

IMPORTANT ATTRIBUTES RELATED TO CRAFT BEER CONSUMPTION

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ABSTRACT

The purpose of this study was to examine the emerging craft beer industry from a consumer preference perspective. Through a mixed study design and a series of regression analyses, this exploratory study found that among the study respondents, four factors: *dry hopped*, *fruit beer*, *complex character and marketing* had a significant influence on the consumption of craft beer. The multiple correlation coefficient was .49, indicating that approximately 24.4% of the variance in the consumption of craft beer could be accounted for by these four factors. Two variables, *complexity* and *dry hopped* had a positive influence while two variables, *fruit beer* and *marketing* had a negative influence on craft beer consumption.

INTRODUCTION

Craft beer in the United States have enjoyed a tremendous growth in popularity. The market share of craft beer consumed has risen from 5.0% in 2010 to 11% in 2014 (Brewers Association, 2015). Consequentially, the number of craft beer breweries in the U.S. has rose by 18.6% to 3464 breweries between 2013 and 2014 (Brewers Association, 2015). Despite this tremendous growth, research on the attributes that are important to craft beer consumers is sparse yet the need to identify these factors is critical for proper decision making with regards to production and marketing. This research aims to shed some light that will facilitate a better understanding of craft beer consumers.

PURPOSE OF THE STUDY

The purpose of this study was to determine the contributing factors related to the consumption of craft beer and to interpret the relative significance of those factors. The initial focus of the study was the identification of the important factors related to attributes of craft beer as reported by craft beer enthusiasts. This was followed by an analysis of data collected from craft beer consumers to examine the significance of these factors.

REVIEW OF THE LITERATURE

There exists a general paucity in the research related to the identification of desirable craft beer attributes. The limited extant literature reveals that physical and intrinsic attributes such as quality, aroma, appearance, texture, and flavor differentiate products and have shown significant importance in the purchase decision process (Mitchell & Amioku, 1985) (Schaefer, 1997) (Orth & Lopetcharat, 2005) (Yoo, 2012). Studies have found that brand equity has a higher predictive ability than product attributes with regards to craft beer (Orth & Lopetcharat, 2005). One criticism of this latter study is that it utilized a limited number of physical attributes. Craft beer drinkers may desire other features that were not presented in this study. Indeed, craft beer drinker may desire emotional or otherwise non-tangible traits with regards to beer. This study aims at filling some gaps underlying consumer's perceptions towards craft beer.

A study conducted by Gabrielyan, McCluskey, Marsh, & Ross (2014) demonstrated the effects of sensory characteristics on consumers' willingness to pay (WTP) for beer and found that taste and hoppiness have a positive influence with taste having the largest impact. Gabrielyan et. al (2014) also determined that appearance and aroma had no significant impact on a customer's WTP for craft beer. Tangible cues such as taste are a primary basis for consumers' expectations of quality and decisions about whether to make repeat purchases of a product. While taste attributes represent the most important differentiating factor for craft beers. Other studies demonstrate that freshness and quality of ingredients are also important (Oppenheimer, 2008). Examples of desirable characteristics include finished product, local production, price, source of ingredients, innovation & technique, environmental concern, selection variety, and community engagement. Variety is the dominant attribute desired by craft beer enthusiasts as stated by 50% of all respondents of a 2013 Nielsen study (Wandel & Riberi, 2013). The Nielsen study also showed that quality of the finished product and source of the ingredients are also major contributing factors to the desirability of craft beer. According to Carpenter, Darlington, Frick, Garver, Kane, Mimken, & Serwitz (2012), craft beer enthusiasts had a great appreciation for the brewing process and its history; strives to educate themselves on all aspects of the industry; open to, and interested in trying new styles and flavors; and make an effort to visit many craft beer breweries.

METHODOLOGY

Mixed methods study was designed to address the research questions and objectives. The first phase was exploratory involving in-depth interviews with 16 craft beer enthusiasts. The purpose was to develop a profile of the factors that influence purchase of craft beer in addition to those identified in the literature. For the purpose of this study, a craft beer enthusiast was defined as a consumer who met the following three criteria:

1. visited 10 or more craft breweries or craft beer bars in the past
2. possess 5 years or more of engaged knowledge in the craft beer scene
3. knowledge of the full brewing process (from grain to glass)

The second phase involved the creation of a survey questionnaire developed from the insights and knowledge gained from the in-depth interviews as well as the literature.

