

Cash—Walk the line: Examining the impact of payment method on consumers' beer choices

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Abstract

Previous research has revealed that consumers spend less (more) money when paying through cash (credit card). This effect has been attributed to the pain of paying, which is higher (lower) in the case of cash (credit card) payments. We tested the pain-of-paying phenomenon at a bar and collected objective data on almost 1000 beer transactions, including information about the size of the beer consumed (small vs. large), the price paid per beer, the style of the beer, and consumers' payment method (cash vs. credit card). Consumers paying with cash (vs. credit card) spent less money per beer and were less inclined to choose large (vs. small) beers, with the payment method effect on money spent mediated by the size of the purchased beer. Moreover, those paying with cash (vs. credit card) were more inclined to choose dark beers, whereas their probability of purchasing India Pale Ales (IPAs) was directionally lower.

Practical Applications

Given our findings that payment method seems to influence alcohol consumption, these results should have important implications for bar and restaurant managers as well as for interventions aimed at mitigating consumer overspending on alcoholic beverages. Specifically, our findings align with research suggesting that card payments promote less healthy and more impulsive choices than cash payments. Excessive alcohol consumption is associated with numerous psychophysiological problems, whereas developing social ties, which is common among craft beer enthusiasts, reduces stress levels and improves mental health. Therefore, a reasonable compromise seems to be that policymakers recommend cash payments for alcoholic beverages to maximize social network development while minimizing the risk of excessive alcohol consumption. The result that consumers who paid with cash (vs. credit card) were more prone to purchase dark beers but slightly less likely to buy IPAs warrants further investigation.

1 | INTRODUCTION

When Johnny Cash wrote “I walk the line” in 1956, he was arguably referring to something else than the fine line between enjoying a few beers and abusing alcohol. Nevertheless, his lyrics are relevant to the

delicate balancing act between the positive and negative effects related to social beer consumption. Indeed, the implementation of effective interventions to mitigate excessive alcohol consumption and the associated adverse health outcomes are of global concern (World Health Organization [WHO], 2018).

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Despite competition from larger, non-craft brewers, the value of the global craft beer market is estimated to double between 2022 and 2028, reaching over \$200 billion by the end of the decade (Karampela et al., 2022). With the growing popularity of craft beers, drinking in moderation becomes increasingly important as most craft brews contain a higher alcohol by volume (ABV) than the average commercially produced beer. For instance, an India Pale Ale (IPA) is usually between 5.5% ABV and 7.5% ABV (Brewers Association, 2022), although some craft companies have also pioneered on the alcohol-free market.

Research suggests that enthusiasm for craft beer consumption may promote social ties and environmental activism, with the former positively affecting various aspects of psychophysiological functioning (Graefe et al., 2018). For example, compared to people with fewer social ties, those with strong social ties have lower stress levels, a lower risk of developing depressive symptoms, and a lower likelihood of suffering from coronary heart disease (Holt-Lunstad, 2021). Despite these potentially positive mental and physical health effects of having a glass of craft beer with friends, excessive alcohol consumption has severe negative health consequences, as it is linked to increased blood pressure as well as risks associated with cancer and mental health issues (WHO, 2018). Therefore, the Dietary Guidelines for Americans recommend drinking no more than two drinks daily for men (approx. 70 cL of 5% beer) and one daily drink for women (35 cL of 5% beer; CDC, 2022).

One strategy that consumers can employ to limit their alcohol consumption while reaping the benefits of a beer is to order smaller serving sizes. Interestingly, encouraging consumers to downsize their orders can potentially increase company profits. Even without discounts, some consumers are willing to downsize their orders if given the option, thereby reducing businesses' food costs while maintaining revenue (Schwartz et al., 2012). The question is what factors can motivate consumers to order a small beer instead of a full pint.

One stream of research shows that consumers are more inclined to choose “virtues” over “vices” when paying with cash rather than credit card due to a more salient pain of paying (consumers are “Hurt” by Cash). While these effects of payment method have been shown on the healthiness of food choices (Thomas et al., 2011), they have yet to be tested in the realm of alcohol consumption. Therefore, the main objective of this *Short Contribution* was to investigate if the pain of paying extends to the size of beers ordered at a bar, thereby influencing the amount of money spent per beer transaction. Although this phenomenon has shown its effects on a plethora of consumer choices, no field studies have focused specifically on alcohol consumption. Thus, the current research contributes to the literature by being the first to test the pain-of-paying effect on alcohol intake, and by capturing real, observable behavior through objective transaction data, with such behavioral evidence becoming increasingly scarce (Baumeister et al., 2007; Malodia et al., 2023; Otterbring et al., 2020; Patterson, 2008).

