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STATEMENT OF

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ON

EVALUATIONS OF MINIMUM DRINKING AGE LAWS

BEFORE THE

SUBCOMMITTEE ON INVESTIGATIONS
AND OVERSIGHT
COMMITTEE ON PUBLIC WORKS
AND TRANSPORTATION

HOUSE OF REPRESENTATIVES

Mr. Chairman and members of the committee:

It is a pleasure to be here today to discuss GAO's study of evaluative evidence about the effects of increasing the minimum drinking age. Congressional concern over the disproportionate involvement of young drivers in alcohol-related traffic accidents prompted the passage of national legislation (Public Law 98-363) in July 1984. This legislation provides for withholding a portion of federal highway funds from states that continue to allow the purchase or public possession of alcoholic beverages after October 1, 1986, by persons younger than 21 years of age. Crossover sanctions, which require compliance with the rules of one federal program as a condition for receiving funds for another program, were previously used in 1974 to encourage the states to adopt a 55-mile-per-hour speed limit.

In response to increasing pressures to change their drinking-age laws, 23 states have raised their minimum purchase age since the passage of the 1984 law. However, despite the increasing trend toward higher drinking ages and the potential loss of millions of dollars in federal highway funds, 7 states, the District of Columbia, and Puerto Rico have yet to legislate a minimum drinking age of 21 years.

Whether a state should change its minimum-age law is one of the most debated and most studied traffic safety issues. Proponents of laws raising the drinking age cite empirical

studies that report that the laws will reduce traffic accidents among persons younger than the legal age. Those who oppose the laws also point to empirical evidence to support their position, and they take issue with the efficacy of raising the legal drinking age and question its fairness as well.

In October 1985, you asked us to analyze the technical and methodological soundness of existing evaluations of minimum-age laws and to assess the credibility of claims based on their findings. More specifically, we assessed the available evidence concerning the effect of raising the legal drinking age on

-- traffic accidents,
-- beverage alcohol consumption,
-- the incidence of driving after drinking,
-- the indirect effects of the law on underage youths (typically youths 16 and 17 years old), commonly referred to as the spillover effect,
-- border crossing to states with a lower minimum age, and
-- long-term trends for affected age groups, typically youths 18 to 20 years old.

My comments will draw largely on work we recently completed that we expect to present in greater detail in a forthcoming report. With your permission, Mr. Chairman, and in response to your time constraints today, I will summarize the main points of our review.

EVALUATION SYNTHESIS OF MINIMUM-AGE LAWS

To identify the universe of evaluation literature addressing the outcome measures of interest, we began by surveying a broad spectrum of highway safety experts including state highway safety representatives, state alcohol and drug abuse officials, researchers, evaluators, industry representatives, and federal officials. In this process, we identified over 400 citations of which 82 were actual evaluation studies that looked at the effects of changing the minimum drinking age. Of these, 49 focused on the effects of raising the minimum age, our main interest. Next, we formed a review panel containing expertise in both highway safety and program evaluation, to establish the technical and methodological criteria that the studies had to meet in order to be included in our final synthesis (see attachment 2 for a description of selection criteria). Based on the review of the panel, 21 of the 49 studies met the minimum requirements, and our conclusions are based on the information provided in these 21 studies.

The level of confidence one has regarding what is known about the effect of any law depends on both the quantity and quality of the evaluation information available. For this analysis, we had examples of both strong and weak quantity and quality. With regard to driver fatal crash outcomes there is a great deal of rigorous work that has been done. Conversely, we found only two studies conducted in a single state that measured the effects of raising the drinking age on the incidence of

driving after drinking. Thus, our confidence in the results for this outcome is more limited.

TRAFFIC ACCIDENTS

With regard to the effect on traffic accidents of raising the drinking age, we found 14 studies that addressed one or more of the traffic accident outcomes you were interested in[1]. Almost all 14 studies, whether conducted for individual states or across states, found statistically significant reductions in accident outcomes among affected age groups. These studies produced similar results, even though they often varied in scope, design, analysis methods, and measures of outcome.

Overall, the evidence is persuasive that raising the minimum drinking age has had significant effects on reducing alcohol-related traffic accidents for the affected age group. We conclude that, in general, states can expect reductions in

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[1] All but one of the studies focused on the laws' effect on accidents with varying degrees of seriousness where drivers were from the affected age group. These studies then employed various techniques for measuring alcohol involvement. Thus, the driver fatal crash outcome means the accident resulted in a fatality and the driver was in the affected age groups, the driver fatal and injury accident outcome expands the first case to include injuries as well as fatalities, etc. The one exception was a study which looked at the laws' effects on youth among the affected age group who were victims of fatal crashes, referred to as total fatalities.

traffic accidents, although the magnitude of a reduction will depend on the outcome measure that is used and the characteristics of the state. This finding is supported by multiple studies showing improved outcomes, often of similar magnitude, obtained by applying alternative approaches to analyzing various measures of traffic accidents. Analyses of driver crash data also show that effects in the short term are not restricted to reductions in injuries and fatalities alone, but may have additional benefits in terms of the costs associated with property damage accidents.

