

Lizzie Healy
Professor Levere
Labor Economics
5 May 2023

The Impact of Act 39 on Employment, Hours, and Earnings in the Pennsylvania Alcohol Retail Market

I. Introduction

How do alcohol retailers respond in profit-maximizing ways to the creation and retraction of restrictions within their industry? The liquor industry is one that has been constantly under review and must thrive under strict laws, causing issues on how best to operate and still maintain a livelihood. These issues began long ago during colonial times stemming from religious restrictions and then peaking with Prohibition, which only furthered the issue of how to regulate and control alcohol sales while still supplying to the masses. Over time, the alcohol retail landscape has evolved and seemingly outgrown the need for outdated restrictions, yet they still remain. This paper will investigate how restrictions affect earnings as well as employees within the beer, wine, and liquor retail industry.

II. Background and Relevant Research

One specific case study of the restrictions placed on retail are the blue laws, which are sometimes referred to as ‘closing laws’, ‘Sabbath laws’, and even ‘uniform day of rest laws.’ Their origins were in Colonial Times and were meant to respect the Christian Sabbath. These laws are classified as a “statute that forbids entertainment or commercial activities on Sundays and Religious holidays” (Cornell 2022). Initially, they included a large expanse of Sunday activity including vending, hunting, sports, travel, and alcohol, but have evolved over the years to essentially only force businesses and retailers to cease any conducting of business on Sundays. At one time Pennsylvania maintained that “baseball and football [was] illegal on Sunday

afternoons” (Bond 2019), which led to the state missing out on having a team for the first decade of the NFL. The blue laws, while being systematically repealed still exist in almost every state (see Figure 1).

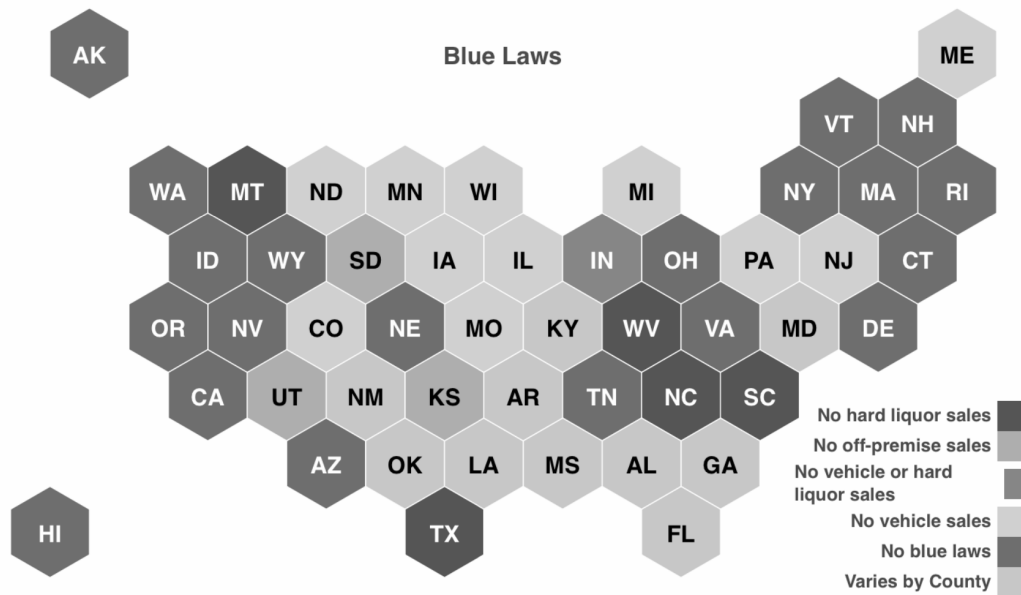


Figure 1. Blue laws remain in effect across the country as of 2023.

Regardless of the longevity of these laws, they have not been universally well-received and have endured much scrutiny from both sides of the argument. Many have taken the standpoint of arguing for Sunday laws in terms of decreasing the amount of alcohol-related injuries and crashes by limiting the number of sales that take place and vending at sporting events. However, the results are not conclusive by any means due to the inability to extract this casualty or due to the lack thereof. When looking at the blue law’s impact on fatal accidents, a study based in New Mexico found there was a 29% increase in the number of alcohol-related crashes when the bans were removed (McMillan and Lapham 2006). When looking at the same outcomes within the United States and without the removal of the bans, no significant results

were found that correlate fatal accidents to Blue Laws (Lovenheim and Steefel 2011). Thus, while the argument is valid, the results are ambiguous.