2 | THEORY AND HYPOTHESES

Chatterjee and Rose (2012) suggest that whether consumers pay by card or cash has an impact on their product perceptions. Specifically,

consumers who pay by card (vs. cash) devote less attention to the cost aspect of a product and more attention to product benefits, identifying more benefit-related words, and choosing products that better match benefits instead of costs (Chatterjee & Rose, 2012). Overall, the financial value of purchases with card (vs. cash) tends to be higher (Hirschman, 1979). Studies support the assumption that using card (vs. cash) leads to a higher willingness to pay. In fact, MBA students instructed to use a card (vs. cash) when making purchases are willing to pay up to 100% more for goods with uncertain market value (Prelec & Simester, 2001). In the area of alcoholic beverages, studies show that card (vs. cash) payments lead to a higher willingness to pay for beer in lab settings among university students (Runnemark et al., 2015).

The above findings can be understood through the lens of the pain-of-paying framework (Prelec & Loewenstein, 1998). The pain of paying is a psychological phenomenon that describes the unpleasant feelings that arise when people part with their money (Raghubir & Srivastava, 2008). The concept assumes that the payment method influences consumers' willingness to spend money and the types of goods and services they consume (Otterbring & Bhatnagar, 2022), as the perceived pain of spending money varies by payment method. “Painful” cash payments lead to stronger attachment to chosen products and lower attachment to unchosen products after a transaction compared to relatively “painless” card payments (Shah et al., 2016). Thomas et al. (2011) found that card (vs. cash) payments facilitate impulsive purchases and the percentage of unhealthy food options purchased, presumably by reducing the negative emotions associated with such purchases. The transparency of the payment method can also influence the effect of the pain-of-paying phenomenon. When consumers pay with a more transparent payment method (e.g., cash) than a less transparent one (e.g., a card), they are more likely to experience pain of paying, leading to decreased consumption (Soman, 2003).

Drawing on the pain-of-paying framework (Prelec & Loewenstein, 1998), we conducted a field study in a bar to investigate whether payment method in terms of card versus cash could influence the average amount of money consumers spend on craft beer. Our first hypothesis posits that consumers spend more money in each transaction when they pay with card than with cash (H1). This prediction is supported by extant research, which suggests that paying with card is less painful than paying with cash, thus facilitating higher transaction value (for a meta-analysis, see Liu & Dewitte, 2021; for a review, see Reshadi & Fitzgerald, 2023). Moreover, as card payments increase the financial value of transactions (Hirschman, 1979), our second hypothesis states that consumers who pay by card instead of cash are more likely to order a pint rather than a small beer (H2); indeed, a pint is more expensive than a small beer, so consumers who choose to pay by card (vs. cash) should be particularly prone to spend more money. In addition, card (vs. cash) payments are associated with more unhealthy food choices (Thomas et al., 2011), whereas cash payments convey a stronger sense of ownership than card payments; hence, consumers who pay by card (vs. cash) may need to spend a higher amount to experience the same sense of “owning a beer”

(Kamleitner & Erki, 2013). Lastly, following the logic delineated above, we test our thesis that the likelihood of ordering a pint rather than a small beer mediates the effect of payment method on average spending per transaction (H3).

3 | METHODS

The study was conducted at a craft beer bar operating in the rapidly growing craft-beer scene of Denmark (Gómez-Corona et al., 2016; Jasovska et al., 2023). The bar has a capacity of between 80 and 100 people and offers an alternating selection of 20 taps of beer of various styles and prices; for example, simple 5% ABV pilsners were sold cheaper than complex 12% ABV imperial stouts. Every beer was offered in either a 25 cL glass or a 57 cL glass, where beers in a 25 cL glass were priced at 55%–60% of the same beers in a 57 cL glass; for more detailed descriptions of the bar setting, see Otterbring and Rolschau (2021) and Rolschau et al. (2020).