With regard only to driver fatal crash involvements, statistically significant crash reductions were generally found for the affected age group. All four of the national level studies we reviewed reported reductions that ranged from 5 percent to 28 percent. Similar results were reported for evaluations conducted at the state level. Four of the five states that evaluated a law's impact on measures of driver fatal crashes found statistically significant reductions that were attributable to raising the drinking age. Effects observed in these states during differing study periods ranged from a 1-percent reduction in Massachusetts to a 35-percent reduction in New York.

With regard to driver fatal and injury accidents, we analyzed the results of four studies addressing this outcome

which evaluated the impact of the law on the affected age group. Analyses of data on crashes in Florida, Michigan, and New York showed statistically significant reductions in measures of driver fatal/injury crashes that ranged from 10 percent in New York to 28 percent in Michigan. In Maine, different measures of effect yielded differing results.

With regard to driver crash involvements, the broadest category of motor vehicle accidents, we reviewed four studies that also found reductions in accident involvement that were linked to raising the drinking age. Analyses of Illinois, Maine, and Michigan data found statistically significant reductions in crashes ranging from a low of about 9 percent in Illinois to a high of 22 percent in Michigan, depending on the outcome measure being used.

An important consideration in synthesizing the results of these studies is that Maine and Illinois were each the focus of two independent evaluations. In Maine, using different surrogate measures of impact, the two evaluations found reductions ranging from 22 percent to 17 percent. For Illinois the reductions were 11 percent and 9 percent using the same surrogate measure. This independent verification of each state's experience in raising the drinking age tends to increase our confidence about the positive effects of the changing the laws.

We found only one study that evaluated the effects of raising the drinking age on injury crash involvements for the ages affected by the law. This study observed a statistically significant decrease of approximately 2 percent in driver injury crashes in Florida during the study period.

Finally, one national study analyzed the effects of raising the legal drinking age on total fatalities for ages affected by the law. This differed from driver fatal crash studies by focusing the analysis on the age of the victim of a fatal crash who may or may not be the driver. The evaluation found a statistically significant reduction of 7 percent in fatalities for ages affected by the law in states with higher legal drinking ages.

In each outcome category discussed above the number of studies varied. This variation ranged from nine studies of driver involved fatal crashes to one study evaluating driver injury crashes. The sizes of the effects observed between studies also differed, as did the results within studies. For example, in one multiple-state study the effects of the law change, using the same outcome measure, ranged from a reduction of 75 percent in one state to an increase of 14 percent in another.

Variations in study results within each traffic accident category could result from differences between studies in the states examined, outcome measures used, and evaluation designs employed. For example, differences in demographic characteristics, road and weather conditions, law-enforcement practices, and the quality of state crash data may all influence estimates of accident rates. Similarly, whether one chooses to evaluate the impact of the law using police reported estimates of alcohol involvement or using a more indirect surrogate measure (such as single-vehicle, male, nighttime accidents) can yield different results.

ALCOHOL CONSUMPTION/DRIVING AFTER DRINKING

Examining the effects of minimum drinking age legislation on consumption and on driving after drinking is important not only because of the intrinsic need to know what these outcomes are, but also because they are major intervening links between a change in the law and a presumed effect on highway safety (see attachment 1).

Here caution is warranted in interpreting the results because of problems of evaluation quality and quantity. We found only four credible evaluations of alcohol consumption, only two of which also evaluated driving after drinking. Further, three of the four studies were based on surveys conducted in one state.

Although these studies report that an increase in the minimum age resulted in a statistically significant decrease in the frequency and level of alcohol consumption and a decrease in driving after drinking for the affected age group, this research is limited in several respects. First, the geographical concentration of the evidence and the sparsity of the research--especially as it relates to driving after drinking--means that the results cannot be generalized to specific states or jurisdictions. Second, the evaluations are based on survey data that may underestimate levels of actual consumption and driving after drinking. Third, the only national study that examined the question used an imprecise definition of affected youth.

SPILLOVER EFFECTS FOR UNDERAGE YOUTH

Arguments supporting an increased legal drinking age are not restricted to the potential benefits that may result for the age groups that are directly affected. A complementary issue that is dealt with in some of the studies we reviewed is the potential spillover or indirect effect of a change in the law on 16- and 17-year-olds. Because 18-year-olds are typically seniors in high school, it has been argued that legally entitling them to drink may make alcohol more accessible to their younger classmates.

