

# Local alcohol availability and public health: Evidence from Texas

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## 1 Introduction

This study delves into the relationship between local alcohol regulations and public health and safety outcomes such as traffic fatalities, crimes, alcohol-related morbidity, and neonatal health. The United States offers a distinct opportunity to study these effects due to the decentralization of alcohol sales regulations in the post-Prohibition era. This analysis specifically targets the impact of changes in alcohol availability on outcomes in Texas, drawing on data from local option elections that allow communities to shift from being ‘dry’ (restricted alcohol sales) to ‘wet’ (no restrictions).

In the past nine decades, decentralized alcohol policy changes in numerous Texas counties from dry to wet settings provide a unique policy experiment to examine how these changes in alcohol availability influence public safety and health outcomes. I use a novel dataset that includes detailed historical records from local-level referendum-style elections on alcohol availability in Texas, which spans over more than nine decades (1937-2020). These elections have allowed numerous counties to transition from being dry communities to liberalizing alcohol sales. This geographical variation is crucial as it offers a unique opportunity to examine the impact of alcohol policy changes on public safety, health, and crime outcomes in a way that is both comprehensive and representative of the population. Unlike alcohol regulations that affect only certain groups or time periods, such as minimum legal drinking age laws or Sunday sales bans, the geographic variation in alcohol policy affects entire communities, providing a more comprehensive view of the consequences of alcohol access.

## 2 Background

### 2.1 Access to alcohol, traffic fatalities, health outcomes and crime

The literature on the effects of alcohol policy on various outcomes is extensive and has employed a range of quasi-experimental methods to infer causal relationships. One significant area of research has focused on the minimum legal drinking age (MLDA). Studies like those by [Chalfin et al. \(2023\)](#), [Carpenter and Dobkin \(2015\)](#), and [Conover and Scrimgeour \(2013\)](#) have either utilized the sharp age discontinuity at the legal drinking age, or the increase in MLDA from 18 to 21, to explore its impact on health, traffic safety, and crime <sup>1</sup>. These studies often find significant impacts on alcohol consumption and related outcomes, such as an increase in traffic fatalities and injuries among young adults once they reach the legal drinking age. However, the scope of these findings is limited as they only pertain to a narrow age group, making it difficult to generalize to the broader population.

Another body of research has examined the effects of specific policy changes such as bans on Sunday alcohol sales. For example, [Yörük and Lee \(2018\)](#) and [Bernheim et al. \(2016\)](#) analyzed the impact of these bans on alcohol consumption and related health outcomes<sup>2</sup>. These studies generally found that banning alcohol sales on Sundays led to temporary reductions in alcohol consumption and traffic accidents. However, the effects were often short-lived and did not provide a comprehensive view of the impact of alcohol availability, as the bans only affected a single day of the week.

Geographic variation in alcohol policy, such as the transition from dry to wet counties, offers several advantages over the aforementioned policy changes. Firstly, it affects the entire population of a region, providing a more inclusive assessment of the impact of alcohol availability. Unlike the MLDA or Sunday sales bans, which only apply to specific groups or times, the geographic variation affects all residents within a jurisdiction, thereby offering a more extensive perspective on the public safety and health impacts of alcohol availability and consumption.

Another literature has utilized local-level policy changes to understand the impact of alcohol availability on various outcomes. For instance, [Brown et al. \(1996\)](#) examined the effects of local alcohol policy changes on traffic crashes and found varied results depending on the nature and

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<sup>1</sup>Also see [Crost and Rees \(2013\)](#), [Yörük and Yörük \(2011\)](#), [Fertig and Watson \(2009\)](#), [DiNardo and Lemieux \(2001\)](#).

<sup>2</sup>Also see [Carpenter and Eisenberg \(2009\)](#), [Heaton \(2012\)](#), [Stehr \(2010\)](#).

extent of the changes. Similarly, [Baughman et al. \(2001\)](#) found that local policy changes in dry counties had mixed impacts on traffic safety, with some regions experiencing increases in alcohol-related accidents while others saw no significant change. [Anderson et al. \(2018\)](#) investigated the impact of transitioning from dry to wet status in Kansas counties and found significant increases in both the number of alcohol outlets and instances of violent crime. Similarly, [Conlin et al. \(2005\)](#) examined the effects of alcohol policy changes in Texas and found that increased alcohol availability was associated with a reduction in drug-related crimes, suggesting a substitution effect between alcohol and illicit drugs. [Fernandez et al. \(2018\)](#) found that counties in Kentucky that transitioned from dry to wet experienced a substantial decrease in meth lab seizures, indicating a potential public health benefit of more liberal alcohol policies. This contrasts with mixed evidence from earlier studies on alcohol-related traffic crashes, which varied in their findings based on the context and specifics of the policy changes examined ([Baughman et al., 2001](#); [Brown et al., 1996](#)).

