
The Drinking Age and Traffic Safety

Peter Asch and David Levy

IN RECENT YEARS there have been two revolutions in U.S. drinking age policy. During the early 1970s, 29 states lowered their minimum legal drinking ages, usually from 21 to 18. Since 1975, almost all states have raised their drinking ages to 21. Today, just two states permit people under 21 to purchase alcoholic beverages and these states suffer a reduction in federal highway funds as a result. The minimum legal drinking age is currently considered an important public policy tool for reducing alcohol-related traffic fatalities.

The rationale for raising the drinking age is both familiar and widely accepted. Young drivers, especially males, have long accounted for a disproportionate number of traffic accidents and fatalities; and alcohol consumption is implicated in a substantial proportion of serious and fatal crashes. Thus, it would seem, limiting an already risk-prone group's access to alcohol can only have salutary effects, and would reduce the tragic costs imposed on society by young drinking drivers.

There is some evidence that appears to support this view. Although empirical estimates vary considerably, it is typically observed that when a state raises its legal drinking age—say from 18 to

21—fatality and accident rates decline perceptibly among 18 to 20-year-olds. A recent survey by the U.S. General Accounting Office (1987), for example, concludes that “raising the drinking age has, on average, a direct effect in reducing alcohol-related fatalities among affected age groups across states.”

This is an interesting and important observation. It does not, however, constitute persuasive evidence that higher drinking ages make the roads safer. The reality is that higher drinking ages may simply be moving the problem around, rather than solving it.

Drinking Age and Drinking Experience

Proponents of the 21-year-old drinking age contend, often implicitly, that it is the combination of age and alcohol that creates an abnormal driving hazard. This, in effect, is a “drinking age” explanation of traffic risks: there is something peculiarly dangerous about *young* drinking drivers. (Drinking and driving are, of course, inherently dangerous at any age.)

There is an alternative hypothesis that appears equally plausible: *inexperience* in drinking creates a driving risk that is, at least partially, independent of age. Put most simply, this “drinking experience” hypothesis states that *new* drinkers are dangerous drivers, whether they are 18, 21, or (conceivably) 30. New drinkers may present abnormal risks either because there is

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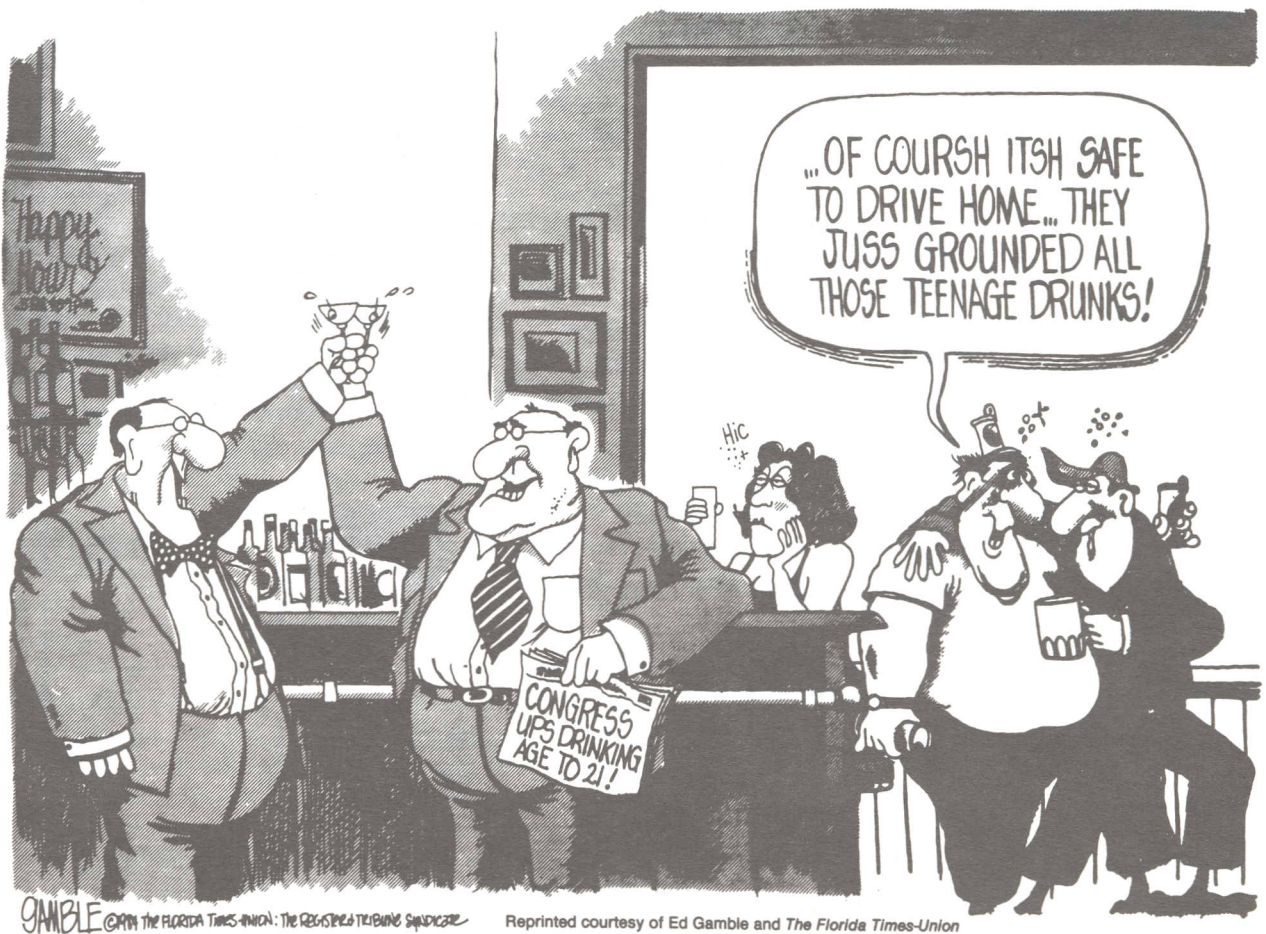
some sort of learning or tolerance curve associated with alcohol consumption, or simply because attainment of the legal drinking age is a major life event that induces many initiates to "go overboard."

