

## Explaining the Puzzle of American Beer Consumption

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**ABSTRACT:** What explains the U.S. consumption patterns in beverages? This paper uses elementary modeling techniques to rationalize the stylized facts of beer consumption where consumer choice differs dramatically from expert opinion. Readers are cautioned that this essay is satirical.

**Keywords:** Beeronomics, Consumer Theory

**JEL Codes:** D11; L66

The U.S. beer industry has changed dramatically since the onset of the postwar era (Elzinga 2011). Economists have a certain grasp of what drives differences in levels of beer consumption, connecting its levels to variables such as demographics and the strength of labor markets (Freeman 2011). However, it has been taken for granted that consumer choice in the U.S. is peculiar in this area, demanding explanation, historical or otherwise (e.g., Dighe 2016).

The purpose of this research note is to provide a baseline model of beverage consumption to see what it alone can explain. Let  $D$  denote the total number of beverages consumed by a representative consumer. From these beverages, the consumer receives utility  $u_D$ . By assumption, the consumer only has two choices for beverages, craft beer, the quantity of which is denoted  $D_{craft}$ , and carbonated water, the quantity of which is denoted  $D_{carb}$ .  $D_{craft}$  and  $D_{carb}$  sum to  $D$ .

Figure 1 displays the optimal choice made by the consumer under conventional assumptions regarding the tradeoff between goods. The budget constraint  $B$  is given with the slope reflecting the higher price of craft beer relative to carbonated water. The point of tangency of the budget constraint and utility,  $B = u_D$ , yields the optimal consumption vector of the two choices of beverages.

Figure 2 extends this description of consumer choice by drawing a 45 degree line segmenting the consumption space in half. The area above and to the left of the line is denoted *heavy*. The area below and to the right of the line is denoted *light*. While there are combinations of budget constraints and utility functions that may rationalize a consumption bundle in *heavy*, the stylized fact that carbonated water is cheaper, as well as the human biological need for water, suggests that most consumption bundles will be *light*, as drawn in Figure 2. Let this be denoted as  $B = u_{D,Light}$ .

The analysis so far has excluded the consideration of household production, which transforms x-goods produced on the market to z-goods, which are the underlying objectives for consumers (Becker 1965). This linear combination of  $D_{craft}$  and  $D_{carb}$  (the solution vector of  $D$ ), which make up the z-good, can be described as a truncation of the equation given above:  $Bu_{D,Light}$ . Hence, very little in the way of

economics is needed to understand the very high level of U.S. consumption of a linear combination of craft beer and carbonated water,  $Bu_{D,Light}$ .

Figure 1. Consumer Choice In Beverages

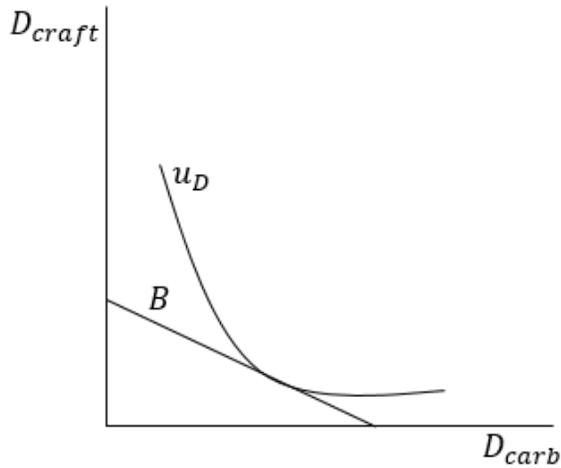
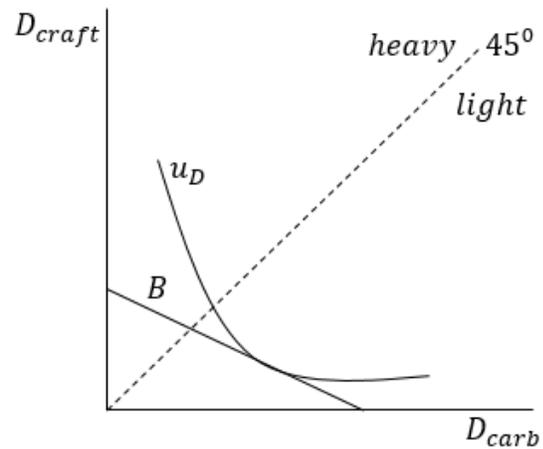


Figure 2. Description of Consumer Choice



What requires greater explanation, in fact, is the choice of a corner solution made by certain consumers. A corner solution where only  $D_{carb}$  is consumed is readily understood, in the case where the consumer does not see alcohol as an economic good. But what rationalizes the choice of only  $D_{craft}$  instead of  $Bu_{D,Light}$ ? A greater weight of utility in craft beer supports the choice of  $Bu_{D,Heavy}$ , but not a corner solution. It is these cases where a more “behavioral” explanation is required, perhaps interpreting the utility loss of choosing this corner solution as a form of costly social signaling (Lander 2008; Murphy 2016). This is consistent with the frequent arguments by experts that the consumption of  $Bu_{D,Light}$  is of poor taste or otherwise reflects low status. Regardless of this more speculative sociological interpretation, the U.S. consumption patterns emphasizing  $Bu_{D,Light}$  readily conforms to conventional economic analysis.

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