Then there is the issue of the moral argument and the religious basis that is entangled with these laws. At what point do we ignore the roots of the laws and simply focus on the current impact? Again, this question remains unanswered with practicing religious types fighting to keep the tradition alive and have businesses remain closed to allow church attendance and the sabbath to continue. A 2008 study found that this tradeoff between religion and retail does exist. “When the blue laws are repealed, there is a significant drop in both religious attendance and religious contributions” (Gruber and Hungerman). Should the laws continue to be in place to keep people from being forced to choose between religion and other practices, or is the loss in church contributions only a reflection of the money these laws have taken away from Sunday retailers over the years?

The debate has raged on since the beginning of the 20th century even escalating through the United States Justice System. In 1961, the Supreme Court took on the case of *Braunfeld vs Brown*. Abraham Braunfeld, the appellant, owned a clothing and home furnishing retail store in Philadelphia and argued that he was not able to make a livelihood due to the blue laws forcing him to remain closed on Sunday, which compounded with the fact that he followed Orthodox Judaism and was thus unable to open on Saturday. He argued that this situation violated the religious liberty clauses of the constitution and needed allowance to open six days a week, with Sunday being one of the six. Again, Pennsylvania prevailed, winning in a 6-3 decision that claimed, “the Pennsylvania blue law did not violate the Free Exercise Clause” (Oyez).

Deviating from the literature on the moral and safety concerns of these laws, there is limited investigation of the labor market outcomes for retailers within the liquor industry. One

study examined this similar outcome of the repeal of the blue laws which has begun over the recent years. These authors investigated the change in hours and employment in Georgia by taking advantage of the referendum held in each county to conduct a triple-difference analysis. The triple difference relied on the 2011 legislation that permitted each county to decide whether to continue upholding the blue law Sunday liquor restrictions, using the passing counties as the treatment group. Due to the discrepancy in the decisions and the time variation of implementation, the effect on the liquor retail industry was able to be parsed out. What they found was a mute change in monthly employment, but a significant increase in weekly earnings as well as an interpreted increase in weekly hours worked (Hotchkiss and Li 2017), boosting the argument that the blue laws are hurting retailers.

In this paper, Pennsylvania will be used as the treatment state due to its appeal of the strong history of blue laws, its specified liquor retail market, and the recent repeal of the Sunday liquor laws. For starters, Pennsylvania is a liquor control state. There are seventeen liquor control states across the United States, however, they each differ in degree, with Pennsylvania ranking among the most strict in terms of restrictions. What a control state essentially means is that the sale of distilled spirits (and sometimes wine and beer) is controlled by the state and generally by a state board. In the case of Pennsylvania, there exists the Pennsylvania Liquor Control Board, which is “the responsible seller of liquor, wine, and spirits, regulates the industry, and maximizes profits for the benefit of Pennsylvania” (PLCB 2023). This board has been in effect since December of 1933 and is responsible for issuing licenses, opening liquor stores, and operating the warehouses that supply for the state stores. For the Pennsylvania natives, this means that there is one place and one place only to purchase liquor and that is Fine Wine & Spirits, which is

overseen by the PLCB. These stores total 585 and span across all counties of Pennsylvania, creating a quasi-monopolistic market for the sale of liquor, wine, and spirits.

The legislation surrounding alcohol sales has also recently been under revision in most states, but specifically Pennsylvania. The most relevant piece of legislation was Act 39 which was signed by Tom Wolf, the governor at the time, in June 2016. This was the first real change to the 1951 version of the law since the dry stance on alcohol that followed the Prohibition era. This act covered a variety of changes, but the main revision was the “restrictions to Sunday hours and the number of Fine Wine & Good Spirits stores allowed to be open on Sundays were eliminated” (PLCB 2016). Previously, stores were to be closed on all Sundays as well as specific holidays, however, the Holiday ban remained. The revision officially went into effect across all of Pennsylvania on August 8, 2016. What followed was an initial change in the hours of operation for nearly 100 stores which included about an 8-hour window of opening on Sundays. The stores then began opening in waves with the second wave adding 188 stores to the list of those opened on Sunday and the third opening 26 more stores in the following September. (PA Media 2016). In addition, beer retailers also took advantage of the new laws and began opening their doors on Sundays (Gleiter 2020). In summation, Act 39 removed Sunday restrictions on the beer, wine, and liquor retail industry.