If the experience hypothesis is correct, drivers aged 18 to 20 may indeed enjoy lower accident and fatality rates upon raising the drinking age from 18 to 21, but there will be a "new drinker" risk among 21-year-olds. Following an increase in the drinking age from 18 to 21, we would thus expect fatalities to decline among those aged 18 to 20, but (with the appropriate time lags) to *increase* among 21 and perhaps 22-year-olds.

The experience hypothesis thus suggests that an increase in the minimum legal drinking age is likely to shift the age distribution of fatalities—in effect, "postpone" some fatalities from 18 to 21. It is unclear whether the higher drinking age on balance saves lives. There is no theoretical or *a priori* basis for choosing between the age and

experience hypotheses; both might have some validity. The issue is purely empirical.

The fact that previous empirical studies have failed to examine drinking experience suggests that their results may be biased in two ways. First, by focusing on only the directly-affected age groups (18 to 20-year-olds, for example, in a state that raises its drinking age from 18 to 21), these studies ignore the experience of cohorts as they attain the new, higher drinking age. This is somewhat akin to examining the benefits of a policy without considering offsetting costs. In addition, by focusing on short-term effects, these studies ignore the fact that states that lower the drinking age undergo a temporary bulge in the population of inexperienced drinkers. By the same token, states that raise the drinking age see a temporary decline in this high-risk group. Evaluations that are confined to relatively short-term experience following a change in the drinking age may therefore exhibit safety patterns that are unlikely to persist over time.



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The Evidence

We examined traffic fatality rates in 47 states over a 10-year period, 1975 to 1984, during which drinking ages were on the rise. Four cohorts—ages 18, 19, 20, and 21—were scrutinized (for a total sample size of 1,880). Fatality rates were compared for cohorts who could and could not drink legally in particular states and years (drinking was illegal in 571 of the 1,880 cases).

Some suggestive statistics on the relationship between legal drinking status and fatalities are presented in the accompanying table.

Panel A displays total driver fatalities, and Panel B displays single-vehicle nighttime driver fatalities. The fatality rates displayed are numbers of fatalities among 18, 19, 20, and 21-year-olds per 100,000 licensed drivers in each age group. They are computed as simple averages of fatalities across different states; weighting by state driver-population size would yield similar patterns. The top two rows of each panel compare fatality rates for cohorts who could and could not drink legally; the bottom two rows, which are limited to cohorts who could drink legally, compare fatality rates for those in their first year of legal

AVERAGE ANNUAL TRAFFIC FATALITIES PER 100,000 DRIVERS

(Cohorts of Various Ages During 1975-1984)