## **2.2 Dry communities and local options in the United States**

The impact of alcohol consumption on public health outcomes had always been a major bone of contention in U.S. history, reaching critical policy relevance with the enactment of the Prohibition period from 1920-1933, which resulted in a nationwide ban on the sale and manufacturing of alcohol. After the 21st Amendment ended the national prohibition, alcohol control and regulation reverted to individual states. Additionally, around that time, about half of the states introduced local option laws, which allowed cities, counties, and other local governments to set their own alcohol policies. This resulted in hundreds of dry communities across the United States, where the sales of alcohol were completely or partially banned. Most dry communities are located in the southern United States, the historical heartland of the temperance movement that instigated Prohibition. Examples of states that allowed local options on alcohol include Kansas, Kentucky, Texas, and Tennessee.

In the 21st century, there has been a shift away from dry communities towards less restrictive alcohol policy regimes. Numerous localities, even those with deep historical connections to alcohol prohibition, have changed their stance and permitted liquor sales through local options elections. Especially over the past two decades, regions across the United States with varied geography and populations have become more receptive to alcohol sales.

## 2.3 Local options elections in Texas

Texas has been a focal point for the movement away from dry jurisdictions. Over the past ten years, 22 counties and more than 200 cities and towns in the state, which were previously dry, have permitted some level of alcohol sales. There are various reasons why the modern trends have been towards liberalization of alcohol sales. Moral/religious objections to alcohol are on the wane, and restrictions on alcohol sales appear extremely out of place in the modern United States. The other motives are economic - dry jurisdictions do not want to forgo the tax revenues generated by the alcohol industry. As of 2023, only 5 counties are remaining which are completely dry.

In this study, I will focus on elections that occurred in the relatively recent period of 1997-2020. There were 1000+ local options elections throughout 1997-2020, as shown in Figure 2, with an overall win rate of 80%. There is a sharp rise in the number of elections post-2003, attributable to state legislation which substantially simplified the process of getting wet/dry election issues on the ballot <sup>3</sup>. The movement from dry to wet status is clearly illustrated in Figure 3, which shows the evolution of wet/dry status in Texas counties from 1997 to 2020.

However, it is important to note that elections can also occur in municipalities (cities/towns), and Justice of the peace Precincts<sup>4</sup>. Election issues can be specific to the type of alcoholic beverage (beer, wine, distilled spirits), and off-premise vs on-premise consumption. This results in a complex patchwork of alcohol regulation that varies both geographically and in terms of intensity. Table 1 summarizes the number of elections and status changes that happen from 1997-2020. In this period, elections take place either at the city/precinct/county level in 184 out of 254 counties in Texas.

## 3 Empirical Strategy

My objective is to estimate the effect of local alcohol availability on the public safety (traffic crashes and fatalities/ crime) and health outcomes (alcohol-related morbidity and hospitalizations, neonatal health). To illustrate my empirical, I will use the example of traffic crashes. There are two possible mechanisms whereby the alcohol availability can influence traffic crashes. First, if the increase in

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<sup>3</sup>House Bill 1199, 78th session of the Texas Legislature, 2003

<sup>4</sup>Justice of the Peace Precincts are similar to county subdivisions in Texas.

