

The Effects of Television and Magazine Alcohol Advertising on Liquor Consumption

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Abstract

In the US, some of the most significant and pervasive public health problems are linked to alcohol consumption. Further, problems associated with alcohol are concentrated in age and demographic groups that merit special attention. Alcohol is the drug of choice for American youth. In 2014, roughly 23 percent or 9 million youth ages 12 to 20 reported having had a drink in the past month [1]. Although youth in this age range drink less often than the average adult, when they do drink, youth drink more (a per-occasion average of 5 versus 2.5 drinks for adults 26 and older). Nearly 14 percent or 5 million youth report that they consumed 5 or more drinks per occasion in the past month an amount that is often labeled "heavy episodic" or "binge" drinking. Because alcohol is implicated in various behaviors that affect health, these statistics represent a serious public health problem. For example, in 2006 alcohol was involved in traffic accidents that killed 11,773 people, almost one-third of all US traffic fatalities [2]. Further, about 1,600 of those who died in alcohol-related traffic accidents were under age 21 [3]. Approximately 1,300 additional youth die in alcohol-related homicides and roughly 500 die from alcohol-related suicides [4]. Another 800 youth die in alcohol-related accidents of other types. In total, every year there are roughly 4,200 alcohol-related youth deaths. The CDC estimates that, on average for 2006-2010, 88,000 people died annually for reasons attributable to alcohol. These deaths represent the loss of 2.6 million years of potential life or approximately 30 years per alcohol-attributed death [3]. After smoking and obesity, alcohol abuse is the third leading cause of preventable deaths in the US.

Alcohol use is also associated with many other negative but non-fatal consequences. It is associated with risky behaviors such as sex with multiple partners, and unplanned, unprotected, and unwanted sex. These behaviors significantly increase drinkers' risks of contracting a sexually transmitted disease and unintended pregnancy. Ziegler et al. find underage alcohol use is associated with brain damage and neurodegeneration, potentially impairing learning and

intellectual development [5]. Every year on college campuses half a million injuries and 70,000 sexual assaults involve alcohol [6]. Researchers estimate that the annual total costs associated with US underage drinking are \$61.9 billion, roughly \$3 per illegally consumed drink [7].

These negative consequences naturally focus policy attention on understanding what determines drinking decisions. Here we exploit a quasi-natural experiment to investigate the role that advertising of alcohol plays in decisions to drink.

We use marketing data that includes a relatively rare collection of data one needs to empirically test hypotheses about advertising and consumption between 1996 and 2009. These individual data include detailed demographic information, detailed data on whether, the amount, and type of alcohol each respondent drank in the past 30 days, and, most importantly, detailed information on television programs people watched, when they watched those programs, and whether and how intensively they read magazines. The survey that generates these data solicits information on literally hundreds of currently aired television programs and up to 182 popular consumer magazines. We round out these already rich data with external data on the alcohol advertising that appeared in each magazine or aired on each program (and when it aired). We combine these data to generate measures of exposure to advertising that are individual-specific.

Previous research uses these data to describe youth exposure to advertising for all alcohol types and estimates the effect of advertising on youth alcohol consumption [8]. We further exploit these data to document the long-run trends in the number of advertisements the average consumer saw separately for beer, liquor, and wine over a 14-year period. Those trends suggest a sharp increase in television liquor advertising since 2000 and a concomitant decline in magazine liquor advertising.

Since our goal is to estimate a causal effect of exposure to advertising, we must statistically confront the challenge to identification that arises because people choose which programs to watch and which magazines to read and firms choose which media to advertise in. To do so, we exploit a policy change that led to a sharp increase in television liquor advertising (and decline in magazine advertising) that began in the late 1990s and continues unabated.

We show that the break in trends of television and magazine liquor advertising occurred because, in 1996, the liquor and spirits industry trade association abandoned its voluntary and self-imposed ban on the television advertising of liquor. The ban had been in force (first on radio advertising and later on both radio and television advertising) since 1935. Since this policy change is plausibly exogenous to the unobserved factors that lead youth to drink (before and after the years of the change), we use the policy change in an event history framework to study how consumption changed as advertising exposure changed before and after the end of the self-imposed ban.

We examine the effect of the increase in advertising exposure on the consumption of liquor (whether one drinks liquor and the number of liquor drinks consumed if one drinks liquor). We

show that young adults ages 18 to 20 were more likely to drink liquor if they saw more liquor advertisements in magazines. The effect of magazine advertising on liquor consumption is the same for this age group in the pre- (i.e. 1996-2000) and post-period (i.e. 2001-2009, 2001-2004, or 2005-2009). For individuals older than 20, liquor advertising on television increased the probability of liquor drinking at a decreasing rate over time, while liquor advertising in magazines increased the probability of liquor drinking at an increasing rate over time for 21- to 24-year-olds. Conditional on drinking any liquor, 18- to 20-year-olds drank more liquor when they saw liquor advertisements on television in general. However, we do not find a pre- and post-period difference in the effect of advertising on liquor consumption. The 21- to 24-year-olds drank more liquor in the post-period, but television advertising does not seem to affect the number of liquor drinks consumed. However, individuals in this age group drank more liquor when they saw more liquor advertisements in magazines. There is no pre- and post-period difference in the effect of magazine advertising on liquor consumption for this group. We estimate that adults 25 or older drank more liquor when they saw more liquor advertisements on television or in magazines.

