REDI@CSU
Regional Economic Development Institute

The Effects of Alcohol Liberalization on Liquor Stores and Rural and Urban Shopping Patterns

Nathan Palardy and Marco Costanigro
REDI Report – February 2023
https://redi.colostate.edu/

- The introduction of alcohol into grocery and convenience stores in Oklahoma, Colorado, and Kansas causes a substantial (2.9%-6.8%) decline in statewide monthly liquor store visitation.
- The expansion of beer sales decreases monthly visitation at rural liquor stores in Colorado (5.0%) and Kansas (7.9%), but has little effect on urban liquor stores
- The expansion of both beer and wine in Oklahoma decreases monthly visitation at both rural (9.0%) and urban (7.0%) liquor stores.
- Our results indicate substantial changes in consumer shopping patterns but do not support claims that partial alcohol liberalization will result in the mass closure of liquor stores.

Background

When Colorado and Kansas introduced beer sales and Oklahoma introduced beer and wine sales into grocery and convenience stores in 2017 and 2018 (see table 1), the magnitude of the effect on consumer shopping behavior, and consequently small mom and pop liquor stores, was largely unknown. The policy changes are part of national trend towards liberalizing alcohol distribution and allowing sales in new market channels. Trade associations on behalf of liquor stores claim that alcohol liberalization will result in the mass transfer of alcohol sales to grocery and convenience stores to the detriment of many small businesses (Kessinger 2019). Policy makers are also concerned that a mass transfer will lead to consolidation in the retail tier of alcohol markets, ultimately reducing competition and harming consumers[1].

Table 1. Treatment and control states

State	Date of transition	Change to the regulatory environment
Kansas	April 1st, 2019	Beer up to 6% ABV may be sold in grocery or convenience stores
Colorado	January 1st, 2019	Full-strength beer may be sold in grocery or convenience stores
Oklahoma	October 1st, 2018	Full-strength beer and wine may be sold in grocery or convenience stores

Notes: In all states, beer above 4% ABV and all other alcohol types could only be sold by liquor stores prior to the law change.

Part of what makes anticipating the policy effect difficult are differences in the product assortment and shopping experiences offered by the new and traditional market channels. Grocery and convenience stores may only sell certain types of alcohol (beer only or beer and wine depending on the state), tend to

[1] Exec. Order. No. 14036, 86 Fed. Reg. 36987 (July 9, 2021) https://www.govinfo.gov/app/details/FR-2021-07-14/2021-15069/.

stock only widely recognized brands, and offer minimal assistance (White, Troy, and Gerlich 2000). In contrast, liquor stores often carry a wide assortment of all alcohol types and provide knowledgeable staff that can help consumers make a selection (Hollebeek et al. 2007). Consumers, therefore, may or may not change market channels depending on preferences and the purpose of the shopping trip.

Further clouding the picture are differences between rural and urban markets that may interact with the policy effect. We know that the new retail environment allows consumers to forgo a second stop at a liquor store and that liquor stores tend to locate further away from the grocery stores in rural counties. Additionally, Hart and Alston (2020) show that rural consumers with less disposable income consume more beer while urban consumers demand more wine. Consequently, rural consumers may be more incentivized to bundle grocery and alcohol purchases to reduce travel costs, especially in states that only liberalize beer sales. However, an argument can also be made that, since liquor, grocery, and convenience stores concentrate in urban counties, urban liquor stores will face greater competition post-policy change and, as a result, experience a greater decline in visitation. In summary, it is unknown *a priori* how the effect of alcohol liberalization on rural and urban markets will vary.

The purposes of this study are to identify the impact of partial alcohol liberalization on liquor stores in three states that liberalized alcohol sales and determine if the policy has a different effect on rural and urban stores. We accomplish our objectives using a novel difference-in-difference estimator developed by Callaway and Sant'Anna (2020) to compare visitation at liquor stores before and after the expansion of alcohol sales in each state. Our results inform the ongoing policy debate (see Colorado's recent expansion of wine sales in 2022 (Chuang 2022)) on whether alcohol liberalization will result in the feared mass transfer of sales, and consequently closure, of liquor stores.

