

Ithaca 2018 Abstract Submission

Title

Drink Beer for Science: An Experiment on Consumer Preferences for Local Craft Beer

I want to submit an abstract for:

Conference Presentation

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Keywords

Experimental economics, consumer preferences, craft beer

Research Question

How does consumer willingness to pay for beer change when a beer is local or independently produced?

Methods

An experiment is conducted to collect WTP data from 200 participants, and fixed effects are used in hedonic pricing analysis.

Results

The experiment is ongoing, but I expect to find that consumers sort themselves into style and price segments, and that there is a greater WTP for local and craft beer.

Abstract

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The U.S. and global beer industries are characterized by a high concentration of craft breweries supplying numerous differentiated products as well as a few macro-breweries with less diverse beer portfolios. The craft and macro segments of this industry have become quite distinct, with little substitutability between the two. Furthermore, the craft segment has realized consistent growth whereas large breweries have seen a steady decline in sales. Macro-breweries have responded by acquiring smaller breweries in an attempt to capture a share of the craft market. Other ongoing research has shown preferences for local craft beer and mixed responses to acquisitions, but without controlling for consumer definitions of "local" or knowledge of acquisitions. This study will implement an experimental approach to measure consumers' willingness to pay (WTP) for locally produced and independently owned beer. During the month of January 2018, customers at a local beer bar will be asked to participate in an experiment in which they compare their original selection with ten other random offerings from the bar; they will receive mixed information about the brewery's location and ownership for these selections. To conclude the experiment, participants will be tested for their knowledge of acquisitions. The result will be a dataset consisting of WTP and consumer demographics that is independent of supply side effects. Hedonic analysis will clearly indicate whether consumers exhibit preferences for locally owned and independently produced beer.

Introduction

The craft brewing industry has grown rapidly during the 21st century, as has the number of breweries. The Brewers Association (2016) defines a craft brewery as producing 6 million barrels of beer or less annually, not being 25% or more owned by a non-craft alcohol industry member, and brewing the majority of its total beverage alcohol volume from traditional or innovative brewing ingredients. In 2015, craft sales amounted to \$22.3 billion, accounting for 12.2% of U.S. beer sales volume and 21.1% of sales value. From 2008 to 2015, the number of craft breweries increased from 1,574 to 4,225 and between 2004 to 2015, production grew from just over 5 million barrels to nearly 25 million (Brewers Association). Meanwhile, beer producers such as Anheuser-Busch and Heineken experienced a decline in sales of their flagship beers—e.g., over the past five years sales of Budweiser decreased by 28% and Bud Light by 10% (Forbes). Larger breweries have acquired craft breweries in recent years to capture a share of the growing craft segment and negate their diminishing sales—e.g., in 2015 Constellation acquired Ballast point for \$1 billion, and Heineken acquired 50% of Petaluma-based Lagunitas for an undisclosed sum.

In this study, we will seek to determine how consumers' WTP for beer changes with knowledge of whether or not a product is independently and locally produced. To do so, patrons' original and uninfluenced selections will be combined with ten randomly chosen beers from the bar's tap list. Participants will be asked to provide their WTP for the ten other beers in order to be indifferent between the random and original selection. Demographics and beer knowledge variables will also be collected from participants. The experiment will pose non-hypothetical choices, as the compensation structure may result in participants purchasing one of the alternative beers instead of their original selection. By structuring the experiment in such a way that consumers may actually switch from their original selection, I will be able to estimate consumer valuation of beer characteristics and identify self-sorting into different style and price segments.

In another ongoing study, I find strong evidence of consumer preferences for locally produced and independently owned beer using a combination of ratings data from RateBeer.com and weekly sales data from Nielsen. I find compelling evidence of preferences for local craft beer using ratings and sales data, and I show that local preferences are negated by acquisitions. However, the other study does not account for consumer definition of "local" or knowledge of acquisitions. Local can have a number of different meanings for people. It could mean locally owned or locally produced. For some it could mean that the product is only distributed locally. Local could refer to an individual's hometown or previous residence. With this experiment, I aim not only to support the findings from sales and ratings data, but also to determine what constitutes local to individuals.

The other ongoing study found evidence of a distinct preference for independently produced beer from ratings, but evidence from sales was not as clear. This discrepancy is due to the individuals present in each sample; the "beer geeks" that compose the majority of the ratings are more likely to know and care about acquisitions than average consumers. However, the analysis of sales data did demonstrate a difference in responses to acquisitions based on the acquiring company. Negative demand responses were observed when companies with household names such as Heineken, Anheuser-Busch, and MillerCoors acquired craft breweries, but this was not the case when Mahou San Miguel or Constellation Brands acquired breweries. To sort out the effect of ownership on WTP for "beer geeks" from average consumers, an acquisition quiz will be administered at the end of the experiment. Furthermore, some participants will be explicitly told what company owns an acquired brewery to determine if certain companies provoke a greater decrease in WTP than others.

