

Are there halo effects in the U.S. alcohol market?
Evidence from beer and hard seltzer consumers

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Abstract: Consumers habitually rely on food labels to make purchasing decisions, but they also use heuristics and other associations in judgment and decision-making. The halo effect, or the tendency to judge one product characteristic based on other product characteristics, is prevalent in food purchasing decisions. Using data from a panel of 1,087 beer and hard seltzer consumers across four metropolitan areas, we explore whether halo effects exist in the American alcohol marketplace. We create a hypothetical brewing company and ask consumers to rate various characteristics of the hypothetical brewery's products. The experimental design isolates the effect of the organic label on a beer and hard seltzer to see whether consumers perceive the organic alternative as healthier than the conventional, non-organic alternative. Results provide some evidence of a health halo effect associated with the organic label on alcohol that varies by geographical region. Hard seltzers are also perceived as better tasting than beer, irrespective of the production status. This could lead to increased consumption in a fixed period, which is an area for future work.

Keywords: alcohol, halo effect, health, organic

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1 **1. Introduction**

2 Consumers habitually rely on food labels to make purchasing decisions, but they also use
3 heuristics and other associations in judgment and decision-making. One such heuristic is the
4 *halo effect*, or the tendency to unconsciously judge a product’s characteristics based on other
5 product characteristics (Nisbett and Wilson, 1977; Thorndike, 1920). Halo effects in food
6 marketing are extensive, found within health claims (Roe, Levy, and Derby, 1999; Williams,
7 2005), sustainability claims (Chernev and Blair, 2020; Sörqvist et al., 2015), and fair-trade
8 claims (Lotz, Christandl, and Fetchenhauer, 2013; Schuldt, Muller, and Schwarz, 2012).

9 We use survey data from American beer and seltzer drinkers to examine the presence
10 of halo effects in the U.S. alcohol market. Following Ellison et al. (2016), we create a
11 hypothetical brewing company and ask consumers to rate various characteristics of the
12 hypothetical brewery’s products. Specifically, we create labels for four products, including
13 (i) a conventional pale ale; (ii) an organic pale ale; (iii) a conventional hard seltzer; and (iv)
14 an organic pale ale. Then, we ask respondents to rate the product’s expected taste and
15 nutritional profile. Our design randomizes respondents to one pale ale alternative and one
16 hard seltzer alternative, allowing us to determine the extent of two halo effects in the U.S.
17 alcohol market. First, we determine whether the presence of the U.S. Department of
18 Agriculture (USDA) certified organic label creates a halo effect in beer and hard seltzer.
19 Second, we identify whether there is a halo effect attached to the hard seltzer itself. Thus, the
20 objective of this project is to determine whether these two halo effects exist in the U.S.
21 alcohol marketplace and discuss whether these halo effects could contribute to negative
22 social and health effects in alcohol markets.

23 Health halo effects from the USDA-certified organic label are well-documented in
24 unhealthy foods (Ellison et al., 2016; Lee et al., 2013; Nie, Rong-Da, and Wang, 2021; Richetin
25 et al., 2022; Schuldt and Schwarz, 2010). While the organic label speaks to production
26 practices and not the overall nutrient claims of the product, consumers are often
27 misinformed about the meaning of the label (Hughner et al., 2007; Ufer, Ortega, and Wolf,
28 2021; Wilson and Lusk, 2020; Yiridoe, Bonti-Ankomah, and Martin, 2005). Indeed, the
29 presence of the organic label has been shown to decrease perceived calorie counts compared
30 to conventionally produced counterparts as well as increase perceived safety, brand attitude,
31 and brand trust relative to conventional goods (Ellison et al., 2016; Lee et al., 2013; Schuldt
32 and Schwarz, 2010).

33 The organic halo effect has received some attention within the beer industry, but
34 studies have predominantly focused on the perception of the product's sensory
35 characteristics (Apaolaza et al., 2017; Caporale and Monteleone, 2004). Other studies have
36 suggested that the organic status of beer can decrease consumer valuation (Waldrop and
37 McCluskey, 2019), as the organic status may create a negative perception about quality and
38 impact the perceived hoppiness of beer (Gabrielyan et al., 2018). However, to our knowledge,
39 no prior work has examined the interplay between organic labeling and health halo effects
40 in alcohol markets. This shortcoming is critical given the negative short- and long-term
41 health consequences associated with alcohol consumption.

42 Our paper seeks to fill this gap in the literature with an empirical contribution that
43 identifies whether health halo effects exist in the alcohol market. If there is a halo effect
44 associated with the organic alternatives, it calls into question whether alcoholic beverages
45 should bear the USDA-certified organic label or other health-related claims. On aggregate,

46 we see little evidence of a health halo effect, but there does appear to be some regional
47 variation in its presence.

48 The remainder of this article is structured as follows. Section 2 provides further
49 background on the USDA-certified organic label, halo effects, and the interplay of the beer
50 and hard seltzer market. Section 3 presents our survey instrument and experimental design,
51 which includes the hypothetical brewing company, the randomization process, and our
52 sampling strategy. Section 4 presents our data and our results while Section 5 concludes with
53 a discussion on the implications of our results and provide avenues for future research.