Panel A ALL ACCIDENTS

Age:	18	19	20	21	18-21
Below Drinking Age	45	42	39		42
Of Drinking Age	44	45	42	40	42
First Year of Legal Drinking	44	55	46	39	45
Experienced Drinkers*		41	42	40	41

Panel B SINGLE-VEHICLE NIGHTTIME ACCIDENTS

Age:	18	19	20	21	18-21
Below Drinking Age	17	15	13		15
Of Drinking Age	14	16	15	14	15
First Year of Legal Drinking	14	23	22	12	15
Experienced Drinkers*		13	15	15	14

*In second, third, or fourth year of legal drinking status

drinking status (cohort age is equal to drinking age) and those in their second through fourth years of legal drinking status.

No strong impact of higher drinking ages is readily apparent. Considering the data in the top two rows of each panel, the mean fatality rates

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for cohorts who could and could not drink legally over the period are virtually indistinguishable, and the differences are not statistically significant. The age 19 cohort, for example, has an overall fatality rate of 45 per 100,000 drivers when drinking is legal as compared to 42 per 100,000 drivers when it is not; the rates for single-vehicle nighttime accidents among the age 19 cohorts are 16 per 100,000 and 15 per 100,000, respectively. These differences in fatality rates are not statistically significant. The one exception is the fatality rate for single-vehicle nighttime accidents among 20-year-old drivers, which is significantly higher when drinking is legal than when it is not. For 18-year-olds, drinking cohorts have lower fatality rates than non-drinking cohorts. There is, however, a complication in interpreting the data on 18-year-olds. Since no state has permitted drinking at ages younger than 18, all 18-year-olds who can drink are also in their first year of legal drinking experience. Legal drinking and inexperienced drinking at age 18 are thus perfectly correlated, and it is not possible to separate the two effects on fatalities for this cohort.

Turning now to the data in the bottom two rows of each panel, which are disaggregated on the basis of drinking experience, it can be seen that drivers in their first year of drinking experience are at high risk for fatalities. (This is not the case for 18-year-olds; recall, however, it is impossible to separate the effects of drinking age and drinking experience among 18-year-olds). For 19-year-olds, fatality rates (both total driver and single-vehicle nighttime) jump sharply in the first year of legal drinking and decline in the second year. Considering single-vehicle nighttime accidents, for example, the fatality rate among

19-year-olds in their first year of legal drinking is 53 percent higher than among 19-year-olds who could not drink legally (23 compared to 15); it is 77 percent higher than among 19-year-olds in their second, third, or fourth year of legal drinking status (23 compared to 13). The pattern is repeated among 20-year-olds. A further disaggregation of these data suggests that the increased fatality risk for 20-year-olds lasts for the first two years of legal drinking, and declines sharply in the third year. The higher fatality rates for first year drinkers are statistically significant.

Among 21-year-olds, the patterns differ. Contrary to what we expected, experienced drinkers have a higher fatality rate than first year drinkers. This pattern, however, is not statistically significant.