Experimental Design

The experiment is designed in the same fashion as Gustafson et al. (2016) who estimate consumer valuation of wine varieties and appellations. The Becker-DeGroot-Marschak (BDM) (Becker et al., 1964) method is used to elicit accurate WTP from participants. Participants are told they have a chance to receive a discount of up to \$2.00 on their beer purchase. Each alternative beer is assigned a random experimental price that is up to \$2.00 below the actual price. At the end of the experiment, the participant's WTP is compared to the experimental price for one of the alternatives at random. If their WTP is higher than the experimental price, they are issued a coupon to purchase the beer at the experimental price. This approach incentivizes honesty for two reasons. If an individual overstates their WTP, they may be issued a coupon for a beer in which they have no interest in purchasing at the experimental price. If they understate their WTP, they may miss the opportunity to receive a discount for a beer they were actually willing to purchase. The mechanism and incentives are explained to participants before the experiment. Although participants are told they have a chance to receive a discount of up to \$2.00 and that the experimental price is random, the experimental price is truly set \$2.00 below the actual price at all times. Furthermore, if they do not receive a discount for one of the random beers, they are instead awarded a \$2.00

coupon for their original selection. The minor deception is due to the constraint from the Institutional Review Board that all participants receive identical compensation. Individuals are informed of these truths at the end of the experiment and asked not to divulge the details to other potential participants.

To encourage participation, consumers will receive a beer tasting glass that states, "I drink beer for Science." The glass is used as a lower cost extrinsic motivation tool than a monetary reward, and its message provides intrinsic and image motivation. Individuals get the feeling they are assisting scientific research, and they receive a token to show their peers they have done so. Research has shown that intrinsic motivation can possibly be sufficient for incentivizing research subjects (Smith & Walker, 1993), that the context in which a subject is selected can be as important as the incentive (Levitt & List, 2007), and that visibility of an individual's contribution can be motivational (Ariely et al. 2009). Additionally, Heymann and Ariely (2004) found that gifts can be more effective than monetary incentives to motivate participants.

The experiment is to be held at a local bar with a wide selection of draft beers. Individuals are told of the experiment as they enter. Participants are instructed to decide which beer they fully intend to purchase, but to return to the experimenter for further instructions before ordering the drink. The following details the step-by-step procedure for the experiment once an individual has agreed to participate.

1. The participant is brought to a computer in the back of the bar to avoid influence or scrutiny from other patrons. The presence of others can influence participants state preferences (List et al. 2004).
2. Consumers begin by providing basic demographic information, beer drinking habits, and any history of rating beers, brewing, or beer related education.
3. The researcher provides and reads instructions for the experiment. The consumer then practices a few rounds of the experiment.
4. At this point the actual experiment begins. The participant is provided ten alternative beers, one at a time. Twenty-five percent of consumers are randomly given complete information about the beer's attributes, rating, brewery location, and ownership, twenty-five percent are provided no information, and fifty percent are provided random pieces of information. Each individual is provided three alternatives under ownership of a large company, three craft alternatives from Northern California, and four other craft or import beers. Beers are primarily selected based on common characteristics with the original choice when possible; randomly selected beers are also in a similar price range as the original. The price of the original beer as well as any information provided at the bar's tap list are provided on the screen at all times for comparison. The alternative beer has no priced listed, instead there is a scroll bar for the individual's willingness to pay. Participants move the bar to the price at which they are indifferent between the original and alternative; the scroll bar is in increments of \$0.25, and the starting position is set to that of the originally selected beer. They are also asked if they have previously consumed the beer. When individuals have determined their willingness to pay, they press a confirmation button to move on to the next beer.
5. After all the beers have been assigned a willingness to pay, the participant completes a quiz and exit survey. The quiz asks the user to list the home state of each of the beers they viewed as well as go through a list of 20 breweries and identify them as craft or non-craft to the best of their knowledge. If the participant was in the group with complete information, they are not asked to identify the home states of breweries. The survey asks the participant what they consider to be local and to identify which of the beers from the experiment they consider to be local.
6. The computer then shows the random discounted experimental price for one of the alternative beers and the participant's willingness to pay. If the individual's willingness to pay was higher than the experimental price, they are issued a coupon to buy the beer at the experimental price. Otherwise, they receive a \$2.00 coupon for their original selection. In either case, the beer to purchased will be written on the slip, and the consumer may return to the bar buy their beer and retrieve their compensatory tasting glass.