54

55 **2. Background**

56 The Organic Foods Production Act (OFPA) of 1990 set guidelines for a food manufacturer's
57 labeling of organic production practices. Organic foods, as defined by the USDA, are "grown
58 and processed according to federal guidelines addressing, among many factors, soil quality,
59 animal raising practices, pest and weed control, and use of additives. Organic producers rely
60 on natural substances and physical, mechanical, or biologically based farming methods to
61 the fullest extent possible" (McEvoy, 2019).¹ Products produced using 100-percent organic
62 ingredients or 95-percent organic ingredients can use the USDA-certified organic label on
63 packaging (Kuchler et al., 2017). While consumers have shown a preference for organic food
64 products in the marketplace (Rana and Paul, 2017; Rödiger and Hamm, 2015; Schleenbecker
65 and Hamm, 2013), there is also a perception that organic implies healthier or safer (Ellison

¹ There are four organic labeling categories depending on the organic content of the food or drink. These include: (i) "100-percent organic" classification implying the product consists entirely of organic ingredients; (ii) "organic" classification meaning at least 95-percent of the ingredients are organic; (iii) "made with organic ingredients" category implying at least 70-percent of ingredients are organic; and (iv) specifying organic ingredients within the ingredient panel (Kuchler et al., 2017).

66 et al., 2016; Lee et al., 2013; Schuldt and Schwarz, 2010; Sundar and Kardes, 2015). However,
67 as defined by the USDA, organic production speaks to the production practice, not the
68 nutritional content.

69 The halo effect from the USDA-certified organic label on food packaging is critical
70 given that organic food sales have increased dramatically over the past decade. The Organic
71 Trade Association (OTA) estimates that organic food sales surpassed \$50 billion in 2019, up
72 from \$27 billion a decade prior (OTA, 2012; 2020a). Further, organic foods are now available
73 in three out of every four conventional grocery stores (USDA-ERS, 2021). Given the countless
74 consumer marketing reports and academic publications devoted to certified organic labeling
75 (c.f., Schleenbecker and Hamm, 2013), producers across food and drink sectors have
76 considered the prospect of organic production given the mainstream appeal. This includes
77 the alcohol sector, including the beer and hard seltzer industries.

78 Beer is a highly processed product comprised of several agricultural commodities
79 such as hops and barley. The organic beer market saw a bump in sales in 2018 with the
80 arrival of Michelob Ultra's Pure Gold lager bearing the USDA-certified organic label (OTA,
81 2020).² However, organic beer has not achieved a significant market share for many reasons,
82 including federal legislation limiting the scope of organic beer (77 F.R. 1996, 2012), the cost
83 of organic production (Turner et al., 2011), and inadequate consumer acceptance

² Michelob-Ultra launched their "6 for 6-pack" campaign weeks before the 2018 Super Bowl. Commercials aired during the event promoting the product, stating: *"America, less than 1% of our farmland is organic, and farmers that want to transition face monumental challenges. What if we could help them? Simply, by having a beer... pick up a six-pack, we'll help transition six square feet of farmland to organic... And if every football fan picks up a six pack, we can change America's organic farmland forever."*

84 (Hasselbach and Roosen, 2015; Poelmans and Rousseau, 2017; Waldrop and McCluskey,
85 2019).³

86 The market for organic beer appears limited, but the growth in organic sales coincides
87 with a larger shift in the alcohol market towards *health consciousness* (Azzurra et al., 2020;
88 Bazzani et al., 2020; Betancur, 2020). Alcohol consumption in the United States, as measured
89 by average adult consumption, has been gradually decreasing over time (Brenan, 2021), and
90 the number of breweries marketing low-calorie, low-alcohol content beverages has
91 increased tremendously over the past several years. One nascent industry that has been the
92 beneficiary of this perceived health consciousness shift is the hard seltzer industry.

93 Hard seltzers, in their most basic forms, are comprised of water, sugar, and natural
94 flavor. According to IRI (2021), hard seltzer producers are among the fastest-growing
95 manufacturers in the U.S., appealing across demographics, now capturing 7 percent of total
96 beverage alcohol sales (Harfmann, 2021). While the top three brands (White Claw, Truly,
97 and Bud Light Hard Seltzer) make up over 80 percent of hard seltzer sales (Meisenzahl,
98 2021), the number of breweries carrying a hard seltzer alternative has increased
99 tremendously in recent years (Higgins, 2021; Watson, 2020).

