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HIDE THE DIFFERENCE?**

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HIDE THE LABEL, HIDE THE DIFFERENCE?*

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Abstract

Marketing and packaging are substantial expenditures in many consumer products industries. We look at one such industry, mass-market lager beer, and show that when consumers taste blind, they cannot distinguish between three major competing beer brands. Our results suggest that brand loyalty in this market is likely to be driven largely by marketing and packaging, and not by the underlying sensory properties of the competing products.

Keywords: product differentiation, consumer preferences, triangle test, blind tasting, beer

JEL Classification: C90, D01, M30

I. Introduction

Within a given product market, consumers often display loyalty to specific brands. This may depend on the differences between the intrinsic sensory properties of competing products, but it may also depend on extrinsic branding factors such as marketing, packaging, and brand image and social connotation.

In the market for lager beer—the leading segment of the global beer industry—brand image appears to be an important factor. A 1964 experiment by Ralph Allison and Kenneth Uhl suggests that brand loyalty has little to do with differences in taste. In their study, Allison and Uhl selected five different lager brands that, according to expert tasters, contained objective

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perceptual differences. Next, they sent six-packs of 12-ounce beer bottles to more than 300 regular beer drinkers. Each participant received two bottles each of three different brands. If subjects had previously indicated that one of the five brands was their regular brand, this brand was contained in the six-pack. Participants were then asked to consume the beers at home, and rate each of them. Some of the six-packs had beers with labels, while others were unlabeled. When the beers were labeled, participants rated the beers differently, and as expected, they rated their favorites higher than other beers. When unlabeled, however, participants showed virtually no preferences for certain beers over others. In the blind tasting condition, no beer was judged by its regular drinkers to be significantly better than the other samples. In fact, regular drinkers of two of the five beers scored other beers significantly higher than the brand that they stated was their favorite.^c

Some more recent blind tasting studies of competing beer brands, e.g. Valenzi and Eldridge (1973), have essentially replicated the results of Allison and Uhl (1964), while others, e.g. Jacob, Olson, and Haddock (1971) and Mauser and Uhl (1978), have replicated the results in part (e.g. with respect to clusters of brands producing similar styles of beer) while narrowing them to some extent (e.g. finding some consumer discriminability between style categories such as light beer vs. heavy beer, American beer vs. Canadian beer). All of these experiments solicited extensive batteries of sensory quality evaluations from subjects, e.g. strength, lightness, aftertaste, bitterness, and hedonic liking.

In our study, we take a different, simpler approach that is more narrowly focused on addressing the question of whether competing brands within a market segment are even different products at all from a consumer sensory perspective. Rather than testing whether consumers prefer their favorite brand of beer to another brand, or asking consumers to rate beers on an array of sensory characteristics, we dispense with ratings entirely and simply test whether or not beer consumers can tell competing brands apart from each other when brand cues are hidden. In order to do this, we apply the triangle test introduced by Amerine et al. (1965), and applied to a number of wine studies since (e.g. Solomon 1990; Weil 2001, 2005, 2007), to three mass-market European lager beers that are readily available in the US marketplace.

^c That brands can influence tasting ratings has been shown on a number of products. For example, McClure et al. (2004) show, with the help of functional magnetic resonance imaging (fMRI), that having the subject's favorite soft drink brand's name on a drink makes it taste better than if it is unlabeled.

Triangle tests are frequently used in food science as a means of verifying minimum threshold differences perceivable by consumers. The basic procedure is that three blind samples are presented to subjects simultaneously, two of which contain the same product (the “twins”), and one of which contains a different product (the “singleton”). Subjects taste all three samples, and are simply asked to pick out the singleton. If subjects cannot correctly pick the singleton at a rate above chance (33%), then we can infer that there is no perceived difference between the three samples.

We find that adult beer consumers are by and large unable to distinguish between European lager beers in a triangle test. In two of three tastings, participants are no better than random at telling the lagers apart, and in the third tasting, they are only marginally better than random. We thus show that for lager beer—a product category for which consumers typically display strong brand loyalty and claim to distinguish intrinsic differences in flavor between brands—the actual flavor differences between different brands’ products seem to be negligible. If our sample of tasters is reasonably representative of beer consumers in general, our results suggest that the sensory properties of European lagers cannot account for consumer loyalty toward these brands, or for their perceived differences in flavor in everyday (non-blind) settings. Instead, marketing and packaging cues may be generating brand loyalty and experiential differences between brands.

The paper is organized as follows. In section 2 we discuss the data and experiment. We present our results in section 3, and conclude and discuss the findings in section 4.