The data consisted of a csv-file containing all transactions over a series of consecutive weekdays, which was exported from the bar's point-of-sale (POS) system. A total of 955 beer transactions were collected over four weekends (Fridays and Saturdays between 12 p.m. and 2 a.m.), with the data including information about the size of the beer consumed (small vs. large), the price paid per beer, the style of the beer (IPA, sour beer, dark beer, other), and consumers' payment method (cash vs. credit card). Cases more than 3 SD away from the mean on money spent per beer ($n = 10$) were subsequently excluded, leaving a final sample of 945 transactions in all analyses. Our sample size has a statistical power greater than 80% to detect small effect sizes corresponding to $d = 0.20$, assuming the conventional alpha level of $\alpha = .05$ (requiring approximately $N = 620$; Cohen, 1992),

given our one-tailed hypotheses and the corresponding on one-sided tests (cf. Cho & Abe, 2013; Gidlöf et al., 2021; Jones, 1954).

4 | RESULTS

First, we tested whether payment method influenced money spent per beer in the bar through an independent samples t -test and found this to be the case ($t[943] = 2.17, p = .015, d = 0.34$). Thus, participants who paid with cash ($M = €5.89, SD = 1.83$) spent less money per beer compared to those who used a credit card ($M = €6.46, SD = 1.69$). These results support H1.

Although the t -test is robust to violations of the normality assumption (Lumley et al., 2002), we supplemented the above analysis with a nonparametric alternative to demonstrate robustness of our results, considering that the data were not normally distributed. In further support of H1, the results of a Mann–Whitney U -test found that participants who paid with cash (Mdn = €5.37) spent less money per beer than their counterparts who paid with a credit card (Mdn = €7.39; $U = 15,969, Z = 2.30, p = .011$); see Figure 1.

Second, we tested whether payment method influenced the size of the beer ordered through a Pearson's chi-square test and found this to be the case ($\chi^2[1, N = 945] = 9.74, p = .002, V = 0.10$). Thus, consistent with H2, participants who paid with cash (56.82%) were significantly more likely to order a small (vs. large) beer compared to those who paid with a credit card (33.85%); see Figure 2.

Third, to test whether participants' likelihood to order a small (vs. large) beer mediated the effect of payment method on money spent, we conducted a one-way analysis of covariance (ANCOVA), with payment method as the between-subjects factor, beer size (small vs. large) as the covariate, and money spent as the outcome variable.

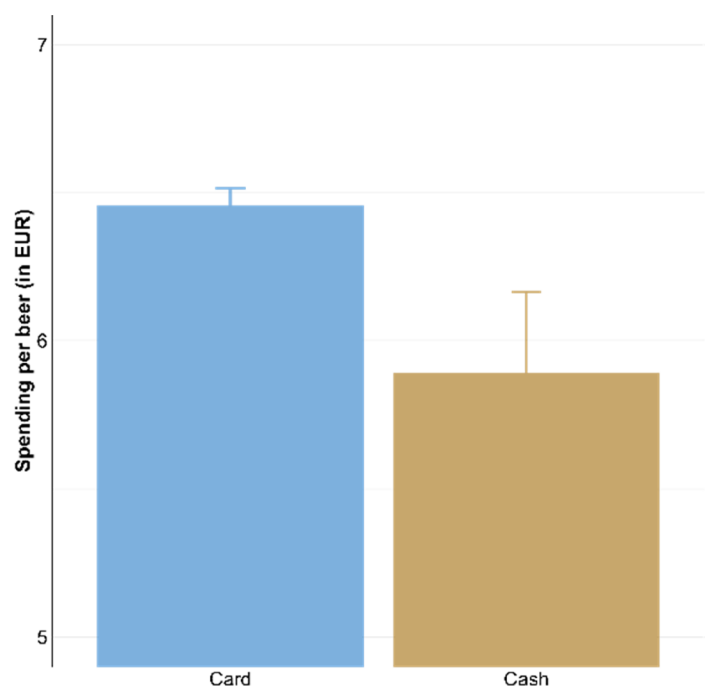


FIGURE 1 Spending per beer by payment type. The standard errors of the means are indicated by the whiskers emanating from the bars that show mean spending per beer as a function of a payment type.