³ A November 2010 ruling by the National Organic Standards Board stated that USDA certified organic beer must be produced with organically grown hops (77 FR 1996, 2012). The legislation closed a previous exemption for brewers to use non-organic hops in certified organic beers (as hops make up less than five percent of net weight). This had significant impacts on the feasibility for organic beer as the cost of production is much higher for organic hops—which would ultimately translate to higher market prices for brewers and consumers. Further, while several studies have found positive premiums for consumer WTP for sustainably produced alcohol (Carley and Yahng, 2018; Schäufele and Hamm, 2017; Staples et al., 2020), the studies involving organic beers do not support premiums for organic beer (Hasselbach and Roosen, 2015; Poelmans and Rousseau, 2017; Waldrop and McCluskey, 2019). For instance, Poelmans and Rousseau (2017) use a discrete choice experiment with Belgian beer consumers and find that the organic certification did not increase WTP. Waldrop and McCluskey (2019) use sensory experiments and a double-bounded dichotomous choice analysis of WTP to find that information about the organic status of various craft beers reduced mean WTP by \$0.53.

100 Anecdotal evidence suggests that consumers perceive hard seltzer to be healthier and
101 easier to drink than other light beer alternatives (Brown, 2019). Indeed, some firms have
102 attempted to use health or wellness claims on their hard seltzer products to differentiate
103 their product from competitors (Sorini, 2021).⁴ These hard seltzers, however, generally have
104 a similar alcohol content and calorie count to most light beers. Nonetheless, perceived
105 healthiness and drinkability could lead to binge drinking and excess consumption,
106 particularly amongst college students and young adults (Longo, 2019).

107 Some beverage manufacturers have also attached the organic label to their hard
108 seltzer packaging (Lee and Zeller, 2021). As the organic label has been shown to create a halo
109 effect in some food products, there is merit in understanding whether the halo effect
110 permeates to an industry with serious consumer health risks such as alcohol.

111 In this study, we examine the presence and extent of two halo effects in the U.S.
112 alcohol market: (i) a halo effect attached to the USDA-certified organic label; and (ii) a halo
113 effect attached to hard seltzer itself. That is, we will address whether consumers utilize the
114 organic label as a signal of healthiness and whether some consumers have a predisposition
115 that hard seltzer is healthier than beer—hence the halo effects.

116

117 **3. Methodology**

118 ***3.1 Hypothetical Brewery: The Commoner's Brewing Company***

119 To identify whether halo effects exist in the alcohol market, we create a hypothetical brewing
120 company and embed our experiment in an online survey sent to a panel of U.S. beer and hard

⁴ One example of this is MolsonCoors' product Vizzy which is marketed as being produced with "antioxidant vitamin C from acerola superfruit" (Soroni, 2021).

121 seltzer consumers across four metropolitan areas (city selection discussed further in Section
122 3.2).

123 Following Ellison et al. (2016), we form a hypothetical brand, The Commoner's
124 Brewing Company, and ask participants about their expectations about the company's beers
125 and hard seltzers. Specifically, participants are asked to evaluate the products' expected
126 taste, nutrition, and safety as well as report their likelihood of purchasing and the expected
127 price. The expected taste, nutrition, safety, and likelihood-to-buy use a zero to ten Likert
128 scale. For the expected price, we use a continuous sliding scale ranging from \$5.00 to \$15.00.

129 Beers and hard seltzers are chosen for three primary reasons. First, beer is the most
130 preferred alcoholic beverage of U.S. adults (McCarthy, 2017), while hard seltzer is the fastest-
131 growing segment in the alcohol industry (IRI, 2021). Second, organic and non-organic beer
132 and hard seltzer alternatives exist in the marketplace, and thus consumers partaking in this
133 experiment are likely familiar with these alternatives. Third, while hard seltzer has a similar
134 alcohol content and calorie count when compared to light beer, consumers may perceive
135 seltzer as a healthier option due to marketing, drinkability, etc. (Alberts, 2021; Heil, 2019;
136 McAfee, 2021). As such, including both alcoholic products in our design allows for a
137 measurement of the effect of the organic label and the perceptions of beer versus hard
138 seltzer.

139 We develop four different products that the brewing company produces, including (i)
140 a conventional pale ale, (ii) an organic pale ale, (iii) a conventional hard seltzer, and (iv) an
141 organic hard seltzer. The pale ale is chosen because it represents a large share of the craft
142 beer marketplace and has more broad appeal across drinkers compared to the India Pale Ale
143 (IPA). For the hard seltzer, we use black cherry as the selected flavor because it represents

144 the fastest-growing hard seltzer flavor (Statistica, 2019). Further, each of the three largest
145 hard seltzer producers carries a black cherry-flavored hard seltzer. Figure 1 presents the
146 four images used in the study to represent the company's products.

147 [FIGURE 1 HERE]

148 The experimental design randomly assigns respondents to one pale ale alternative
149 (conventional or organic) and one hard seltzer alternative (conventional or organic). The
150 beer and hard seltzer order are also randomized to prevent ordering effects. Figure 2
151 presents the four possible groups for the experimental design: (i) both conventional
152 alternatives; (ii) conventional beer and organic hard seltzer; (iii) organic beer and
153 conventional hard seltzer, and (iv) both organic alternatives.

154 [FIGURE 2 HERE]

155 Comparing the conventional pale ale to the organic pale ale, the only difference
156 between the two products is the absence/presence of the USDA-certified organic label.
157 Therefore, any differences in consumer perceptions about the pale ale alternatives are
158 attributable to the presence of the USDA-certified organic label. Similarly, for the hard seltzer
159 options, the conventional hard seltzer does not market the organic logo while the organic
160 seltzer does.

