 Traffic fatalities per year in the United States and in three comparison countries relative to the number in 1979 (1, p. 382).

FIGURE 2 Traffic fatalities per 1,000 registered vehicles in the United States and in three comparison countries (1, p. 384).



a cumulative estimate of American lives that would not have been lost. The average of the totals for the rates of the three comparison countries is 214,286. Therefore, if U.S. safety progress had kept pace with progress in the comparison countries, approximately 200,000 fewer Americans would have died on our roads in the 23-year period.

Different Rates, Same Picture

The estimate of fatalities that would have been prevented if U.S. performance had matched that of the comparison countries is relatively independent of the rate chosen. For example, the number of American lives that would have been saved in 2002 if the United States had matched the British rate of decline in raw fatalities is 15,217; at the vehicle rate, 16,605; and at the distance rate, 15,670.

If the percent growth in vehicles and growth in travel were identical in both countries for the 23-year period, the estimates would be identical. The difference computed for the vehicle rate reflects a higher percent of vehicle ownership growth in Britain, which had lower levels of vehicle ownership at the start. The difference computed at the distance rate reflects a slightly larger increase in total distance traveled in Britain compared with that in the United States.

The crucial point is that these are percent changes. Large, fairly stable differences between the countries should not much affect percent changes in time, because the influences on the 1979 and 2002 fatalities would be similar. For example, Britain is

more urban than the United States and has a greater percent of pedestrian fatalities—but these factors do not differentially change all that much between 1979 and 2002.

Defining Progress

In his article, O'Neill correctly indicates progress in U.S. safety. If the data points for the other countries are removed from Figures 1, 2, and 3, the declines in U.S. rates appear impressive.

O'Neill identifies great variation among U.S. states and observes that some states had lower rates than those in the comparison countries. The reductions in the rates in the United States, however, are much less than in other countries. In all cases in Figures 2 and 3, the U.S. rates are higher in 2002 than the rates in the comparison countries, yet formerly the U.S. rates were lower.

Some U.S. states have lower rates than the aggregate national rates of the comparison countries. Similarly, regions, provinces, or states within the comparison countries also have rates that are lower than the national average. Progress is indicated not by the values in 2002 but by a comparison of the percent changes since 1979 with the changes in the three other countries.

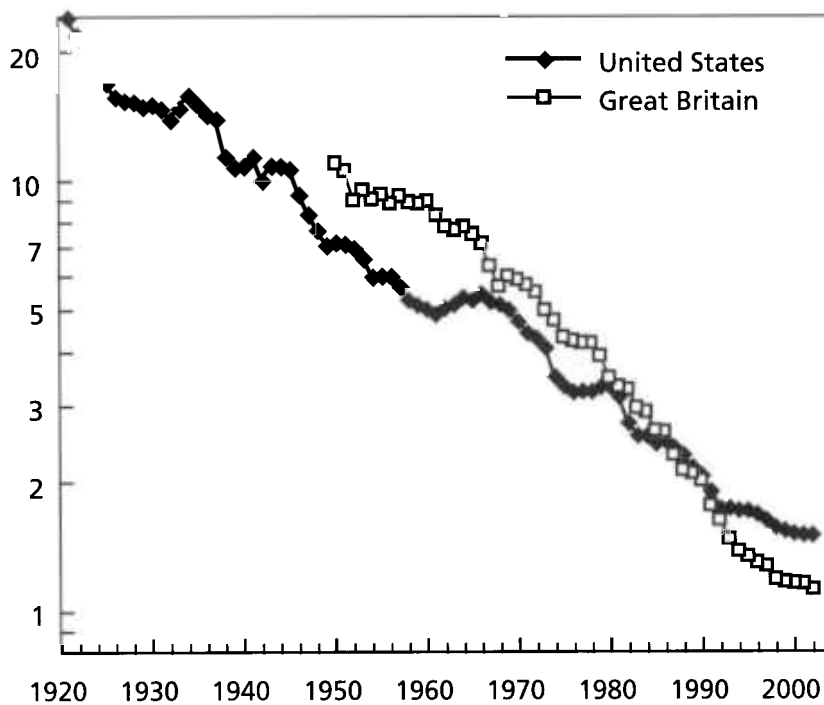
Because the percent changes are similar over time for raw fatalities, the vehicle rate, and the distance rate, comparing the changes in an individual U.S. state's record of raw fatalities is the easiest approach. A drawback is that population growth was higher in some regions, such as the South, than in others, which contributes to increased fatalities; but the approach avoids the uncertainties of crashes by out-of-state vehicles or of unreliable estimates of travel distances.

