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Book Author(s): Leonard Evans
Review Author(s): Richard Tay
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Book Review

Evans, Leonard. Traffic Safety. *Bloomfield Hills, MI: Science Serving Society, 2004. ISBN 0-9754871-0-8.*

Traffic Safety

by Richard Tay

This book is an updated and expanded version of the earlier text by the same author titled *Traffic Safety and the Driver*. Similar to the earlier text, this book is well written and easy to understand. In addition to the inclusion of newer research data, this book also has a stronger emphasis on public policy discussions that are supported by the data presented. These discussions are insightful and thought provoking. However, a more balanced treatment of the discussions, especially on the theories and methodologies from social sciences, would provide the readers with a better understanding of the differing views and their implications for policies and practices.

The first three chapters of the book provide a comprehensive introduction to road safety and some interesting observations on the difficulties in interpreting road safety statistics, which are best illustrated by the question: "Is it safer to keep a pet crocodile or a pet dog?" Also, the book makes a clear distinction between crashworthiness and crash prevention programs although most of the statistics utilized in this book relate to the average fatality risk given a crash has occurred, and are thus more relevant to policies and programs intended to reduce the severity of crashes.

Chapter 4 presents a methodical discussion on the effects of vehicle size and mass on relative fatality risks. The explanation using Newtonian mechanics is insightful and yet readily accessible to the non-engineers. The critique of the Corporate Average Fuel Economy (CAFE) program is an example of the expanded discussion on public policies and is well supported by the selective data presented. Chapter 5 summarizes a few perennial issues relating to the weather, roadway and vehicle characteristics. The discussion on the safety benefits of vehicle safety features and regulations is refreshing and best illustrated by this comment, "Claims of large benefits based on multivariate analyses [or any single method] seem so often to represent the triumph of zeal over science, or even common sense."[1]

The effects of gender, age and alcohol on crash severity are succinctly summarized in Chapter 6, while Chapter 7 provides a more detailed discussion of some of the issues related to older drivers. The confounding effects of exposure and its implications for policies are clearly illustrated here. Compared with drivers in other age groups, the relative risks associated with older drivers are higher or lower depending on how exposure is controlled. For example, although older drivers have higher relative risks per distance traveled, they have lower risk per licensed driver implying that renewing the licenses for older drivers poses relatively lower risk to other road users, and yet much of the current debate on older drivers is centered on the de-licensing issue.

Chapter 8 explores some of the elements of the driving task and how they are related to drivers' knowledge, skill, and perceptual and cognitive abilities, while Chapter 9 presents some discussion on driver behaviors. A clear distinction is made between drivers' abilities and behaviors because of their implications for driver training, graduated licensing and the usefulness of driving simulators. Chapter 10 discusses the role of alcohol in road safety and the efficacies of some common countermeasures including per se drunk driving laws, random breath testing,

sobriety checkpoints, ignition interlock system, community action groups like Mothers Against Drunk Driving, minimum drinking age laws, excise tax on alcohol, and alcohol advertising restrictions.

The general role of vehicle occupant protection is presented in Chapter 11, along with discussions on the effectiveness of seat belt and helmet use as well as mandatory seat belt and helmet use laws. Chapter 12 focuses specifically on the issues surrounding the effectiveness and cost-benefit of air bags. Again, the heavy reliance on only one approach to data analysis, which is adopted throughout the book, contributes significantly to the narrower focus on occupant protection, crashworthiness or crash protection. As a result, compared with the discussions on crash protection measures, less data are presented to support the various recommendations made on crash prevention strategies, although references to other research are provided. This approach is particularly evident in the last four chapters, which provide only a general discussion on the perceived failure of the American road safety policies and suggested measures to improve traffic safety.

Chapter 13 discusses the dominant role of driver behavior as a contributing factor to crashes in general and the role of social norms, mass media, fear of adverse consequences and legislative interventions in particular, while Chapter 14 discusses some actions individual drivers can take to improve their own safety. The author also introduces the behavioral feedback model to capture how people react to safety changes, a model that should be adopted more widely in road safety. Also, the author suggests that persuading drivers to behave differently, which would yield potentially large, but uncertain, gains, seems a better investment than expensive minor vehicle engineering changes that do not produce benefits large enough to be measured in the field. The merits of this comment deserve more debate and consideration by road safety professionals.

In Chapter 15, the author compares the road safety record of America with countries like Britain, Canada and Australia that are culturally and economically comparable. He suggests that much of the failure of the American policies can be attributed to the prominent role of road safety advocates who are untrained, uninformed, uninvolved, and uninterested in technical matters. This comment deserves more debate within the road safety profession because we are a profession that does not have a comprehensive training program for its members, who require a broad-based and multidisciplinary training in all aspects of road safety, not just on technical, legal or social matters alone. On the other hand, as argued by the author in his earlier book, the advancement of science may be best served by specialists with a narrow focus in research.

Finally, in the last chapter, the author presents a vision for a safer tomorrow where driver behavior is the central focus and avoiding crashes, rather than surviving them, is the primary goal of road safety research and practice. This recommendation deserves serious consideration because, as suggested by the author in the first chapter, when a crash is prevented, all harm is reduced to zero and thus a crash prevention measure that reduces crash risk by some percentage is necessarily a far more effective intervention than a crashworthiness measure with the same percent effectiveness.

In summary, this book provides a good discussion of some of the pertinent issues in road safety research and practice. It is an excellent reference for all road safety professionals and should be a recommended reading for any engineering or epidemiology related road safety course and a suggested reference for any social science related road safety course at both the advanced undergraduate and graduate levels.

Endnotes

1. The same critique can be applied to any analysis, including control trials, because the analysts have to make numerous assumptions about the relationship between variables in any given model and estimation technique.

Richard Tay *is the AMA/CTEP Chair in Road Safety, Department of Civil Engineering, University of Calgary, Alberta, Canada, and the Adjunct Professor in Road Safety at the Center for Accident Research and Road Safety in Queensland, Australia. His teaching and research involve the application of engineering, health, economics, management, marketing, psychology and statistical models to analyze road crash data and evaluate road safety policies and programs, and the development, implementation and evaluation of multidisciplinary measures to improve road safety and reduce the social cost of road crashes.*