161 We also draw comparisons across product categories, comparing pale ale scores with
162 hard seltzer scores. While one could argue that the difference in product packaging limits
163 our ability to make comparisons across the categories, we believe that it would be the
164 product perception—not the packaging—that drives any observed differences between the
165 beers and hard seltzers. Further, it would be unlikely for a brewing company's beer and hard
166 seltzer options to have identical packaging. Thus, we kept as much of the packaging constant

167 as possible while keeping the setting more realistic. For example, the fonts, alcohol content,
168 and graphic on the rim of the cans are identical between the pale ale and the hard seltzer.
169 The only differences in packaging include the text indicating whether it is a pale ale or black
170 cherry hard seltzer and the graphic accompanying it: hops for the pale ale and a black and
171 white graphic of cherries for the hard seltzer.

172 After responding to both the pale ale and hard seltzer alternatives, participants are
173 asked to state their general attitudes towards the brewing company. That is, we ask the
174 respondents to rate (i) their general impressions of the brewing company, (ii) how appealing
175 or unappealing they find the company's branding, and (iii) how consistent they think the
176 brewery's products are. Through these three questions, we compare whether general
177 sentiment towards the hypothetical brewing company varies depending on which
178 alternatives the respondent sees.

179 Data are also collected on demographic and household characteristics as well as
180 alcohol consumption behaviors, risk-taking behaviors, and organic preferences.

181

182 ***3.2 Sample selection: Four cities***

183 Rather than a nationally representative sample of U.S. beer and hard seltzer drinkers, we
184 sample across four cities to determine whether there are heterogeneous effects in the
185 product perceptions across geographic regions. City selection is completed by first
186 identifying the 25 most populated U.S. cities and creating a 2 x 2 experimental design based
187 on high and low statistical counts for (i) the number of drinking establishments per 100,000
188 and (ii) the percentage of traffic fatalities involving alcohol. Data on the percentage of traffic
189 fatalities involving alcohol come from the County Health Rankings (County Health Rankings,

190 2022). The number of drinking establishments per capita comes from the Census Bureau's
191 County Business Patterns data and population estimates (US Census Bureau, 2022). Table 1
192 presents the 2 x 2 matrix along with the cities representing each block. Selected cities include
193 New York, New York (LL), Houston, Texas (LH), San Francisco, California (HL), and Denver,
194 Colorado (HH).

195 [TABLE 1 HERE]

196 These categories were chosen as part of a broader study analyzing expected alcohol
197 consumption in a bar setting. In the wider context, we are analyzing whether alcohol labeling
198 can influence expected consumption and whether there are heterogenous effects in expected
199 consumption patterns.⁵ The hypothesis is that expected consumption is higher in cities with
200 more drinking establishments per capita and a higher percentage of traffic fatalities
201 involving alcohol. For the experiment presented here, we make no *a priori* hypotheses about
202 the effect of geographical location on the presence or magnitude of the health halo effect.

203

204 **4. Results**

205 ***4.1 Summary statistics***

206 Data were collected from 1,087 beer and hard seltzer drinkers. Table 2 presents the
207 demographics of the aggregate sample as well as the demographics by city.

208 [TABLE 2 HERE]

209 As expected, the sample is younger, over-educated, and of higher income than a
210 nationally representative sample of the U.S. population. The sample, in aggregate, is split
211 nearly equally across gender. However, when drawing comparisons across cities, the share

⁵ Working paper available soon.

212 of males in New York is roughly eight percentage points higher than in the other three cities.
213 Respondents from New York were also more likely to be the highest income earners, where
214 22 percent of New York respondents fall in this income bracket.

215 Respondents are also asked to report their consumption habits of beer and hard
216 seltzer over the past three months. Table 3 presents the breakdown of their responses.

217 [TABLE 3 HERE]

218 Approximately 76 percent of participants state they consume beer more than once
219 per month; 67 percent for hard seltzer. Respondents are also asked where they consume
220 beer and hard seltzer and are asked to select all that apply. The most common responses
221 include at home (73 percent), at a bar or pub (56 percent), and at a social gathering with
222 friends or family (54 percent).

223

224 **4.2 Likert responses**

225 Figure 2 presents the mean Likert responses for the four beverage options along with their
226 confidence intervals for the entire sample (n = 1,087). Comparing each of the attribute scores
227 across products, we see little variation in mean scores.

228 [FIGURE 2 HERE]

229 To identify a health halo effect, we are interested in the nutrition perception scores
230 (as well as the safety scores). In aggregate, there is little evidence to support the notion of a
231 health halo effect in beer and hard seltzer. Across each product alternative, the average
232 Likert response for expected nutrition ranges from 6.25 – 6.50. While the means for both
233 organic alternatives are higher, the statistical differences are marginal, and we fail to reject
234 the null hypothesis that the two means are different from one another. Similarly, we find no

235 evidence that consumers perceive hard seltzers as more nutritious than pale ales. The
236 inability to detect statistically significant differences across groups is true for nutrition,
237 safety, and the likelihood-to-buy categories.