II. Data and experimental setup

The data set consists of test results from 138 individuals who participated in three beer tastings organized by Robin Goldstein and Seamus Campbell at the Green Dragon beer bar in Portland, Oregon, late 2009. The participants were unpaid volunteers between the age of 21 and 70. 61% were men, they spent an average of US\$7.70 on a six-pack of beer, and drank from 0 to more than 8 beers a week.^d

^d See Campbell and Goldstein (2010) for more information about the experiment.

Three well-known and readily available European lagers from producers in three different countries were used: Czechvar (Czech Republic), Heineken (Netherlands), and Stella Artois (Belgium), and henceforth called beer A, B, and C, respectively.^e In our triangle test, three samples are poured from the tap and presented to subjects in three tasting-sized glasses: two glasses of one brand (the twins), and one glass of a different brand (the singleton). Subjects are provided with simple forms on which they are asked to pick out the singleton.

The triangle test compares tasters' ability to discern different content against a random guess. With the design described above, a random guess has a one in three chance of being correct. Weil (2001, 2005, 2007) applies this test to different categories of wines. We apply the test to different brands within the same category of beer: pale European lager. We repeat the test three times, allowing us to pit each of the three lagers against each of the others in pairwise comparisons (A vs. B, B vs. C, A vs. C). In round 1, beer A is poured into two glasses and beer B into one glass. In round 2, beer B is in two glasses and beer C is in one glass. In round 3, beer C is in two glasses and beer A in one glass. As such, each beer appears once as a twin and once as a singleton, and each beer is pitted against each other beer once. Each taster only participates in one round. For a more elaborate description of the beer tasting setup, see Campbell and Goldstein (2010).

III. Results

We analyze each tasting separately as well as jointly by pooling the three tastings. Results are presented in a similar manner to that of Weil (2001, 2005).

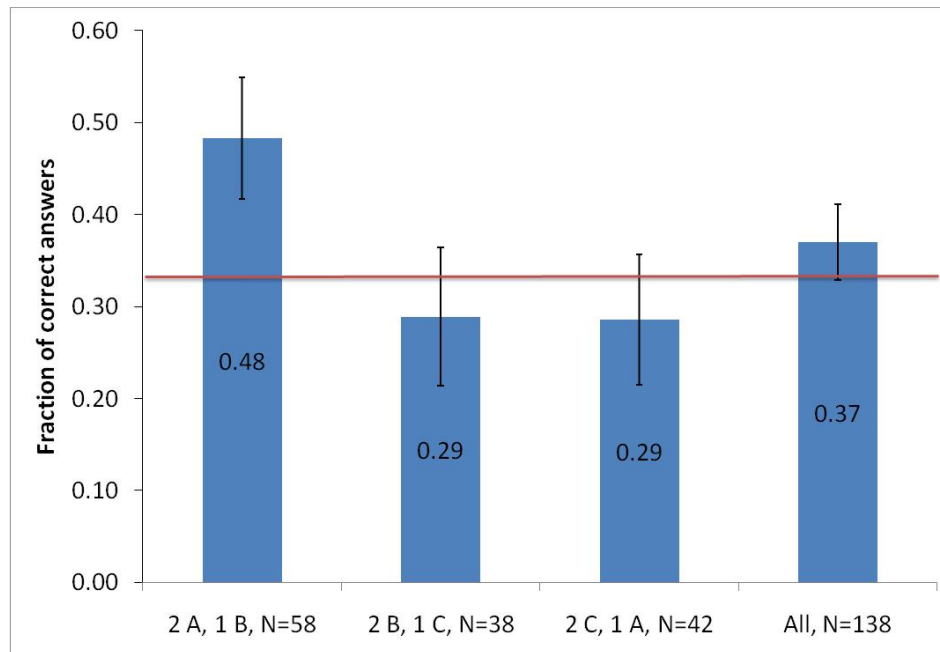
To test whether our tasters perform better than chance, we compare the share of tasters who correctly identify the singleton with the share who would get it right if they just guessed, i.e. 1/3 (33%). In Figure 1, the share that would be correct if all guesses were completely random is indicated by the red line. Figure 1 shows that in two out of three rounds (rounds 2 and 3), tasters perform slightly worse than random chance at correctly identifying the singleton beer. In one of

^e Czechvar is the US brand of the Czech beer brand Budějovický Budvar, which is not permitted to use the “Budweiser” or “Budvar” brand name due to a non-compete agreement with Anheuser-Busch in the US.

the three rounds (round 1), tasters perform slightly better than random chance (about 48%, compared to 33% for a random guess). But even in this round, the majority of tasters still get it wrong. When the three tastings are pooled, subjects' overall accuracy is not significantly different from the expected accuracy of random guesses—neither statistically nor in terms of the magnitude (about 37% versus 33% for chance). This result is supported by a binomial test for whether the fraction of correct answers in each of the three settings separately and jointly differs significantly from a random guess. This is not the case in rounds 2 and 3 ($p=0.73$ and $p=0.62$) or the joint sample ($p=0.32$), but it is the case in round 1 ($p=0.017$).

