

# **The Effect of Alcohol Restrictions on Drinking Habits?**

by

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## **Abstract**

Binge drinking has become a major concern on college campuses and has resulted in several actions taken to reduce drinking by college students. One such measure has been to discourage the availability of alcohol off campus by reducing the number drinking establishments near college campuses. This paper explores the behavioral effect of such a restriction on the drinking habits of college students and whether pushing drinking to private residences increases the likelihood of binge drinking.

## INTRODUCTION

The issue of binge drinking has become a major concern on college campuses. Several organizations such as the American Medical Association's program *A Matter of Degree*, the Harvard School of Public Health's *College Alcohol Study* (CAS), the National Institute of Alcoholism and Alcohol Abuse (NIAAA), the office of the US Surgeon General, as well as the United States Senate and the House of Representatives, have all pushed to reduce the incidence of binge drinking on college campuses. Research surrounding the causes and consequences of binge drinking have identified several key factors that may be beneficial in reducing the incidence of binge drinking. One factor identified in several studies as contributing to binge drinking among college students is the density of drinking establishments surrounding the university community.<sup>1</sup> As a result, university administrations at some campuses have used these studies to discourage the existence of drinking establishments near college campuses.<sup>2</sup> One effects of reducing the number of drinking establishments near a university campus is to push drinking among college students to private residences. Using the standard neo-classical model of a utility maximizing consumers, this paper explores the effect of pushing drinking from drinking establishments to private residences on the drinking habits of alcohol consumers. A review of the literature surrounding alcohol consumption and binge drinking in particular is examined to see if the predictions of the model are consistent with drinking behavior of college students.

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<sup>1</sup> See for example, Chaloupka and Wechsler (1996) and Weitzman, Folkman, Lemieux Folkman, and Wechsler (2003).

<sup>2</sup> Dr. Rand Link, then vice president of student affairs at Sonoma State University used this justification to oppose the opening of a bar across the street from the university campus. See the Sonoma State University school newspaper, the Star 4/5/2006 for details.

## THE MODEL

Alcohol consumption, like all consumption, can be treated as a rational decision by utility maximizing consumers to allocate scarce resources to the consumption of alcohol given a set of prices and income. Assuming rational utility maximizing behavior, alcohol consumption can be analyzed using a standard consumer optimization model. For simplicity, consider a simple two good model in which the consumer is faced with a composite commodity ( $x_2$ ) representing all goods other than alcohol and alcohol ( $x_1$ ). Assuming well behaved preferences<sup>3</sup> consumers choose the combination of  $x_1$  and  $x_2$ , that maximizes the utility function  $u(x_1, x_2)$  subject to the linear budget constraint  $I = x_1 p_1 + x_2 p_2$ . The optimization is thus the familiar :

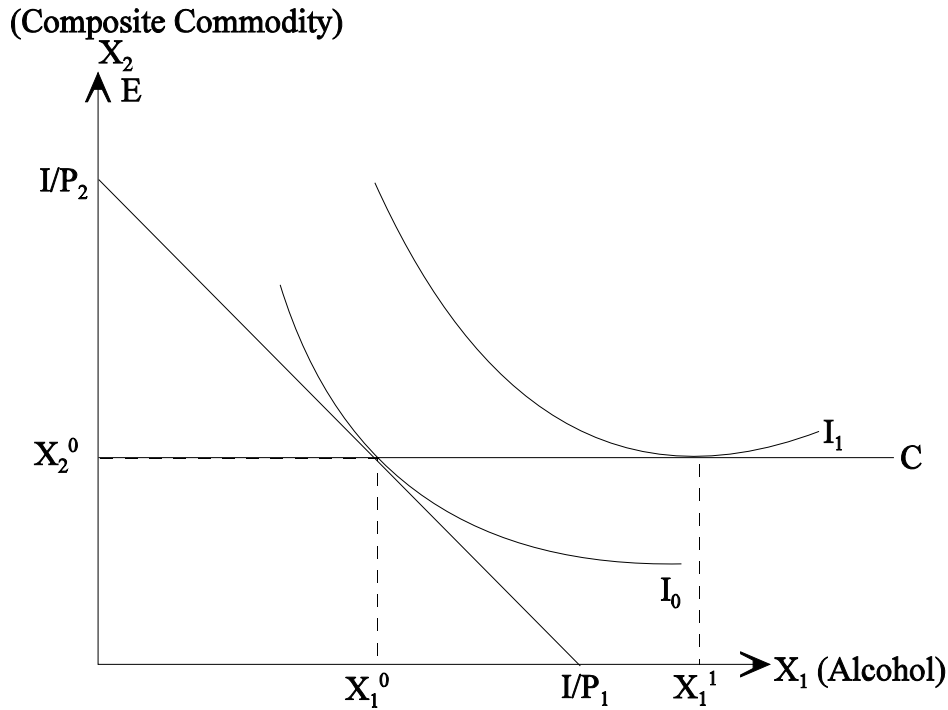
$$(1) \quad \underset{x_i}{\text{Max}} U(x_1, x_2) \text{ subject to } I = x_1 p_1 + x_2 p_2, \quad \forall i = (1, 2).$$

where  $I$  is an exogenous endowment and  $p_1$  and  $p_2$  are the prices of  $x_1$  and  $x_2$  respectively. With positive prices, optimization produces a unique solution  $x_i^* = x_i(p_1, p_2, I)$  for  $i = (1, 2)$ . This is shown graphically in Figure 1 where the consumer chooses the utility maximizing consumption bundle  $(x_1^0, x_2^0)$ . Consider now the effect of moving alcohol consumption from drinking establishments to private residences. The critical assumption here is that at most drinking establishments, alcohol is sold on a per unit basis. Facing a positive per unit price of alcohol (e.g., a 16 ounce beer) consumers are forced to monitor alcohol consumption and are constrained by the budget set represented by the line  $I/P_2$  to  $I/P_1$ . However, at a private residence, once alcohol is purchased and brought to the residence, the cost of the alcohol becomes a sunk cost and consumers are faced with zero per unit marginal cost of consumption. Thus the budget

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<sup>3</sup> The utility functions have the usual conditions of being monotonic, continuously twice differentiable and strictly quasi-concave.

Figure 1



constraint facing consumers goes from the downward sloping constraint represented by the line from  $I/P_2$  to  $I/P_1$  to the horizontal budget constraint at  $X_2^0$ . As you can see from the change in consumption,  $\Delta X_1$ , consumers respond to the zero marginal cost of consumption by increasing their consumption beyond what would be consumed at a drinking establishment with a positive per unit cost. Furthermore the magnitude of  $\Delta X_1$  is non-trivial. In fact, facing a zero per unit price, a utility maximizing consumers will consume alcohol until the marginal utility of consumption is zero. Given the standard preference assumptions, forcing alcohol consumption from drinking establishments to private residences will result in a considerable increase in the level of alcohol consumption for all but the heaviest drinkers.<sup>4</sup>

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<sup>4</sup> For the heaviest drinkers, consumption will increase when faced with a zero marginal cost but because they already consume a large amount of alcohol, their marginal consumption  $\Delta X_1$  will be relatively small.