238 There is, however, a statistical difference in the expected taste or drinkability. The
239 conventional pale ale has the lowest expected taste whereas the conventional seltzer had the
240 highest perceived taste, a difference that is statistically significant at the five percent level.
241 Importantly, our sample is limited to respondents that have consumed both beer and hard
242 seltzer in the past three months. Thus, the lower score for beer is not solely driven by
243 respondents not liking the taste of beer. If hard seltzers are perceived as tasting better than
244 beer or having higher drinkability, then future research should consider whether
245 drinkability leads to an increased pace of consumption or instances of binge drinking.

246 Additionally, respondents did not expect a substantial price premium for the organic
247 alternatives, on average. The expected price for a six-pack of the conventional pale ale is
248 \$11.40, versus \$11.53 for the organic pale ale. For the hard seltzer, the average expected
249 price is \$11.55, versus \$11.52 for the organic option. The expected price per six-pack closely
250 aligns with market prices for similar products.

251 We also ask respondents about their general attitudes toward The Commoner's
252 Brewing Company. Questions include their general impressions of the brewing company as
253 well as how appealing they find the marketing and the perceived consistency of the beer
254 products. Comparisons are drawn on the four groups that arose from the 2x2 product
255 experimental design (i.e., conventional and organic pale ale and conventional and organic
256 hard seltzer). Again, we find little evidence of variation across groups. Average scores range
257 from 5.2 – 5.3 out of 7 for general impressions; 5.2 for appeal of the marketing; and 5.3 – 5.4

258 for perceived consistency. In other words, the presence of the organic label did not
259 significantly alter consumer perceptions about the brewery.

260

261 ***4.3 Likert responses by city***

262 Figure 4 presents the results of the Likert responses by city. For three of the cities, there are
263 no statistically significant differences across product characteristics. For San Francisco,
264 however, we see a marginally significant health halo effect in the pale ale. Here, respondents
265 in San Francisco rank the conventional pale as a 6 of 10 for nutrition, whereas the organic
266 pale ale ranks a 6.5 of 10. Through Kruskal-Wallis analysis, this difference is statistically
267 significant at the 10 percent level.

268 [FIGURE 4 HERE]

269 One interesting note that merits further investigation is the differences in mean
270 scores across cities. That is, while few statistically significant differences existed within
271 cities, the overall scores between cities varied quite significantly. Across each of the four
272 product characteristics, New York residents scored taste, nutrition, safety, and LTB with
273 mean scores between seven to eight out of ten. The other three cities rarely see average
274 scores above seven. For example, Houston citizens, on average, rank the perceived nutrition
275 of hard seltzers as 6.2 of 10, whereas the New York sample ranks them as a 7.4 of 10. Indeed,
276 Kruskal-Wallis tests across cities detect differences in the distribution of scores for each
277 product characteristics. While sample demographics vary across the four cities, these results
278 suggest that there may be differences in the way citizens from different geographic regions
279 respond to Likert statements.

280

281 **5. Discussion and conclusion**

282 Alcohol consumption is associated with a range of negative health and economic
283 consequences, including (i) driving under the influence (Oh et al., 2020); (ii) chronic diseases
284 such as high blood pressure, heart disease, and liver disease; (iii) addiction (Devlin,
285 Scuffham, and Bunt, 1997); and (iv) weight gain (Sayon-Orea, Martinez-Gonzalez, and Bes-
286 Rastrollo, 2011). With the consumer shift towards *conscious drinking*, the recent popularity
287 of non-traditional alcoholic beverages, and the growth in organic sales, our study determines
288 whether there are halo effects in the alcohol market.

289 Results provide little evidence of a health halo effect across four large metropolitan
290 areas. Outside of a marginal difference in nutritional perceptions for residents of San
291 Francisco, beer and hard seltzer consumers in these cities appear to view conventional and
292 organic alcohol with similar nutritional information. There are two potential explanations
293 for the null or marginal effect of the organic label. First, it could be that our respondents are
294 knowledgeable about the organic label, knowing that it refers to the production practices
295 and not the overall nutritional profile of the product. Indeed, by focusing on four
296 metropolitan areas, our sample is overeducated. This substantially limits the generalizability
297 of our findings and is a primary shortcoming of this study. Future work could consider the
298 effects on a nationally representative sample of U.S. beer and hard seltzer consumers.

299 The second potential explanation for the null or marginal effect is that consumers, on
300 average, understand that alcohol has a low nutritional content. If this is true, then the organic
301 label on alcohol products is unlikely to lead to substantial health effects. However, our study
302 only speaks to four metropolitan areas, and in one, we do see some evidence of a health halo

303 effect. Thus, caution should be exercised over health claim labeling on alcohol, as more work
304 is needed to fully understand the effects.