Data Collection

All interviews were conducted via phone with formal consent from each participant in March 2015. The interviews lasted for at least 15 minutes and consisted of a variety of questions about craft beer consumption, important attributes in selection, and involvement with craft beer. A general survey was constructed based on the information gathered from the interviews and existing literature. The survey was built in Google forms with 45 questions focusing on familiarity and involvement with craft beer, important attributes in selection and consumption, and demographics. Likert type scales were used wherever appropriate and the survey sample consisted of members of the social networks of the original 16 craft beer enthusiasts using the snowball, convenience sampling approach. A total of 290 surveys were completed.

Data Analysis

The main research question of this study was to examine what factors were related to the consumption of craft beer. Multiple regression analysis was performed in which the dependent variable (number of 12 oz. servings of craft beer consumed per week) and the various independent variables were the importance of attributes in the selection and purchase of craft

beer.

RESULTS

The profile of the respondents is shown in Table 1. Majority of the respondents were between the ages of 21 to 39 (72.7%) and males at 65.4% outnumbered females at 34.6%. A large proportion (63.6%) had visited between 1 and 4 breweries in the past year and almost three fourths of the sample had been consuming craft beers for five or more years. Approximately 70% of respondents consumed between one and six 12 oz. portions of craft beer per week. Most respondents were familiar with the brewing process (Mean=3.44 on a five point scale) but were a little less familiar with the laws pertaining to the production and distribution of craft beer (Mean=2.64).

The means of the beer attributes are presented in Table 2. The results show that the Consistency of the product (M=3.99, SD=.96) returned the highest means scores while marketing (M=2.37, SD=1.07) returned the lowest means on the preferred characteristics of craft beer.

A stepwise multiple regression was conducted to evaluate whether the selected factors significantly predicted the consumption of craft beer. At steps 1, 2, 3 and 4, the following factors entered into the regression equation and were significantly related to the consumption of craft beer $F(4, 286) = 154.7, p < .000$. The multiple correlation coefficient was .49, indicating that approximately 24.4% of the variance in the consumption of craft beer could be accounted for by Dry Hopped, Fruit Beer, Complex Character and Marketing as per the following coefficients: *Dry Hopped* ($\beta = .233, p < .001$), *Fruit Beer* ($\beta = -.183, p < .001$), *Complex Character* ($\beta = .204, p < .001$) and *Marketing Efforts* ($\beta = -.155, p < .001$).

Two variables, Complexity and Dry Hopped had a positive influence while two variables, Fruit Beer and Marketing had a negative influence on craft beer consumption and each of these will be discussed below.

DISCUSSION

The survey question specifically explained Complexity as craft beer that has “deep and complex waves of flavors”. Complexity has been defined in many ways but it is generally

accepted that this attribute pertains to the balance between beer flavors such as sweetness and bitterness combine with sensory characteristics such as carbonation and mouthfeel. Sweetness comes from the residual sugars remaining after fermentation of the malt while bitterness is the main taste from the hops used in the making of beer. These two flavors counteract with each other and lack of one or the other results in craft beer that is seen as unbalanced. While carbonation may be considered a sensory aspect of beer, it does also have a flavor component in the carbonic acid which provides an additional sourness of taste. Finally, mouthfeel is a common expression used by beverage drinkers to denote the body of the liquid; i.e. how light or heavy a beverage feels in the mouth. Light bodied beers are closer to the light consistency of water while heavy bodied beers feel much denser, akin to orange juice with pulp in it. The balance of these four components of craft beer is what is desired by craft beer drinkers. This finding is consistent with the research discussed in the literature by Mitchell and Amioku (1985), Schaefer (1997), and Orth and Lopetcharat (2005) where flavor and texture had an effect on purchase decisions.

The second variable that was as significant contributor to the regression equation was the dry hopped character of craft beer. While hops is normally added during the boiling of beer (to sterilize) so that the bitter flavors can be imparted, dry hopping is the technique of adding dry hops after fermentation is complete to give the beer a more “hoppy” aroma and flavor. This procedure results in a fresher and more tangible aroma of hops beyond the normal bitter taste that is the hallmark of this brewed beverage. This is consistent with the results of the study by Gabrielyan et. al (2014) who indicated that taste and hoppiness had a significant effect on willingness to pay for craft beer.