III. Data

Pennsylvania Department of Labor and Wage Data

To acquire the necessary information on the sales, hours, and employment of the beer, wine, and liquor industry the Pennsylvania Department of Labor Wage Data was utilized. Each state requires all employers to file reports with the State Department of Labor which details the wages paid to workers for the purposes of the Social Security Act. This information is used to

generate a census of firms within each state and is then sorted by industry. (Workforce Statistics 2023). The dataset referred to as the Quarterly Census of Employment and Wages, or QCEW is made publicly available. The QCEW allows for the creation of cross-sectional data either with all states and one industry, all counties and one industry, all counties in a state and one industry, all metropolitan-statistical areas and one industry, or all geographic areas and one industry. For these purposes, I will utilize all counties in a state and one industry cross-section for all counties within the state of Pennsylvania (QCEW 2019).

The NAICS codes 4453, 44532, and 445320 which capture the beer, wine, and liquor retailers will be the treatment group, while all other non-retail industries are used as controls. It is to be expected that the beer, wine, and liquor industry will be the one directly affected by the changes outlined in Act 39, and other industries should be relatively unaffected by this legislation, therefore providing candidates for treatment and control groups. Thus our data will be a county-level dataset with the unit of observation being each of the sixty-seven Pennsylvania counties (see Figure 2). Other states, specifically the counties in New Jersey, Delaware, and Ohio will be utilized later in the analysis to assess spillover effects and to run a placebo test. In addition, to avoid the complicated industry issues related to covid-19 and to still be able to capture significant pre-trends, the analysis will be run from the third quarter of 2013 to the fourth quarter of 2019, meaning data will be collected from a total of 25 quarters with quarter three of 2016 being the time of implementation. The variables of interest that will be used within the analysis are the variables: total quarterly wages, employment totals, and average weekly wage. The employers are not required to report average weekly hours worked, but the reported total quarterly earnings can be used to construct average weekly earnings by dividing by the total number of employees and then by 13, which indicates the number of weeks in a given quarter.

Relative changes to this constructed variable will then be interpreted as relative changes in weekly hours based on the lack of change in the average weekly earnings during this time period. (Hotchkiss and Li 2017).

County	Quarterly Establishments	July Employment	August Employment	September Employment	Total Quarterly Wages	Average Weekly Wage	September Employment Location Quotient	Total Quarterly Wages Location Quotient
	V A	V A	V A	V A	V A	V A	V A	V A
U.S. TOTAL	30,808	161,384	161,503	160,005	\$957,824,875	\$458	1.00	1.00
Pennsylvania	1,191	5,446	5,477	5,349	27,783,465	394	0.83	0.74
Adams County, Pennsylvania	6	44	43	41	191,958	346	1.06	1.11
Allegheny County, Pennsylvania	119	611	614	589	3,080,586	392	0.77	0.63
Armstrong County, Pennsylvania	11	45	45	44	205,343	354	2.43	2.62
Beaver County, Pennsylvania	19	95	98	95	521,199	418	1.62	1.78
Bedford County, Pennsylvania	6	23	20	25	81,408	276	1.45	1.18
Berks County, Pennsylvania	36	153	160	163	1,058,079	513	0.86	1.03
Blair County, Pennsylvania	13	72	75	74	363,135	379	1.16	1.28
Bradford County, Pennsylvania	6	34	33	35	142,146	322	1.39	1.09
Bucks County, Pennsylvania	37	215	218	210	1,237,522	444	0.72	0.77
Butler County, Pennsylvania	21	124	123	111	815,612	526	1.18	1.55
Cambria County, Pennsylvania	24	120	124	122	400,707	253	2.19	1.69
Carbon County, Pennsylvania	13	52	48	51	181,423	277	2.89	2.47
Centre County, Pennsylvania	8	76	78	83	549,826	535	1.09	1.30
Chester County, Pennsylvania	22	156	152	159	1,131,197	559	0.58	0.58
Clarion County, Pennsylvania	4	11	13	13	52,452	327	0.89	0.95
Clearfield County, Pennsylvania	11	72	69	67	390,022	433	2.04	2.71
Clinton County, Pennsylvania	5	15	15	15	75,177	386	1.03	1.16
Columbia County, Pennsylvania	11	43	36	42	138,226	264	1.53	1.19
Crawford County, Pennsylvania	9	31	34	33	124,368	293	0.99	0.84
Cumberland County, Pennsylvania	14	115	118	121	636,382	415	0.82	0.79
Dauphin County, Pennsylvania	22	159	155	154	784,459	387	0.76	0.66
Delaware County, Pennsylvania	50	142	150	145	710,118	375	0.59	0.47

Figure 2. Summary table of the QCEW dataset for a collection of counties in Pennsylvania (note this data is for 2019).