Finally, we show that the change in the estimated effect of liquor advertising over these years comports well with the theoretically expected marginal effect in a world in which the marginal effect of advertising declines as the total volume of advertising rises. The liquor advertising on television increased liquor consumption at a decreasing rate over time, whereas liquor advertising in magazines increased liquor consumption at an increasing rate overtime for 21- to 24-year-olds.

Our estimates show that exposure to liquor advertising causes people to consume more liquor. To our knowledge, we are the first to produce evidence of this type.

References cited

1. Substance Abuse and Mental Health Administration, *Results from the 2014 National Survey on Drug*. 2015, Office of Applied Studies: Rockville, MD.
2. National Highway Traffic Safety Administration, *Fatalities and Fatality Rates in Alcohol- Impaired-Driving Crashes by State, 2007-2008*, in *Traffic Safety Facts*. 2009.
3. Centers for Disease Control and Prevention, *Alcohol and Public Health: Alcohol-Related Disease Impact (ARDI) 2006-2010*. Retrived from http://nccd.cdc.gov/DPH_ARDI/Default/Default.aspx.
4. Hingson, R. and D. Kenkel, *Social health and economic consequences of underage drinking*, in *Reducing Underage Drinking: A Collective Responsibility*. 2004, National Academies Press: Washington, DC. p. 351-382.
5. Zeigler, D.W., et al., *The neurocognitive effects of alcohol on adolescents and college students*. *Prev Med*, 2005. **40**(1): p. 23-32.
6. Hingson, R., et al., *Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18-24: changes from 1998 to 2001*. *Annu Rev Public Health*, 2005. **26**: p. 259-79.
7. Miller, T.R., et al., *Societal costs of underage drinking*. *J Stud Alcohol*, 2006. **67**(4): p. 519-28.
8. Molloy, E., *This Ad is for You: Targeting and the Effect of Alcohol Advertising on Youth Drinking*, *Health Economics*, 2015.

Liabile libations Alcohol advertising has shown its ugly side by targeting minorities and women more than the rest of its consumers. The stigma attached to alcohol advertising is rivaled only by the controversy surrounding cigarette marketing. The alcohol industry has recently returned to advertising via television and radio, foregoing their self-imposed ban on broadcast ads. Increased awareness of the long-term effects of alcohol consumption coupled with stronger laws and penalties associated with drinking and driving has tempered the United States love affair with liquid libations. Black Americans have become an attractive market; they consume 75% of all malt liquor and represent a significant percentage of a few well-known brands'™ market share (Cui). Exposure to multiple sources of alcohol advertising (television advertisements, alcohol. _NSHPP Literature Review " Role of Advertising on Alcohol Consumption Among Youth March 2009 " Final. 6. . Research Power Inc. advertisements in magazines, in-store beer displays/concessions, radio advertisements and promotional merchandise) is strongly predictive of intention and onset of drinking one year later (Collins et al., 2007; Ellickson et al, 2005; Pasch 2007). There is evidence that even passive advertising also has an effect on initiation and consumption. In any case, banning tobacco ads from television and radio hardly affected smoking rates in the U.S. Almost all the decline has been from people quitting or choosing not to begin smoking because of the health risks. Another (much smaller) part has been taxes. Marlboro doesn't have to remind people they exist - by the time they were banned from marketing on mass media, it had become one of the most recognizable brands in the world, period. It still is. So then what's the point of banning these ads? Perhaps this would be a sufficient enough requirement to allow cigarette and liquor ads on television. Other forms of tobacco are hardly risky, like snus, American chew and dip, and vaping. The FTC treats alcohol advertising regulation very differently. Straight from their website The alcohol advertising project involved seven separate phases of research studying the content and effects of advertisements. Two studies focused on the quantitative and qualitative attributes of ads appearing in magazines, newspapers, and television. Five studies measured audience exposure and response to alcohol ads, particularly among teenagers and young adults. The research was sponsored by four federal agencies: The Bureau of Alcohol, Tobacco, and Firearms, The Federal Trade Commission, the National Institute on Alcohol Abuse and Alcoholism, and the Department of transportation. Based on the needs expressed by these sponsors, the following purposes guided the investigation: a. Advertising statistics.