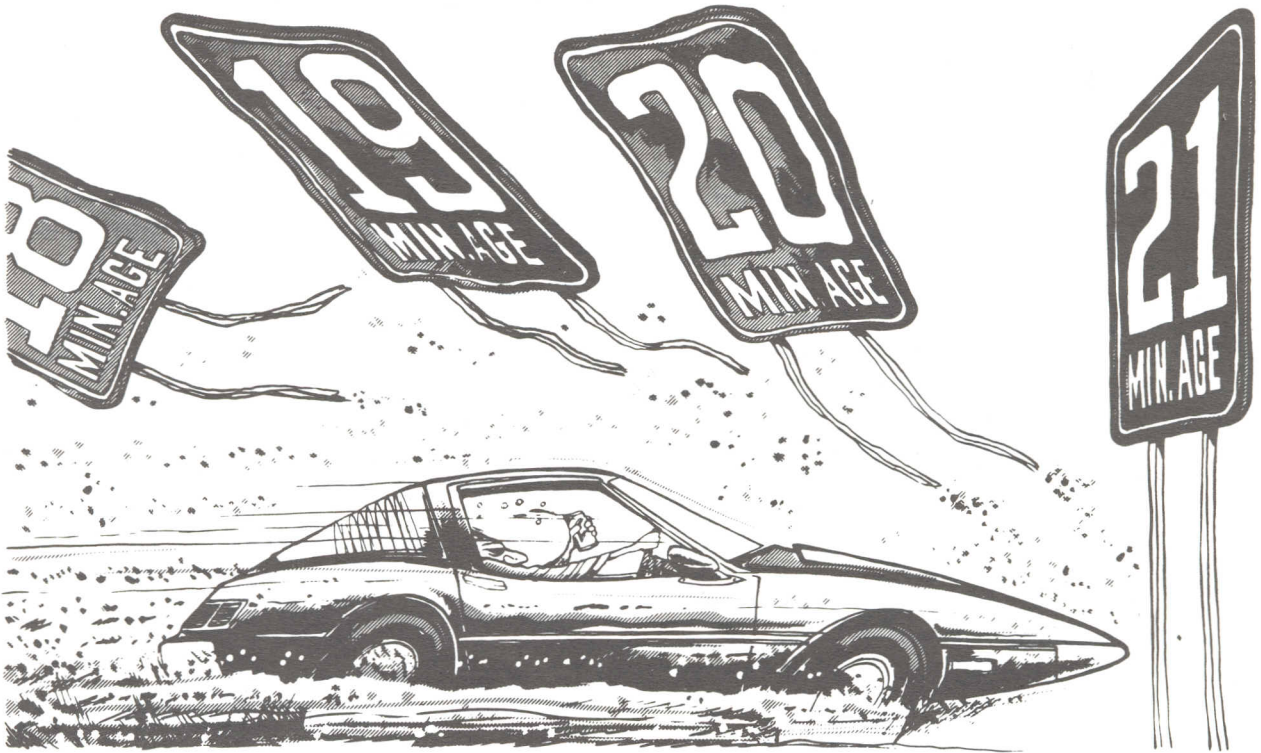
The evidence we have presented, while not definitive, provides support for the drinking experience hypothesis: new drinkers appear to be relatively risky drivers. Further, the new-drinker risk appears to erode quickly—after one or two years. In contrast, simple fatality rate comparisons do not suggest with much strength or consistency that legal drinking status exerts much influence.

Legal drinking age does not appear to be an important weapon in the public traffic safety arsenal.

The simple comparisons that we have presented are suggestive rather than conclusive. We have subjected the data to more demanding statistical analyses, and have reached similar conclusions. The effect of drinking age alone on traffic fatality rates appears inconsistent and frequently minor, whereas the effect of drinking experience is consistent, usually significant, and frequently quite strong.

Policy Suggestions

On the basis of the evidence, we conclude that legal drinking age does not appear to be an important weapon in the public traffic safety arsenal. We cannot rule out the possibility that raising the drinking age saves lives, but such an effect is not obvious in the fatality patterns we observe. The hazards posed by new drinkers,



regardless of age, appear considerably stronger. It is likely that advocates of a higher drinking age have attributed to *young* drinkers the risks that accompany *new* drinking at various ages.

The consciousness-raising efforts of groups such as Mothers Against Drunk Driving have probably had a greater impact on alcohol-related crashes than laws that have increased drinking ages.

It does not necessarily follow that the 21-year-old drinking age is a "bad" idea. It might yet be judged desirable on balance. It should be recognized, however, that the major benefit claimed for this policy has been seriously exaggerated. In the short term, we believe that alternative policies, including educational efforts and vigorous enforcement of existing drunken-driving laws, are more promising. Indeed, the consciousness-raising efforts of groups such as Mothers Against Drunk Driving have probably had a greater impact on alcohol-related crashes than laws that have increased drinking ages.

A true long-term solution to the problem of drinking drivers is likely to require either a basic change in the way alcohol is introduced to the young, such as explicit approval of "responsible" drinking at relatively young ages, as in France, or stronger measures to discourage drunken driving. Some Scandinavian nations, for example, routinely imprison those caught drinking and driving, and regard as unacceptable any alcohol consumption by drivers. Whatever the decision, it seems clear that the means by which we now make alcoholic beverages available to the young—proscribing consumption up to an arbitrarily specified age, and allowing it from that moment on—is a policy of little use in promoting highway safety. ■

Selected Readings

Asch, Peter, and David Levy. *The Minimum Legal Drinking Age and Traffic Fatalities*, Report to the National Institute on Alcohol Abuse and Alcoholism, Grant No. ALCP 1 RO1 AA06856-1 (November 1986).

U.S. General Accounting Office. *Drinking Age Laws: An Evaluation Synthesis of Their Impact on Highway Safety*, GAO/PEMD-87-10 (March 1987).