IV. Empirical Analysis

The structure of the analysis is a simple difference-in-difference approach that takes advantage of the fact that Act 39 in 2016 was a policy change that affected only a certain industry. The basic equation will be as follows:

$$Y_{it} = \alpha + \beta_1 Treat_i + \beta_2 Post_t + \beta_3 Treat_i Post_t + \varepsilon_{it}$$

The labor outcomes, denoted by Y , are the monthly employment in industry i , county c , and quarter t or weekly earnings with the same specifications. The outcomes for weekly earnings will then be modified to obtain our outcome of changes in weekly hours (see the data section for an explanation of the modification). As mentioned above, the treatment will be the beer, wine, and liquor industry, thus the variable ‘Treat’ in the regression will be a dummy variable equal to one if using the beer, wine, and liquor industry and zero if looking at the other non-retail industries. The ‘Post’ variable is a time indicator and dummy variable that is equal to one if within the post-period which is anytime after the fourth quarter of 2016 and zero if anytime within the pre-period. Epsilon is defined as the general error term. The ‘TreatPost’ variable is an interaction term between the post-period and treatment variable. Therefore, our coefficient of interest for analysis is the coefficient on the interaction term, β_3 , which will be interpreted as the difference in the average monthly employment (or weekly earnings) in the beer, wine, and liquor retail industry as compared to other non-retail industries in the pre versus post period, on average, holding all else equal.

The analysis will be constrained to include a total of 12 quarters of pre-treatment observations in each county to balance the 12 post-treatment periods. This will avoid complications from the 2008 Recession as well as the Covid-19 pandemic of 2020.

Assumptions

For this analysis to be valid and interpreted in the desired way, it must meet a few of the basic assumptions for a difference-in-difference estimation. For starters, there must be no pre-trends within the data, which would indicate that the change in the outcomes is not due to the legislation, but rather some outside factor that was already affecting the industry. To check this assumption, that analysis includes the 12 quarters of pre-treatment, which will be assessed to

ensure that the trends of the labor outcomes in the beer, wine, and liquor industries are similar to those in other industries. Similarly, there must be no differential trends between the treatment and control groups, meaning these two groups would have evolved similarly in the absence of the treatment (parallel trends assumption). To provide a check for this important assumption, the trends of both the treatment and control groups will be graphed and inspected for the trends in the post-period. It is also to be assumed that the composition of the treatment and control groups are fixed.

Robustness Tests

In this section, a variety of checks on the robustness of the results from the difference-in-difference analysis will be run. Each of these will work to eliminate possible sources of error and to verify the significance of the results.

Spillover (Border) Effects

The issue with spillover effects is that one might expect to see a larger change in the labor outcomes for counties that are on the border. These counties would expect a larger effect when they have a lower tax rate than the surrounding states and a smaller effect when the tax rate is relatively higher. Simply put, the idea behind this is that if the surrounding state still has Sunday restrictions in place or has a higher tax rate, then the consumer now has the opportunity or the choice to purchase from a close Pennsylvania county, increasing the scope of customers for these border counties. For states that still have the Sunday laws in place, the change in Pennsylvania could have siphoned off some of the other states' sales.

If this is true, it suggests that the overall consumption of beer, wine, and liquor did in fact increase and consumer behavior did change in response to the repeal of Sunday restrictions.

To put this into practice, the QCEW data will be used once again to obtain the same cross-sectional observations and variables, but only for the Pennsylvania counties which closely border Ohio, New Jersey, and Delaware. These are three states that had either a substantially higher or lower alcohol tax rate in 2016. Ohio has a much greater tax rate in comparison to Pennsylvania, while both New Jersey and Delaware are much lower, with Delaware being the least (Drenkard 2016). In addition, Ohio had the alcohol blue law still in place as of 2016 (Ohio Administrative Code 2016), while New Jersey had already repealed the laws (New York Times 1978), and Delaware is in between with a much shorter time frame allowed for alcohol purchases on Sunday (Delaware Code 2023).

Thus for this analysis, we will look exclusively at the results of the difference-in-difference for counties in Pennsylvania that closely border these surrounding states. These results will be compared to the non-border counties to estimate whether there is a difference in the results and an indication of border effects. This will lead us to an indication of the change in consumption, which would indicate a change in consumer behavior.