Here we looked at two broad categories of outcomes: the effect of the law on accident involvement and more intermediate effects of alcohol consumption and driving after drinking among underage youth.

For accident outcomes, we found little evidence to suggest that an increase in the legal drinking age has an effect on the involvement of 16- and 17-year-old drivers in alcohol-related accidents. The studies on crashes that we considered the most methodologically sound consistently found no statistically significant differences in the outcome measures for 16- and 17-year-old drivers. Caution in interpreting these results, however, is warranted. First, the studies themselves were limited to four states. Second, results from evaluations conducted in two other states suggest a possible spillover effect. Third, most of the studies we reviewed focused on the directly affected age group and offered only limited analyses of effects on younger drivers. The two evaluations that did explicitly test for the spillover effect, however, found no evidence of one.

We identified only three studies that considered the effects of raising the drinking age on the alcohol consumption patterns of underage youth. Two of these studies also analyzed changes in driving after drinking. These studies were restricted to two

states, Massachusetts and New York, and relied almost exclusively on survey data collected before and after the enactment of a higher legal drinking age.

We found the available evidence on alcohol consumption and driving after drinking insufficient to determine the existence of a spillover effect on younger drivers. The limited number of studies conducted in two states presented mixed results. In addition, the heavy reliance on survey data, further limits our ability to assess any potential spillover effects.

BORDER-CROSSING STUDIES

The potential incentive for young drivers to cross state borders to purchase alcohol not legally available within their own state has been referred to as the "border-crossing problem." Federal initiatives to encourage a uniform minimum drinking age of 21 were prompted in part by concern over this problem. Prior to the passage of Public Law 98-363 in 1984, an estimated 56 percent of the total borders in the United States separated states that had different legal drinking ages. One plausible reason state legislatures have resisted changing their drinking-age laws is the awareness that youths would merely cross state lines to obtain alcoholic beverages.

Three of our 21 evaluations assessed the border-crossing

issue. All three evaluations restricted their analyses to one side of a border--that is, accidents in the border counties of the state that maintained the lower of the two states' legal drinking age. These evaluations relied on accident data from two states, New York and Wisconsin, with New York the subject of two evaluations. Differing demographic characteristics, low rates of accident involvement for affected drivers, and incremental age law changes all contributed to making border crossing a difficult concept to measure and evaluate.

Although the two studies that evaluated New York's experience do suggest the presence of a border-crossing problem, our review of the results and their limitations lead us to conclude that the evidence is insufficient to assess the effect of raising the minimum drinking age on border crossings.

LONG-TERM EFFECTS

A review of other laws designed to deter drinking and driving reported notable declines in associated crashes in the short-term but found that this effect dissipated over time. A related concern for drinking-age laws was the subject of two evaluations we reviewed.

A follow-up evaluation of the initial effect of Michigan's raised drinking age analyzed 5 years of postlaw data. Using two

different measures of alcohol-involved injury accidents, it reported a long-term reduction of 13.5 percent after 5 years, compared to a short-term reduction of 19.5 percent after 1 year.

In a separate analysis of national data on fatal crash involvements the evaluators found no evidence of erosion in effects when they compared fatal crashes after 1 year and after 3 years of raised drinking age laws. In states with several years of experience, no significant difference in the effects of the raised purchase age was observed after the first years of the change.

The evidence from the limited number of studies that have assessed long-term effects indicates that a sustained, significant reduction in alcohol-related injury crashes and fatal crashes was generally observed, although in one state a more modest reduction in the long-term effects was reported. Continuing research, however, is needed to fully understand the nature and extent of long-term effects as additional states maintain higher drinking ages over time.

SUMMARY OF FINDINGS

In sum, then, the available evidence for the outcomes we examined varies considerably, but it does show that raising the drinking age has, on average, a direct effect on reducing alcohol-related traffic accidents among affected age groups across states.

The evidence also supports the conclusion that states can generally expect fewer traffic accidents but how many will depend on the particular outcome measured and the characteristics of the state.

A third finding is that raising the drinking age may result in a decline in the consumption of alcohol and in driving after drinking for the affected age group; however, the limited quantity and quality of evaluations for these outcomes warrant caution in generalizing from the evidence.