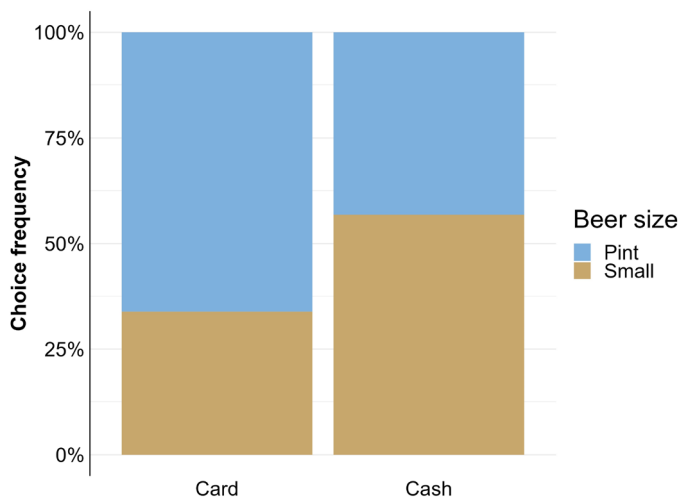


FIGURE 2 The frequency of choosing a certain beer size as a function of payment method.

Although this may seem like an unorthodox way of testing for mediation, it should be noted that the regular PROCESS macro cannot analyze dichotomous mediators (Otterbring, 2021). The ANCOVA revealed a significant effect of the covariate on money spent per beer ($F[1, 942] = 1278.48, p < .001, \eta^2 = 0.58$). Importantly, the formerly significant effect of payment method, as demonstrated in the chi-square analysis, was substantially reduced and was no longer significant ($F[1, 942] = 0.10, p = .750$). In other words, and corroborating H3, customers who paid through cash (vs. credit card) were more inclined to purchase a small (vs. large) beer, thereby driving them to spend less (vs. more) money per beer transaction, such that the payment effect on money spent was mediated by the size of the purchased beer.

Finally, as an exploratory endeavor, we examined whether payment method was linked to the style of consumers' chosen beer, given the importance of exploratory research for generating novel insights (Ares et al., 2023). Interestingly, a Pearson's chi-square analysis using 2 (payment method: cash vs. card) \times 4 (beer style: IPA vs. sour vs. dark vs. other) crosstabs found a significant effect ($\chi^2[1, N = 945] = 10.76, p = .013, V = 0.11$). The only main contributor with a standardized residual above 2.00 (cf. Otterbring, 2018; Sharpe, 2015) was choice likelihood of dark beers (standardized residual: 2.7), which was twice as high among consumers paying with cash (38.6%) versus card (19.3%). None of the other beer styles differed significantly in purchase probability depending on payment method, although there was a tendency in this direction for IPAs (IPAs, cash: 22.7% vs. card: 36.0%; sour beers, cash: 13.6% vs. card: 12.0%; other beers, cash: 25.0% vs. card: 32.1%); see Appendix for details.

5 | DISCUSSION

The current field study, conducted in an actual bar, examined payment type (card vs. cash) as a predictor of average spending per beer and the propensity to order a small beer rather than a pint. Consistent

with hypotheses informed by the pain-of-paying framework (Prelec & Loewenstein, 1998), we found that, on average, consumers spend less money per beer when paying with cash (vs. card). Those paying with cash were also less likely to order a pint instead of a small beer, with the size of the purchased beer mediating the effect of payment method on average spending per transaction. In addition, our exploratory results revealed that consumers who paid with cash (vs. card) were significantly more prone to purchase dark beers but slightly less likely to choose IPAs.

As ordering a pint rather than a small beer arguably increases the likelihood that consumers exceed the recommended limit of one to two small beers containing no more than 5% alcohol per day (CDC, 2022), our beer size findings align with research suggesting that card payments promote more unhealthy choices than cash payments (Thomas et al., 2011). The results also support research suggesting that cashless payments lead to riskier consumption responses compared to cash, partially by reducing the negative arousal associated with the payment method, and especially so among shoppers who are sensitive to health risks (Park et al., 2021).