305 Importantly, in the aggregate sample, we see evidence that hard seltzers are
306 perceived as having better taste—or better drinkability—than the pale ale. One concern that
307 could arise from this difference is an increased pace of consumption. If consumers’ pace of
308 consumption is faster with hard seltzer, then we could see increased rates of binge or
309 excessive drinking. This is particularly a concern for college students (Longo, 2019), where
310 binge drinking is prevalent. Future studies should attempt to analyze consumption patterns
311 in hard seltzers and beers to understand their relationship to health outcomes.

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Tables & Figures

Table 1. City selection based on 2x2 design using the number of drinking establishments and the proportion of traffic fatalities involving alcohol

		Proportion of traffic fatalities involving alcohol	
		Low	High
Number of drinking establishments per 100,000	Low	New York City, New York (18.64, 0.09)	Houston, Texas (10.74, 0.33)
	High	San Francisco, California (46.51, 0.08)	Denver, Colorado (28.05, 0.34)

Note: First number in parentheses corresponds to the number of drinking establishments per 100,000 residents, and the second number corresponds to the proportion of traffic fatalities involving alcohol.

Table 2. Sample demographics

Variable	% of respondents				
	Aggregate	Denver, CO	Houston, TX	New York, NY	San Francisco, CA
<i>Gender</i>					
Male	51.1	48.2	49.4	58.8	47.0
Female	47.9	51.4	50.2	40.5	50.9
Non-binary/self-describe	1.0	0.4	0.4	0.7	2.1
<i>Age</i>					
21-24	7.9	6.9	8.0	6.2	10.5
25-34	32.3	28.3	27.7	36.6	35.1
35-44	30.8	27.9	30.9	36.3	27.4
45-54	12.9	12.6	17.3	9.5	13.0
55-64	9.4	14.6	8.4	7.5	7.7
65 or older	6.7	9.7	7.6	3.9	6.3
<i>Education</i>					
Less than high school	1.1	1.6	1.2	1.0	0.7
High school or GED	13.6	14.2	22.1	10.8	8.8
Some college	16.7	21.1	23.7	10.1	14.0
2-year college degree	10.9	13.8	13.7	7.2	9.8
4-year college degree	33.2	31.2	24.5	32.0	43.9
Master's degree	20.2	15.4	12.5	33.0	17.9
Professional degree	4.2	2.8	2.8	5.9	4.9
<i>Income</i>					
Less than \$20,000	7.2	10.5	6.0	6.2	6.3
\$20,000 - \$39,999	13.7	14.2	24.5	7.2	10.9
\$40,000 - \$59,999	15.1	21.9	21.3	11.1	8.1
\$60,000 - \$79,999	14.9	17.0	13.7	11.1	18.3
\$80,000 - \$99,999	11.0	15.4	8.4	6.5	14.0
\$100,000 - \$119,999	11.9	6.9	8.0	16.0	15.1
\$120,000 - \$139,999	5.9	3.6	5.2	8.2	6.0
\$140,000 - \$159,999	8.1	4.1	5.2	12.1	9.8
\$160,000 or greater	12.3	6.5	7.6	21.6	11.6
N	1,087	247	249	306	285

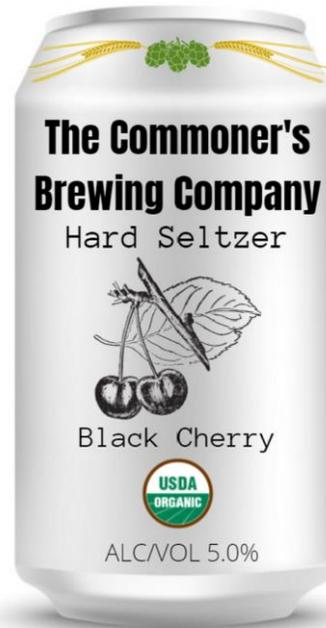
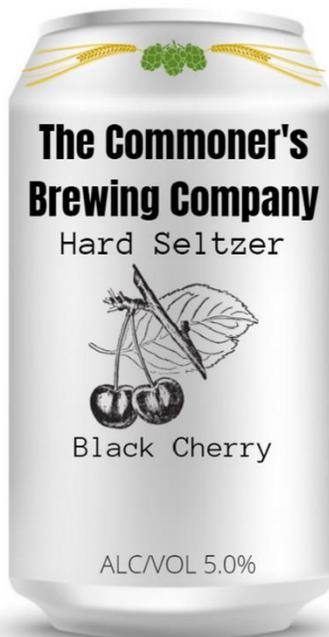
Table 3. Beer and hard seltzer consumption

<i>How often do you consume ___?</i>	Hard Seltzer						Total
	Beer	(1)	(2)	(3)	(4)	(5)	
Less than once a month (1)	83	31	16	6	2	1	139
About once a month (2)	37	41	24	8	9	0	119
Two or three times a month (3)	32	43	48	22	12	1	158
About once a week (4)	22	23	53	65	19	1	183
Two or three times a week (5)	17	20	41	93	143	14	328
Every day (6)	7	5	7	17	63	61	160
Total	198	163	189	211	248	78	1,087

Panel A. Pale Ale



Panel B. Hard Seltzer



Footnote: In the survey, respondents only see one of the beer alternatives and one of the hard seltzer alternatives, and they are asked to rate their perceptions of these products. The design is randomized such that respondents may see the beer or seltzer alternative first, and the production practices (conventional/organic) of the second product alternative (beer/seltzer) is independent of the first. Respondents are asked about the products' expected taste, perceived nutrition, safety, and expected cost as well as their attitudes and trust towards The Commoner's Brewing Company.