Because comprehensive data on liquor stores sales is unavailable, we rely on geolocated cellphone tracking data spanning from January 2017 to February 2020 from SafeGraph Inc. (2020). The SafeGraph data provide the location of liquor stores and the monthly foot traffic, allowing us to compare visitation before and after the policy change. Although not a direct measure of sales, visitation tends to be strongly correlated with revenue and can be used to approximate the magnitude of the policy effect (SafeGraph 2018). In addition to data from Oklahoma, Colorado, and Kansas, we use liquor store data from Minnesota as a control since alcohol retail laws in Minnesota mirrored those in the other states prior to the policy change and remained unchanged over the course of the study period.

Investigating changes in consumers shopping patterns at liquor stores

We estimate the effect of partial alcohol liberalization on monthly liquor store foot traffic in three separate analyses: an analysis of the statewide effect, and analysis of the effect on liquor stores in urban counties, and an analysis of the effect on liquor stores in rural counties. Our estimator (see Callaway and Sant'Anna (2020)) allows us to estimate the effect in each state, use all not-yet-treated stores as controls, and account for staggered treatment timing.

Our results, shown in Figure 2, reveal that the introduction of alcohol into grocery and convenience stores causes a substantial decline in monthly liquor store foot traffic in all states, as evidenced by the green bars. Rural liquor stores (purple bars) show a greater decline in monthly visitation in all states relative to their urban counterparts (orange bars). Oklahoma, the only state to fully introduce beer and wine into grocery and convenience stores, experiences the largest decline in monthly foot traffic in all three analyses and is the only state where the decline at urban liquor stores (7.0%) is significant. We see a greater decline in foot traffic at Kansas liquor stores (5.0%) compared to Colorado (2.9%).

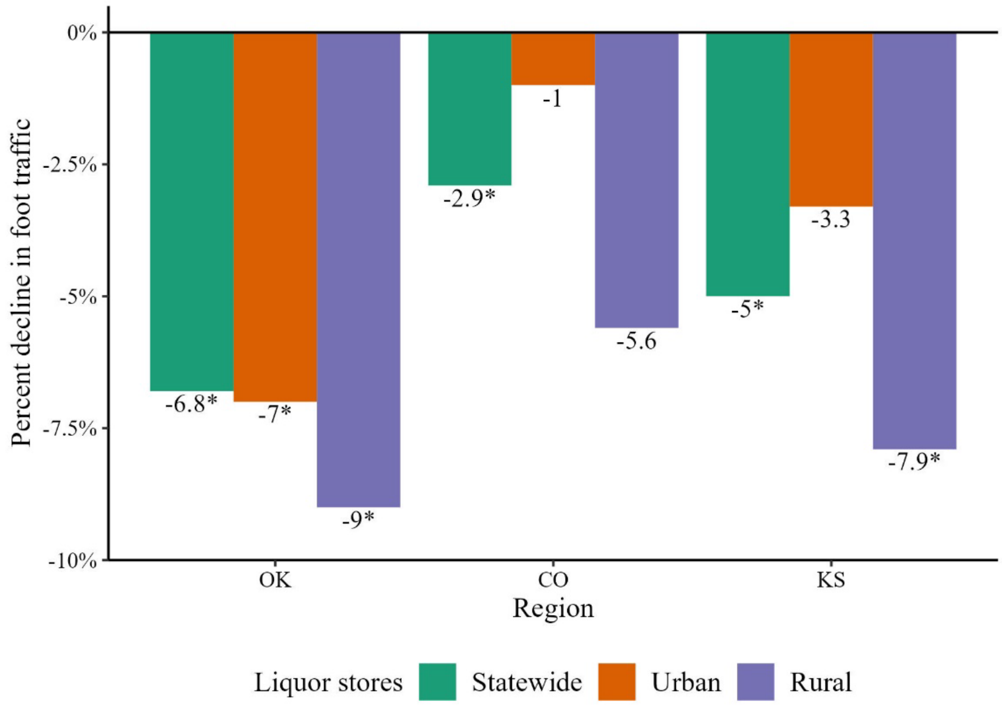

Figure 1. Average percent decline in liquor store foot traffic after the policy change. *95% confidence interval does not contain 0. The x-axis indicates the region containing liquor stores while the y-axis shows the average percent decline in foot traffic. The green bar captures results for all stores within the specified state, the orange bar captures results for liquor stores in urban counties, and the purple bar captures results for liquor stores in rural counties.