Some potential practical implications can be drawn from our research. Excessive alcohol consumption is associated with numerous psychophysiological problems, such as increased risk of anxiety or coronary heart disease (WHO, 2018). On the other hand, developing social ties, as is common among craft beer enthusiasts (Graefe et al., 2018), reduces stress levels and improves mental health (Holt-Lunstad, 2021). Moreover, whereas people who occupy a central position in social networks are more prone to excessive alcohol consumption, they are also happier, feel more efficacious, and experience less stress under certain circumstances (Howell et al., 2014). To maximize social network development while minimizing the risk of excessive alcohol consumption, ordering a small beer instead of a pint may be a reasonable compromise, suggesting that policymakers can recommend cash payments for alcoholic beverages.

Craft beer brands share many characteristics with luxury brands, such as uniqueness, with these brands often benefiting from rising unit prices (Gómez-Corona et al., 2017; Kapferer & Bastien, 2009). One strategy that makes luxury products more desirable is to signal their scarcity by informing consumers of their limited quantity (Park et al., 2022). In this context, bars could consider offering only smaller sizes of craft beers, such as 20 or 33 cL, which could possibly increase the luxury aspect of craft beer consumption.

5.1 | Limitations and future research

Our study has limitations that may serve as fruitful future research avenues. First, our work was conducted in the increasingly rare field conditions that many authors consider the golden standard for research aimed at predicting human behavior (Doliński, 2018; Otterbring et al., 2023). However, conducting research in such settings has several weaknesses. For example, as it is impossible to control for all potential confounds in the field, data from laboratory experiments conducted under controlled conditions that still resemble

actual consumption environments can complement field data (Bateson & Hui, 1992; Folwarczny et al., 2023).

Second, and relatedly, we have not captured any psychological processes that could explain our obtained results. Therefore, to empirically validate the pain-of-paying phenomenon rather than other alternative accounts as the primary mechanism responsible for our findings, it is imperative to measure whether paying with cash (vs. card) elicits more negative emotions and stronger attachment to the purchased products or brands (Prelec & Loewenstein, 1998; Raghuram & Srivastava, 2008; Shah et al., 2016).

Third, our study utilized transactional data obtained from a beer bar. However, as our data are restricted to a certain number of beer transactions rather than individual consumers, we cannot know whether a given consumer made multiple purchases in the bar during our data collection period or, alternatively, whether said consumer only bought beer at a single point in time. To ensure the accuracy of policy recommendations based on our findings, it is important to consider the total quantity of beer consumed by customers while in the bar. Although customers who paid with cash spent less per beer and opted for smaller beer sizes, it is possible that they consumed the same or even greater quantities of beer than customers who paid with card. To address this issue, a repeated-measures study that tracks customers' spending and consumption patterns over the course of their entire bar visit is recommended.

Finally, countries differ considerably in the extent to which card or cash payments constitute the norm. The data collected in the current research stem from Denmark, which is a country that typically occupies a podium position among the member states of the European Union on the Digital Economy and Society Index (European Commission, 2023), while also being ranked particularly high in terms of public acceptance of technology (Frank et al., 2021). Therefore, multi-national or cross-cultural research is important to test the robustness, replicability, and generalizability of the results reported herein.

FUNDING INFORMATION

This research was conducted in the absence of any funding source.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The authors do not have permission to share the data.

ETHICS STATEMENT

This study was conducted in accordance with the Declaration of Helsinki for research on human subjects. Given its nonmedical nature, IRB approval was not needed, consistent with the local and national guidelines of the country in which the data were collected.

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How to cite this article: Otterbring, T., Rolschau, K., & Folwarczny, M. (2023). Cash–Walk the line: Examining the impact of payment method on consumers' beer choices. *Journal of Sensory Studies*, 38(5), e12861. <https://doi.org/10.1111/joss.12861>

APPENDIX A

Beyond the notable difference between payment methods in choice likelihood of dark beers, as reported in the main body of our article, separate chi-square analyses for each beer style individually revealed a significant difference between payment methods for dark beers, thus mirroring our main findings ($\chi^2[1, N = 945] = 9.72, p = .002,$

$V = 0.10$). Moreover, consumers paying with cash (vs. card) were directionally less inclined to purchase IPAs ($\chi^2[1, N = 945] = 3.52, p = .061, V = 0.06$), although choice likelihood of sour beers ($\chi^2[1, N = 945] = 0.11, p = .743, V = 0.01$) and other beer options ($\chi^2[1, N = 945] = 0.97, p = .325, V = 0.03$) did not differ significantly as a function of payment method.