Figure 1. The Commoner's Brewing Company products

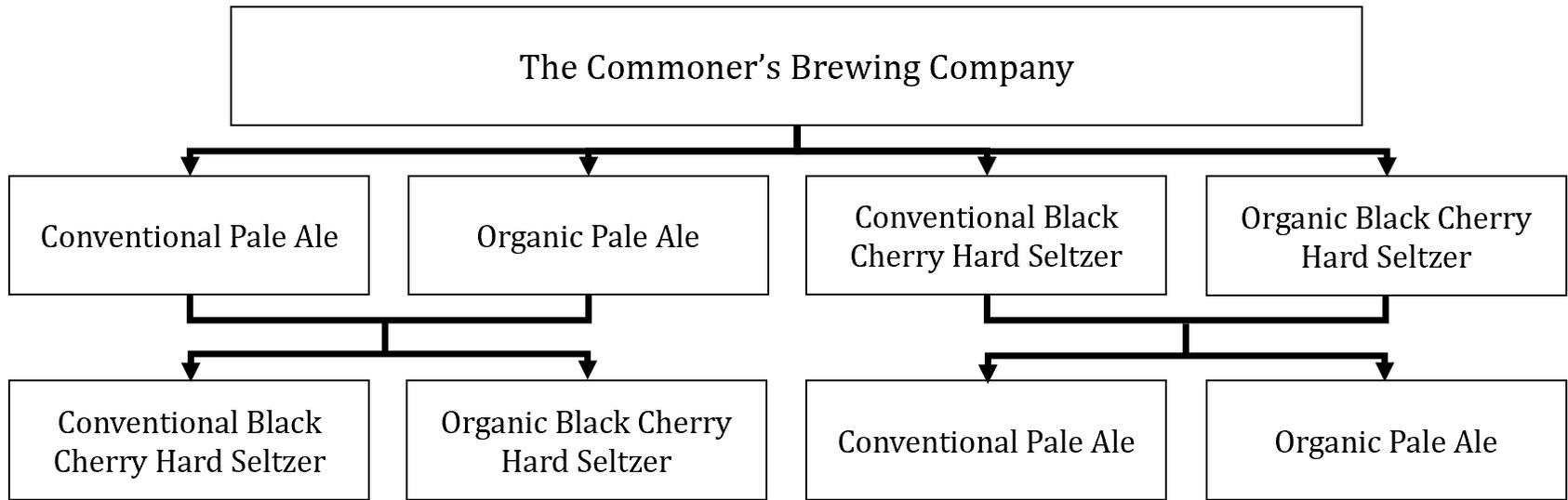


Figure 2. Experimental randomization process

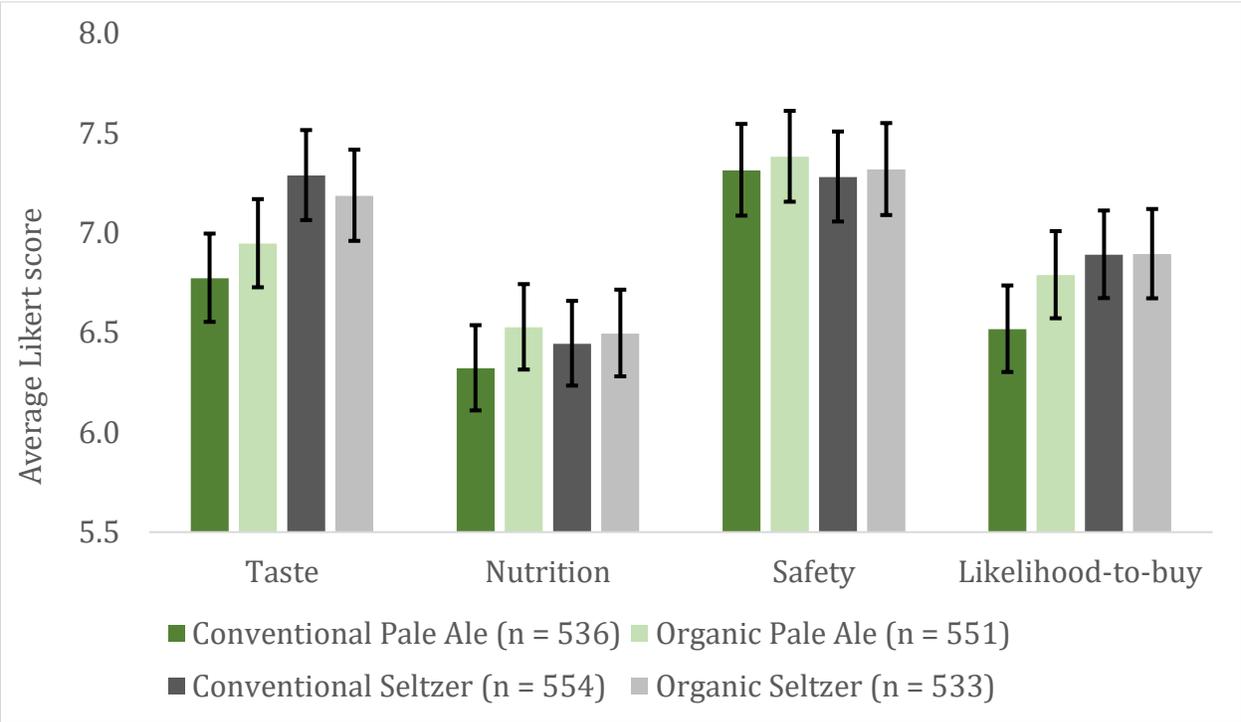


