PROJECT NUMBER: 01230

PROJECT TITLE: Effects of State Laws to Reduce Auto Fatalities

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PROJECT OBJECTIVES:
Policymakers have had a long-standing interest in improving the motor vehicle safety of both younger and older drivers. A number of state level policies and regulations may affect the number of motor vehicle crashes and fatalities in these two high-risk groups. Our specific aims are:

1) To estimate the effect of graduated driver licensing (GDL) systems on fatal crashes.
2) To evaluate the relationship between driver’s license renewal policies for elderly drivers and fatal crashes.
3) To assess the effect of maximum speed limit laws on fatal crashes.
4) To evaluate the effect of mandatory seat belt laws on fatal crashes.
5) To examine the effect of state beer taxes on fatal crashes.
6) To estimate the effect of drinking and driving laws on fatal crashes.
PROJECT ABSTRACT:
Although not all younger and older drivers are unsafe drivers, these two groups have higher motor vehicle crash and fatality rates per mile driven than other age group. Even though the problems posed by younger and older drivers stem from different origins and are manifested in different ways, state policymakers have employed a range of direct and indirect interventions towards addressing traffic fatalities in both of these groups. These policies can include direct interventions such as (1) graduated driver licensing (GDL) programs for teenage drivers and (2) driver’s license renewal procedures for older drivers. States can also increase occupant protection through the use of (3) mandatory seat belt requirements and (4) maximum speed limits on highways. Finally, states can address the issue of alcohol-impaired driving – a primary cause of motor vehicle fatalities in younger drivers – through the use of (5) laws regulating alcohol-impaired driving and (6) taxes on alcoholic beverages.

This project will examine the effect of these six policies on the number of motor vehicle fatalities for all drivers, and specifically for teenage and elderly drivers, using the Fatality Analysis Reporting System (FARS), with data on all fatal crashes in the United States that occur on a public roadway, for the period 1985-1998. The empirical methodology makes use of a multivariate regression model with fixed state and year effects. The analysis is expected to yield one rigorous empirical paper and two descriptive policy-oriented papers.

The proposed analysis allows us to overcome significant shortcomings in existing empirical research, apply a constant analytic framework to all of the policy interventions, and identify policy effectiveness for two high-risk age cohorts.

PROJECT TASK DESCRIPTIONS:
- Data management
- Econometric analyses
- Project reporting
- Organize and host transportation seminar

MILESTONES AND DATES:
October 1, 2001: Project Start Date – Initiate data management activities
February 1, 2002: Completion of data management activities
July 1, 2002: Completion of econometric analyses
July 2002: Begin organization of transportation seminar
September 1, 2002: Submission of manuscripts to peer review journals
September 2002: Hold transportation seminar
September 30, 2002: Project end date; submit project final report to UTCA

TOTAL BUDGET:
One-year project: other (HPP) $49,995.61; total budget $99,991.22.

STUDENT INVOLVEMENT:
A research assistant will provide 50 percent effort to the project. This to be named person will be a master’s student in public health, a student in the administration of health services Ph.D. program or a post-doctoral student on the UAB campus. She/he will conduct literature searches,
enter data, perform data management and cleaning tasks, perform data analysis activities and assist in the day-to-day efforts of the project.

RELATIONSHIP TO OTHER RESEARCH PROJECTS:
Drs. Grabowski and Morrisey have a background paper on related issues that is forthcoming in the December 2001 issue of The Milbank Quarterly. In terms of future work, the creation of a longitudinal database linking the FARS with state regulatory information will provide the opportunity for further research on related issues.

TECHNOLOGY TRANSFER ACTIVITIES:
There will be three major technology transfer activities. First, towards the end of the project (months 9-12), we will organize a conference to publicize the results of this study. We will invite students, researchers and state transportation officials to this seminar.

Second, the results from this study will be presented at two professional meetings. Possible conferences include the Academy for Health Studies Research and Policy, the Association for Public Policy and Management, and the Gerontological Society of America.

Third, the Lister Hill Center’s abstract series provides a vehicle to disseminate the results of the study, in lay terms, to a broad array of public policy makers. Published monthly, they are mailed to policy makers in Washington and the 10 southeastern states.

POTENTIAL BENEFITS OF THE PROJECT:
The relationship between these various laws and the safety of elderly and teenage drivers is fundamentally important to policymakers and public health officials. Outside of direct enforcement, these various policies are the primary means of ensuring safety on our roadways for these two high-risk groups. Although technological improvements in vehicles and roadways, the increased use of seat belts, and a decrease in alcohol-impaired driving have contributed to an overall decrease in traffic fatalities, death rates for younger and older drivers – and the death rate for occupants of other vehicles in crashes caused by these drivers – continue to be areas of concern for policymakers. This proposal examines whether there are specific policies such as unique licensing requirements, alcohol control policies, mandatory seat belt laws, maximum speed limit laws, and alcohol taxes that can help address high traffic fatalities rates for these drivers.

We also recognize that laws and regulations impose costs on both states and individual drivers. For example, consider the case of license renewal policies for the elderly. When licenses are denied, seniors face the burden of restricted mobility. This burden, as well as the direct costs of specific older driver licensing programs and policies (vision and road tests, for example), should be weighed against any benefits of improved motor vehicle safety in determining the overall value of these policies.

Given the number of previous studies examining these issues, it is important to highlight the three primary contributions of this proposal:

• First, this study overcomes a number of serious methodological shortcomings in the existing empirical literature. There is substantial variation in the rigor of the empirical
analyses examining the effect of state laws on motor vehicle fatalities. Interstate
differences in vehicle fatalities are likely to be influenced by differences in difficult to
observe characteristics such as road conditions, driving patterns, and social attitudes
towards drinking. Many previous studies have ignored this heterogeneity, resulting in
biased estimates if the unobserved factors are correlated with cross-state variations in
these state-level policies. As such, the multivariate analyses we proposed have the
advantage of providing a more fully specified model with reduced bias in the estimates.
Once again, we propose a fixed-effects model, which exploits within-state variations in
the regressors and outcomes, and as a result, automatically controls for all time-invariant
factors that differ across states.
• Second, this proposal offers a unique opportunity to study each of these policies in a
common framework. As described above, a number of studies have tried to isolate the
effect of individual policies on traffic fatalities without considering the effect of these
other state-level policies. As such, previous studies may suffer from one or more types of
omitted variable bias. This study would be the most comprehensive examination of state-
level regulations on young and older driver fatalities ever undertaken.
• Third, although there are a number of studies examining these issues in younger drivers,
there are very few studies examining motor vehicle fatalities in older drivers.
Specifically, we were unable to find studies examining the effect of mandatory seat belt
laws, maximum speed limit laws, beer taxes, and alcohol control policies on elderly
driver fatalities.

The findings from this study will measurably increase our understanding of state-level
regulations and their influence on motor vehicle deaths involving elderly and teenage drivers.
This will allow state policy makers and public health officials to clearly evaluate our current
regulatory environment, build upon its strengths, and ameliorate its problems.

TRB KEYWORDS:
Motor vehicle fatalities; younger drivers; older drivers; state regulations; graduated driver
licensing (GDL) systems; re-licensure laws; speed limits; seat belts; alcohol.