Balanced Panel

Within this analysis, there is a potential issue stemming from the unbalanced panel due to not all industries having observations in all of the quarters. To combat the potential bias created by the possibility of nonrandomness of the data that is missing, our analysis will be restricted to only counties that have observations for the beer, wine, and liquor retail industry across the entirety of the period. In addition, if an industry has observations within a county it must be observed for the whole duration in the country otherwise this industry will be dropped. The hope would be to obtain a similar baseline estimate here as with the original estimation without losing statistical significance.

Placebo Test

In a similar manner, I will utilize the fact that data from all states including those that closely border Pennsylvania can be obtained. The QCEW data will be revisited to obtain the same cross-sectional data, but for counties in Ohio and Maryland that are close to the Pennsylvania border. Ohio, as mentioned above, still had Sunday blue laws for alcohol in place during 2016 and Maryland had them in place for several counties (Hudes and Kaplow 2021). Therefore, the counties are limited to these two states that had the Sunday restriction in place and are considered border counties.

The placebo test is looking to verify the results in that we do not expect to find similar patterns in nearby areas that do not have a change in the blue law at the same time. The difference-in-difference will be run for these counties over the same timeframe and compare the differential changes in the labor outcomes to those from our original analysis.

V. Anticipated Results

Looking at the preliminary results from running the difference-in-difference approach, we can hold certain expectations on the outcomes based on the results found running a similar triple-difference in Georgia, the related literature on blue laws as well as basic economic theory. For starters, we would predict no change to the weekly earnings level as a result of the repeal of the blue laws. This will be skewed by the results from the liquor sector due to them operating in a quasi-monopoly, thus allowing them to act in the most profit-maximizing ways. I think the increase will be combated by the fact that the Georgia study found that retailers in the beer and wine industry were opening not to increase profits, but because of the perceived competitive pressures and worry about losing loyal customers. Thus, these two outcomes will be working in opposition and may negate each other. Similarly, I do not anticipate an increase in the level of

employment in the industry. Although the take-up of the hours for Sunday does increase the overall demand for work within the industry, the change is marginal at best and thus we would predict a new allocation of hours per worker instead of an increase in the actual level of employment. Stemming from this, hours would likely increase as there must be some portion of workers covering the extra Sunday shifts, which would lead to an overall shift in the average hours.

In terms of the results of the robustness tests, I first expect to find little to no change in the spillover estimation. I do not anticipate that these border counties are skewing the results in any significant way because the bordering states are not starkly different in the landscape of the beer, wine, and liquor industries. Although some of the states do still have blue laws in place during the time of the Pennsylvania legislation, it seems more likely that these customers are spreading out their consumption across other days rather than traveling to Pennsylvania. In addition, Pennsylvania maintains a relatively high tax rate, again disincentivizing consumers from traveling to the border counties in Pennsylvania. For the balanced panel, I expect that there will be a negligible change in the initial estimation because it is unlikely that the missing observations are nonrandom. Finally, for the placebo test, the results would likely find no differential trends for the other counties. This is because there should be nothing that is largely changing the alcohol industry at that time in these states as their blue laws are unaffected and the retail industry was not undergoing significant changes.

VI. Conclusions and Implications

In conclusion, restricting the beer, wine, and liquor retail sales in the state of Pennsylvania changed the labor outcomes within the industry. The changes are likely to be small but could make a world of difference for retailers like Braunfeld. In addition, we surely saw an

increased level of convenience for consumers, and in a society where ‘the customer is king,’ allowing people to find more ways to spread out consumption can go a long way. However, these changes are not without some caveats due to the related literature finding a possible correlation between blue law repeal and alcohol-related vehicle accidents. Thus, the question remains of how to weigh these two outcomes to best suit our current consumption climate.

In terms of future research, it would have been interesting to be able to separate out the effects of the liquor retail industry from the beer and wine retail industry due to the control-state status of Pennsylvania. There is a possibility that the beer and wine industries are still facing competitive pressures to stay open making it difficult for these small businesses to make a profit, while the liquor tycoon, that is the PLCB, is booming. Similarly, further investigating how blue laws are affecting other retail industries and including more recent repeals of the restrictions could help to verify and augment this work.

Regardless of whether these results are small in the grand scheme of the entire retail industry, it seems these restrictions were an outdated concept that has been left untouched since the times of Prohibition.

VII. References

“Blue Law.” Cornell Law School, June 2022. https://www.law.cornell.edu/wex/blue_law.

