CAN ALCOHOL-FREE PRODUCTS HELP REDUCE ALCOHOL SALES?

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Abstract

Despite the growing popularity of alcohol-free product variants, little is known about the implications for alcohol sales. An analysis of seven years of household scanner data provides descriptive evidence on how alcohol purchases change after households adopt alcohol-free beverages. Our findings indicate that adoption is associated with decreases in alcohol sales among heavy alcohol buyers, but increases among light alcohol buyers. We discuss the opportunities and challenges of alcohol-free products for public health policy.

Introduction and main contributions

Alcohol is considered the most harmful drug overall due to its wide-ranging negative effects on individuals and society (Nutt et al. 2010). It causes seven types of cancer and contributes to nearly 750,000 new global cases annually, which is over 4% of all cancer cases (Rumgay et al. 2021).

In this context, a relevant question is whether alcohol-free variants offer new opportunities to reduce alcohol purchases. Alcohol-free beer, for example, has gained a substantial market share in Germany (14.3%), Spain (7.4%), Japan (6.5%), and France (5.6%). However, the implications for alcohol sales remain unclear, as households may purchase alcohol-free products in addition to, rather than instead of, alcoholic ones. Critics caution that alcohol-free alternatives could even increase alcoholic purchases, while the industry argues they support harm reduction (McArdie 2023). In the absence of empirical research, and given that alcohol is an inherently addictive substance (Nutt et al. 2010), it remains unclear whether and to what extent the adoption of alcohol-free beverages affects alcohol purchases.

Key Contributions

Our research makes two main contributions to the literature. First, we provide novel empirical evidence that first-time adoption *increases* the purchase of related alcoholic products among *lighter* alcohol buyers and *decreases* it for *heavier* buyers. Interestingly, and the desirable adoption effects among heavy buyers are substantially larger than the undesirable effects among light buyers. Hence, our study highlights the importance of household heterogeneity in examining the effects of adopting healthier product variants. While prior adoption studies have focused on average effects across households (e.g., Cleeren et al. 2016), our results show that prior category purchase behavior can substantively impact this effect.

Second, our findings offer new insights for public policymakers. Prior research indicates that "sin taxes" on unhealthy products are less effective among heavy buyers due to stronger underlying preferences (e.g., sugary drink taxes; Dubois, Griffith and Connell 2020). In contrast, our results suggest that information-based strategies (such as promoting adoption of alcohol-free beverages) may be a promising strategy to reduce unhealthier (alcoholic) purchases among heavy (alcohol) buyers.

Data and model

Data and Sample. We use scanner data on household purchases at the stock-keeping unit (SKU) level in France from January 2015 to December 2021, obtained via Aimark (aimark.org) and originating from YouGov (formerly GfK). Adopters are defined as households that do not purchase any alcohol-free beverages in the beer, wine, or spirits categories during their first 12 months of observation in the panel but began doing so in any of these categories at any point thereafter (N = 1,736).

Measures. Our primary dependent variable, *total alcohol amount*, is defined as the total quantity of alcohol (in grams) purchased by household h in month t.

Alcoholic volume sales are defined as the total volume (in liters) of alcoholic beer, spirits, and wine beverages purchased by household h in month t. *Alcohol-free volume sales* are defined as the total volume (in liters) of alcohol-free beer, spirits, and wine beverages purchased by household h in month t. Finally, *total volume sales* are defined as the sum of alcoholic and alcohol-free volume sales of household h in month t.

To examine heterogeneity between households, we categorize them based on their average monthly total alcohol amount (in grams) purchased before adoption (top and bottom quartiles are heavy and light, respectively).

DID. We adopt a two-stage DID (2SDID) estimation approach proposed by Gardner (Gardner 2022; Gardner et al. 2024). We estimate the DID model separately for light, moderate, and heavy alcohol buyers. Our results are robust against using a TWFE approach.

Findings

Among light and moderate alcohol buyers, we observe increases in total alcohol amounts purchased after adoption: +16.506 g for light buyers ($p < .0001$) and +24.692 g for moderate buyers ($p < .0001$). Correspondingly, we observe increases in alcoholic volume sales of +0.203L ($p < .0001$) and +0.342L ($p < .0001$) for light and moderate alcohol buyers, respectively. Total volume sales (alcoholic and alcohol-free combined) rise by +0.437L ($p < .0001$) for light buyers and +0.665L ($p < .0001$) for moderate buyers. In contrast, we observe fewer alcohol purchases among heavy alcohol buyers after adoption. Specifically, the total alcohol amount purchased decreases by –52.293g ($p = .012$), and alcoholic volume sales decrease by –0.633L ($p = .006$). We find no significant change in total volume sales among heavy alcohol buyers (–.125L, $p = .372$).

Conclusions

Our research provides novel real-world empirical evidence on how the adoption of alcohol-free products relates to alcohol purchases. Heavy alcohol buyers tend to purchase alcohol-free variants as partial substitutes for alcoholic products, leading to reductions in alcoholic purchases in this group. By contrast, among light buyers, alcohol-free products appear to complement alcoholic beverages, with total alcohol purchases increasing after adoption. Hence, policymakers should consider targeting their interventions to heavy alcohol buyers rather than to light alcohol buyers to trigger adoption of non-alcoholic beverage.

References

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