If we compare Colorado and Kansas to Oklahoma, we find that the effect on liquor stores increases as the degree of alcohol liberalization increases. In Colorado and Kansas, which liberalized only beer sales, the decline in statewide monthly liquor store visitation appears driven by lower foot traffic at stores in rural counties. Additionally, the larger decline in statewide visits in Kansas is likely due to a more rural population (30% non-metro) compared to Colorado (12% nonmetro) (Economic Research Service 2022). As mentioned above, rural consumers may be more responsive to the expansion of beer sales due to a preference for beer and higher travel costs. Notably, Oklahoma, the only state to liberalize beer and wine sales, is the only state showing a substantial decline at urban liquor stores, likely due greater demand for wine among urban residents. Our results suggest that the expansion of beer sales primarily affects rural shopping patterns while the expansion of both beer and wine impacts alcohol shopping patterns in all counties.

We conclude that partial alcohol liberalization has a substantial, but not catastrophic, effect on liquor stores. Our results suggest that rural and urban differences in the policy effect are driven by variations in alcohol preferences. Policy makers need to carefully weigh the benefits to consumers in the form of one-stop shopping convenience against the decline in revenue to mom and pop liquor stores.

References

Callaway, Brantly, and Pedro H.C. Sant'Anna. 2020. "Difference-in-Differences with Multiple Time Periods." *Journal of Econometrics*, December, S0304407620303948. https://doi.org/10.1016/j.jeconom.2020.12.001.

Chuang, Tamara. 2022. "It's Official: Coloradans Will Be Able to Buy Wine in Grocery, Convenience Stores Starting in March." *The Colorado Sun*, November 23, 2022. http://coloradosun.com/2022/11/23/proposition-125-wine-grocery-stores-passes/.

Economic Research Service. 2022. "State Fact Sheets." U.S. Department of Agriculture. October 2022. https://data.ers.usda.gov/reports.aspx?ID=17854.

Hart, Jarrett, and Julian M. Alston. 2020. "Evolving Consumption Patterns in the U.S. Alcohol Market: Disaggregated Spatial Analysis." *Journal of Wine Economics* 15 (1): 5–41. https://doi.org/10.1017/jwe.2019.14.

Hollebeek, Linda D., Sara R. Jaeger, Roderick J. Brodie, and Andrew Balemi. 2007. "The Influence of Involvement on Purchase Intention for New World Wine." *Food Quality and Preference* 18 (8): 1033–49. https://doi.org/10.1016/j.foodqual.2007.04.007.

Kessinger, Derek. 2019. "Are Grocery Store Beer Sales Killing Colorado's Liquor Stores?" *5280*, October 16, 2019, Online edition. https://www.5280.com/2019/10/are-grocery-store-beer-sales-killing-colorados-liquor-stores/.

SafeGraph. 2018. "How to Use SafeGraph Visits to Predict Company Reported KPIs." https://drive.google.com/file/d/1shkAwx5c9CSwXIQBqAh-bCB50QTX09KG/view?usp=sharing&usp=embed_facebook.

———. 2020. "Core Patterns." https://docs.safegraph.com/docs/monthly-patterns.

White, J. C., L. C. Troy, and R. N. Gerlich. 2000. "The Role of Slotting Fees and Introductory Allowances in Retail Buyers' New-Product Acceptance Decisions." *Journal of the Academy of Marketing Science* 28 (2): 291–98. https://doi.org/10.1177/0092070300282009.