Figure 3. Average product characteristic score (n=1,087)

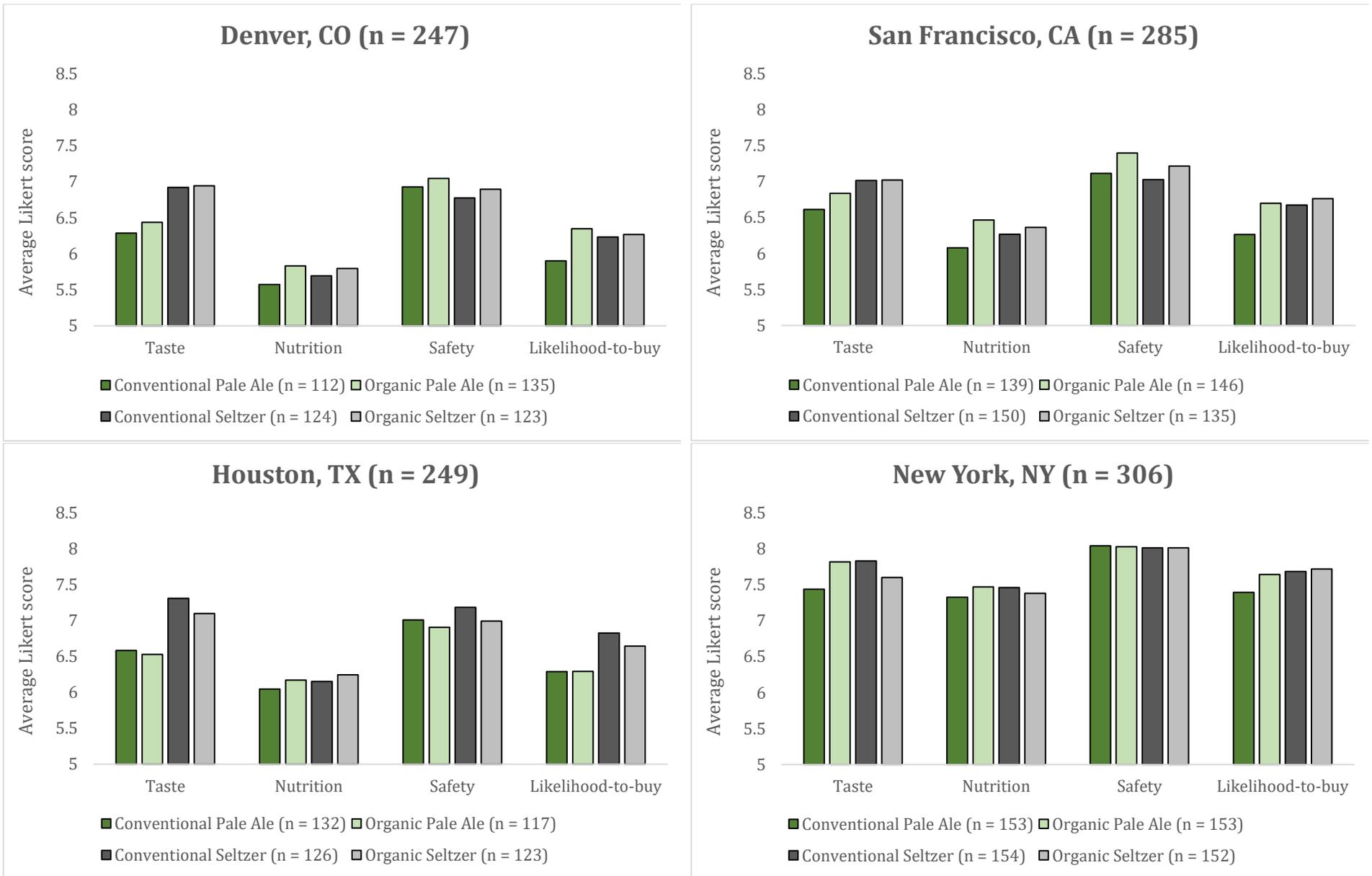


Figure 4. Average product characteristic score, by city (n=1,087)