Comparing 2002 and 1979 fatalities for all 50 states and the District of Columbia shows that only one state enjoyed a decline of more than 50 percent. In Vermont, fatalities declined from 159 in 1979 to 78 in 2002—a 50.9 percent drop. Although this state may be a statistical outlier because of the small numbers, the decline is less than the 51.1 percent achieved in Australia. The state with the second highest decline is Massachusetts, with 49.9 percent. All other states experienced smaller percent declines than any of the comparison countries.

States in the East and Midwest tended to have the largest percent declines, and those in the South the lowest—in 14 Southern states, fatalities increased. The District of Columbia had an increase of 6.0 percent, although the vehicle rate is low for all years because the district is urban.

As O'Neill observes, the variations among the states are due in part to differing policies on speed,

FIGURE 3 Traffic fatalities per 100 million miles of vehicle travel in the United States and in Great Britain (1, p. 386).



alcohol, and occupant protection devices. This supports my core thesis that public policy aimed at driver behavior really makes a difference. The vehicles in all states, however, are subject to identical safety standards. Comparing changes over time for the states shows that the failure of U.S. safety policy applied throughout the nation, even if not uniformly.

Search for an Explanation

Although straightforward analyses of publicly available data show some 200,000 additional U.S. fatalities over a 23-year period, identifying what measures would have made the difference is difficult. Safety belt use, for example, can account for a substantial portion of the difference. If the United States had introduced belt-wearing laws and achieved wearing rates on the same schedule as Canada, 95,000 fewer Americans would have died between 1979 and 2002. Why then did the United States not adopt this proven, effective intervention earlier? Moreover, what accounts for the other 100,000-plus additional deaths?

Such large and robust effects likely reflect fundamental differences in philosophy and approaches to traffic safety. U.S. policy has focused on vehicle factors—even on factors that research has shown are of minor importance. Public policies addressing such road-user behaviors as speeding, alcohol, traffic law violation, and belt wearing have been demonstrated to reduce casualties by large amounts but have not received appropriate attention. *Traffic Safety* explains how the United States embarked on this course, to which it still clings, resulting in the deaths of many Americans. The explanation involves analysis, documentation, references, and photographs that cannot be contained within the format of this article.¹

In brief, the explanation draws on three interrelated observations:

◆ U.S. safety policy priorities have been ordered almost perfectly opposite to where technical knowledge shows benefits are greatest.

◆ This has occurred because lawyers who lack knowledge or interest in technical matters have defined and guided U.S. policy.

◆ This leadership is the result of the uniquely powerful influence of law on all aspects of U.S. society—an influence that is without parallel in any other country.

For example, evidence showed that airbags could kill children and had low effectiveness; nonetheless, a mandate to equip all vehicles with airbags became

¹ As a supplement to this article, pages 389–411 of *Traffic Safety* are available at www.scienceservingsociety.com/TR.pdf, until July 2006.

the top national safety goal in the 1970s. The commitment to the airbag mandate was used to oppose belt-wearing laws. An additional irony is that the media refer to the architects of the disaster described in this article as “safety advocates.”

Government Responsibility

Governments have major responsibilities for traffic. Governments traditionally have not been held responsible for the weather, yet when 1,000 people were killed by Hurricane Katrina, responsibility was attributed to various levels of government. The annual deaths of 42,000 Americans, and the daily deaths of 16 teenagers, in an entirely manmade system under government supervision do not generate corresponding attributions of responsibility. Protecting public health is a major government responsibility, and U.S. performance in the area of ground traffic safety has been abysmal compared with that of other countries.

In another transportation mode, however, U.S. safety performance is outstanding. In 2002 nobody was killed in U.S. commercial aviation. This success occurred because the focus was not on surviving crashes, but on preventing them. As long as our focus in ground transportation safety is on squeezing an elusive additional minor increment of survivability from crashes, we can never make acceptable progress. The relative lack of importance of vehicle factors is clear in comparing Canada and the United States—both nations have similar vehicles, yet Canada has cut the number of traffic deaths by half.

The one cause for optimism is that whenever the United States recognizes it has a problem, it moves with a speed and energy unequalled in other countries. By adopting new thinking, the United States can cut the number of fatalities in half with policies that the public would welcome (1, p. 412).

References

1. Evans, L. *Traffic Safety*. Science Serving Society, Bloomfield Hills, Mich., 2004. Additional information at www.scienceservingsociety.com.
2. O'Neill B. Improving U.S. Highway Safety: Have We Taken the Right Road? *TR News*, No. 239, July–August 2005, pp. 24–27.

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