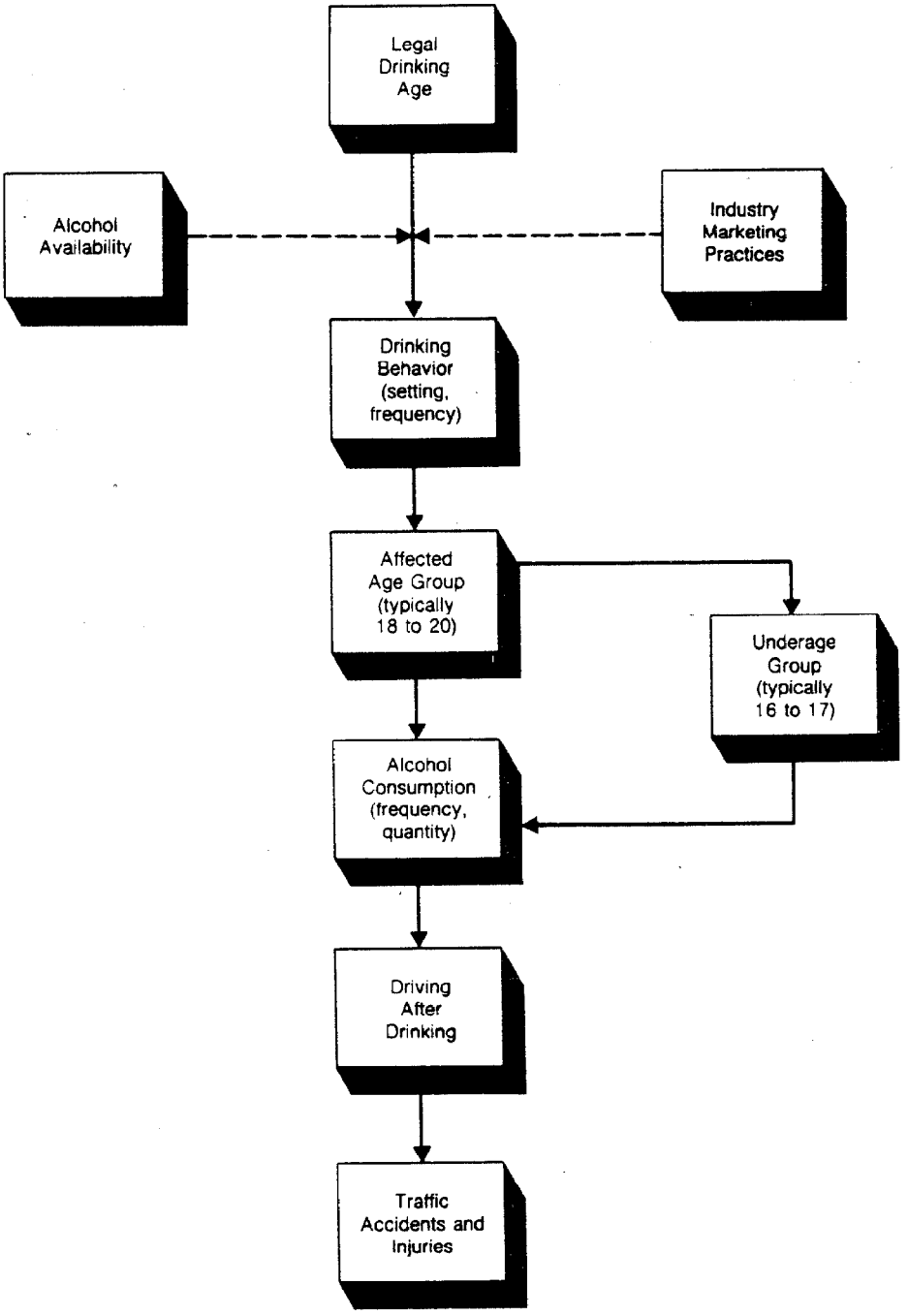
With regard to spillover effects of the crash experiences of underage youth (16-17 year olds), we found some evidence that there is no effect. However, again, generalizations are impeded by the small number of studies that explicitly tested for this effect and the limited number of states they studied.

For other potential spillover effects and border crossing effects, the available evidence was insufficient to determine whether or not raising the drinking age has an impact.

Finally, we found some evidence to suggest that the short-term effects of raising the legal drinking age may hold up over time. But, again, the evidence is insufficient to draw any conclusions regarding long-term effects.

This concludes my statement, Mr. Chairman. I would be happy to answer any questions you or the committee may have.

Conceptual Model Linking Drinking Age Law with Highway Safety Outcomes



Reasons for Unacceptable Study Ratings

Rating criteria	Accident Outcomes (ch. 4)	Consumption Outcomes (ch. 5)	Spillover Outcomes (ch. 6)	Other Outcomes (ch. 7)	Total
Comparison group comparability	14	4	0	7	25
Description of source data	7	0	0	0	7
Comparable measures	8	5	0	3	16
Test for significance	14	1	2	5	22
Quantitative measure of difference	18	5	2	8	33
Comparable pre/post data	5	0	1	1	7
Account for non-independent observations	4	0	0	0	4
Total[a]	70	15	5	24	114

a. Totals are not equal to the number of studies judged unacceptable (28) since most of these studies failed to meet two or more criteria and some studies dealt with more than one outcome.