Bond, Michaelle. n.d. “Baseball Illegal on Sunday Afternoons? Pa. Legislators Target ‘Blue Laws’ and Other Outdated Rules.” <https://www.inquirer.com/news/pennsylvania-blue-laws-sunday-phillies-eagles-baseball-football-20190430.html>

“Blue Laws by State 2022.” n.d. [Worldpopulationreview.com](https://worldpopulationreview.com/state-rankings/blue-laws-by-state).
<https://worldpopulationreview.com/state-rankings/blue-laws-by-state>.

McMillan, G. P., & Lapham, S. (2006). Effectiveness of bans and laws in reducing traffic deaths: legalized Sunday packaged alcohol sales and alcohol-related traffic crashes and crash fatalities in New Mexico. *American journal of public health*, 96(11), 1944–1948.
<https://doi.org/10.2105/AJPH.2005.069153>

Lovenheim, Michael F., and Daniel P. Steefel. “Do Blue Laws Save Lives? The Effect of Sunday Alcohol Sales Bans on Fatal Vehicle Accidents.” *Journal of Policy Analysis and Management* 30, no. 4 (2011): 798–820. <http://www.jstor.org/stable/23019005>.

Gruber, Jonathan, and Daniel M. Hungerman. “The Church versus the Mall: What Happens When Religion Faces Increased Secular Competition?” *The Quarterly Journal of Economics* 123, no. 2 (2008): 831–62. <http://www.jstor.org/stable/25098916>.

"Braunfeld v. Brown." Oyez. Accessed May 1, 2023.
<https://www.oyez.org/cases/1960/67#:~:text=In%20a%206-to-3,totally%20free%20from%20government%20restrictions>.

Hotchkiss, Julie L., and Yanling Qi. “Impact of Allowing Sunday Alcohol Sales in Georgia on Employment and Hours.” *Southern Economic Journal* 84, no. 2 (2017): 504–24.
<https://www.jstor.org/stable/26633356>.

(2023). *The Pennsylvania Liquor Control Board* [Review of *The Pennsylvania Liquor Control Board*]. PLCB; NABCA. <https://www.nabca.org/sites/default/files/assets/files/PA.pdf>

(2016). *Summary of Act 39 of 2016* [Review of *Summary of Act 39 of 2016*]. Pennsylvania Liquor Control Board; PLCB. <https://www.lcb.pa.gov/Legal/Documents/003462.pdf>

(2016). *Liquor Control Board Details*. (n.d.). Pennsylvania Pressroom. Retrieved May 10, 2023, from <https://www.media.pa.gov/Pages/Liquor-Control-Board-Details.aspx?newsid=22>

Gleiter, S. (2020). *State of craft beer in Pa: How long before the suds explosion goes flat?*[Review of *State of craft beer in Pa: How long before the suds explosion goes flat?*]. Penn Live. <https://www.pennlive.com/life/2020/01/state-of-craft-beer-in-pa-how-long-before-the-suds-explosion-goes-flat.html>

Center for Workforce Information & Analysis. (n.d.). Center for Workforce Information & Analysis. <https://www.workstats.dli.pa.gov/Pages/default.aspx>

QCEW Data Views. (2018). Bls.gov. https://data.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables

QCEW Data Views. (2018). Bls.gov. https://data.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables

Difference-in-Differences. (n.d.). Diff.healthpolicydatascience.org. <https://diff.healthpolicydatascience.org/#assumptions>

Drenkard, S. (2016, June 2). *How High Are Taxes on Distilled Spirits in Your State? (2016)*. Tax Foundation. <https://taxfoundation.org/how-high-are-taxes-distilled-spirits-your-state-2016/>

Rule 4301:1-1-49 - Ohio Administrative Code | Ohio Laws. (n.d.). Codes.ohio.gov. Retrieved May 10, 2023, from <https://codes.ohio.gov/ohio-administrative-code/rule-4301:1-1-49>

Times, Martin Waldron. (1978, July 20). 'Blue Laws'. *The New York Times*. <https://www.nytimes.com/1978/07/20/archives/new-jersey-pages-blue-laws-and-how-they-got-that-way-news-analysis.html>

Delaware Legislature. (2023). *Delaware Code Online*. Delaware.gov. <https://delcode.delaware.gov/title4/c007/index.html>

Kaplow, N. H., Stuart. (2021, April 25). *Maryland Adopts New Alcoholic Beverage Laws in 2021*. Maryland Alcoholic Beverage Law. <https://www.marylandalcoholicbeveragelaw.com/2021/04/maryland-adopts-new-alcoholic-beverage-laws-in-2021/>