Figure 1. Fraction of correct answers in each of the three settings separately and jointly.

Error bars are standard error of the mean.



IV. Discussion

Our results suggest that when tasting blind, beer drinkers are unable to distinguish between different European lager brands. Consumer loyalty to specific brands is thus unlikely to be grounded in the sensory properties of the beer itself. A more likely explanation for such loyalty is that product differentiation in this market primarily reflects marketing efforts by breweries and/or packaging differences between products.

It is interesting to note that many producers of mass pale lager brands spend enormous amounts on advertising. According to *Advertising Age*, Anheuser-Busch spends more than \$1.5 billion per year on domestic advertising, and SABMiller spends just under a billion dollars. By comparison, McDonald's spends \$1.2 billion, and Nike spends \$790 million.^f

Beer brands in this sense might be “identity brands” (Holt 2004), i.e. consuming a particular brand of beer forms part of the identity of some consumers, and in this case, the reason for why a person identifies with a certain beer might have little to do with the actual taste. In the market for European lagers, identity-relevant attributes might include the brand image that is projected in advertisements, the aesthetics of packaging, the associations with the country of origin, and the social influence of peers who identify with certain brands and not others. To what extent this applies to other beverage products such as wine remains to be explored, but one might imagine, for instance, that some people favor French wine over Italian wine, or vice versa, for similar reasons.

Brand loyalty and non-blind sensory perception in this case seems to have little to do with the sensory experience of a beer in a blind tasting (a bottom-up process). Rather, brand cues seem to affect the tasting experience through expectations (a top-down cognitive process).^g In Lee et al. (2006), the addition of vinegar to beer affects the tasting experience negatively if the unusual additive is known to subjects before they taste the beer, but positively if it is not known.^h

When beer is consumed in the usual setting, i.e. casually at a bar or in the home, brand cues are typically present during the consumption experience from start to finish. Whether from the label on a bottle, the logo on a can, or the tap medallion at a bar, consumers usually know what brand

^f See Campbell and Goldstein (2010) for further discussion.

^g See Ariely and Norton (2009) for more studies on “conceptual consumption” in general as well as the subclass “consuming expectancies.”

^h Lee et al. (2006) compare three different groups: those that get the vinegar information before drinking, after drinking, or not at all. The group that gets the information before tasting the beer is the only group that is negatively biased by the vinegar; people who are told that the beer contained vinegar after having tasted it, like those who don't know about it at all, do not show negative bias. This dissociation suggests that the bias affects sensory experience on a fundamental level, rather than merely affecting subjects' ratings.

of beer they're drinking before they take the first sip, and top-down cues thus shape the sensory experience of consumption on a fundamental level.

Our findings add to the growing body of research on how consumers respond to sensory products in blind-tasting settings. In particular, there is an increasing number of examples of how blind tastings challenge commonly held perceptions about consumer preferences with regard to wine. Wines from well-regarded vintages, single vineyards, and reserve bottlings, for example, are typically much more expensive than regular wines. Despite this, Weil (2001, 2005) finds that tasters perform only marginally better than random at distinguishing between wines from "good" and "bad" vintages made by the same producer, or between reserve bottlings and regular bottlings from the same producer and year. Among those who can distinguish between reserve and regular bottlings, only half prefer the reserve, even though the wines differ in price by an order of magnitude. Many wine drinkers may expect to enjoy more expensive wines more, but Goldstein et al. (2008) shows that in a large sample of blind tastings, tasters on average actually prefer expensive wines slightly *less* than cheaper wines.ⁱ

In sum, we have shown that consumers are largely unable to distinguish between different brands of European lagers in blind tastings. Consumer loyalty to different brands of European lager is thus unlikely to be grounded in the intrinsic sensory properties of the beers themselves, suggesting that this may be an example of a product category in which marketing and packaging are the main drivers of consumer differentiation.

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ⁱ A few studies show that while tasters know the price they tend to prefer the more expensive wine (Brochet 2001, Plassmann et al. 2008). Almenberg and Dreber (2011) look at wine and price information with a setup similar to that of Lee et al. (2006) and find that price information matters for an expensive wine but not a cheap wine, but only for women and only when the information is given before the actual tasting experience.

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