The two variables that were negatively related to craft beer consumption were Marketing and Fruit beer. Marketing was explained as craft beer that has “a clever name, creative logo design, unique packaging”. Clearly, these attributes had little impact craft beer drinkers who are more likely to be influenced by word of mouth recommendations from fellow craft beer drinkers. This may be a direct result of the wariness of craft beer drinkers to the marketing and advertising campaigns of large traditional beer corporations (Devin, 2015) which have taken over several of

the major player in the craft beer industry. Craft breweries are required by law to be small and cannot sell more than 25% of their shares to breweries who are not in the craft beer business thus avoiding the control of the larger traditional brewers. The other variable that had a negative influence on craft beer consumption was Fruit beer which was defined in the survey as craft beer that had fruit added during fermentation to create a fruit flavor. These types of beers have an image problem with craft beer drinkers since they are perceived as feminine (Market Watch, 2015). In addition, a home brewers' website, HomeBrewTalk.com listed fruit beers as least popular topic of discussion on that forum. These fruit beers have earned themselves the “wimpy” perception; attributed to the fact that brewers are adding syrups and sweeteners to avoid the expense of using real fruit (Kunzmann 2011; Market Watch, 2015).

The results of this study add to the knowledge of consumer behavior of craft beer drinkers, an area that has limited research compared to that of wine consumer (Hadju, 2007). The fact that the significant independent variables provide views of motivators and demotivators for the consumption of craft beer provide valuable insights for the production and marketing of craft beer. Craft beer drinkers hold negative views of traditional marketing and advertising and neither do they show a preference for fruit flavored beers. On the other hand, they can be positively influenced by complex flavors and the fresh hops aroma of dry hopped craft beer.

LIMITATIONS

The first limitation is the use of a convenience sample thus creating restrictions in the generalizability of this study. The second limitation is that other attributes related to atmosphere, service, and the nature of the place where the product is consumed could have an impact on the selection and purchase decisions of craft beer drinkers. These factors were not examined in this study.

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APPENDIX

Table 1: Profile of Respondents

	Number	Percentage
Gender		
Male	190	65.5
Female	100	34.5
Total	290	100.0
Age		
21-29	85	29.3
30-39	126	43.4
40-49	40	13.8
50-59	27	9.3
Over 60	12	4.1
Total	290	100.0
Breweries Visited Past Year		
zero	52	17.9
1-2	100	34.5
3-4	85	29.3
5-9	34	11.7
More than 10	19	6.6
Years Consumed Craft Beer		
zero	6	2.1
1-2	24	8.3
3-4	49	16.9
5-9	108	37.2
more than 10	103	35.5
Total	290	100.0
12 oz. Servings Consumed per Week		
0	24	8.3
1-2	68	23.4
3-4	80	27.6
5-6	55	19.0
more than 6	63	21.7
Total	290	100.0

Familiarity with the Brewing Process?

Not at All	1	29	10
	2	47	16.2
	3	61	21
	4	74	25.5
Very Familiar	5	79	27.2
	Total	290	100

Mean = 3.44

Familiar with the Law

Not at All	1	76	26.2
	2	66	22.8
	3	61	21
	4	58	20
Very Familiar	5	29	10
	Total	290	100

Mean=2.64

Table 2: Mean scores of beer attributes

	Mean	Std. Deviation	N
Convenience and Distribution	3.576	1.1952	290
Local Production	3.052	1.1856	290
Price	2.993	1.0782	290
Marketing	2.372	1.0747	290
Ingredients	3.021	1.1851	290
Consistency of Product	3.993	.9630	290
Fruit Beer	2.128	1.1710	290
Oak Barrel Aged	2.479	1.1682	290
Yeast Character	2.703	1.1323	290
Spicy or Herbal	2.652	1.0748	290
Malt Character	3.103	1.1895	290
Dry Hopped	2.728	1.1816	290
Complex Character	3.590	1.0976	290
High Alcohol Content	2.541	1.0621	290
Hops Aroma	2.990	1.1954	290
Sour and Wild Ale	2.514	1.2401	290
Hops Bitterness	2.659	1.1957	290

Table 3: The Results of Stepwise Regression

Model Summary

R= .49

R² = .24

df = 4, 285

F = 18.97

Independent Variables

	β	p
Dry Hopped	.233	.001
Fruit Beer	-.183	.001
Complex Character	.204	.001
Marketing Efforts	-.155	.001