Figure 1: Number of local options elections per year

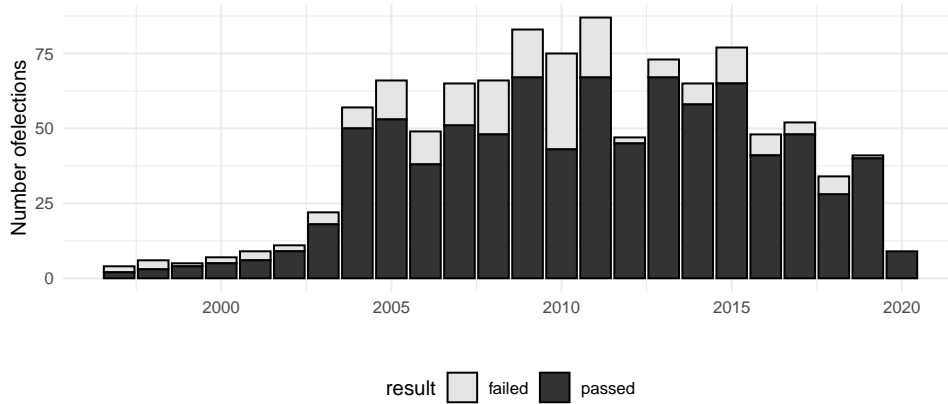
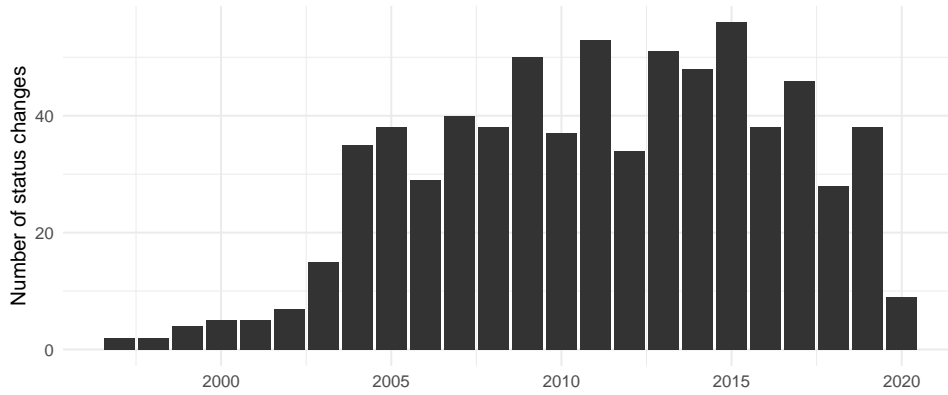


Figure 2: Number of status changes per year

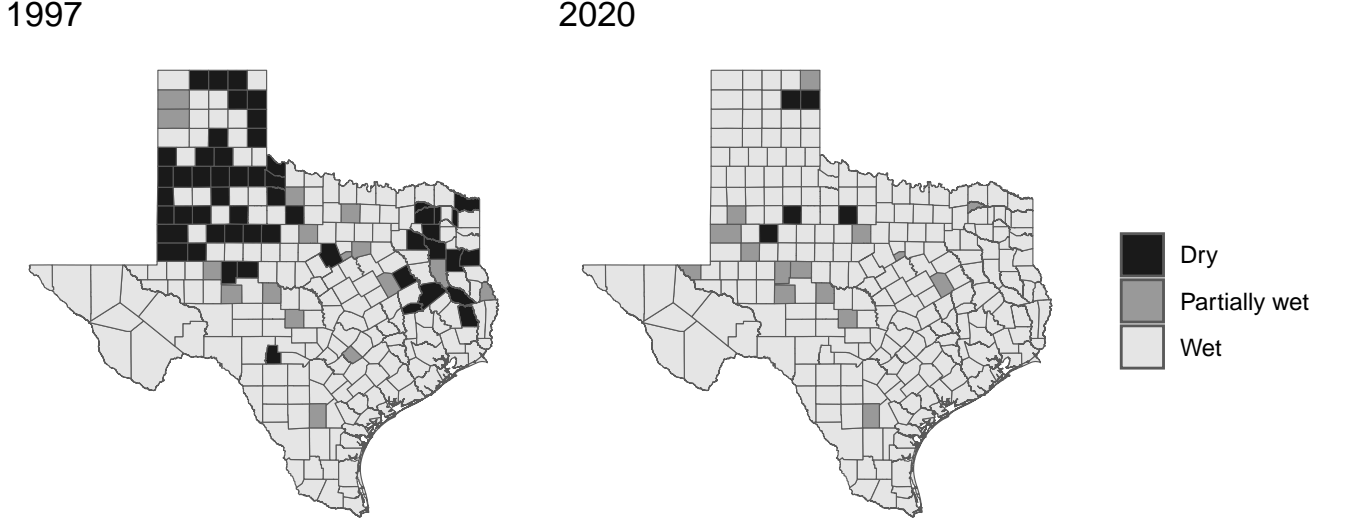


*Note:* Many jurisdictions vote on multiple issues at the same time – for example “for the sale of beer and wine for off-premises consumption” and “for the sale of mixed beverages in restaurants with food and beverage certificates”. I treat multiple elections in a jurisdiction on the same date as a single status change. This is referred to as a unique status change in Table 1.

Table 1: Summary of Elections and Status Changes, 1997-2020

Description	N
Total elections	1,061
Successful elections (passed)	865
<b>Unique status changes</b>	<b>709</b>
<i>Geographic Breakdown</i>	
City-level status changes	556
County-level status changes	44
Precinct-level status changes	109
<i>Type of Change</i>	
Dry to wet	365
Wet to More Wet	338
Wet to Dry	3

Figure 3: Wet/Dry map of Texas Counties, 1997 and 2020



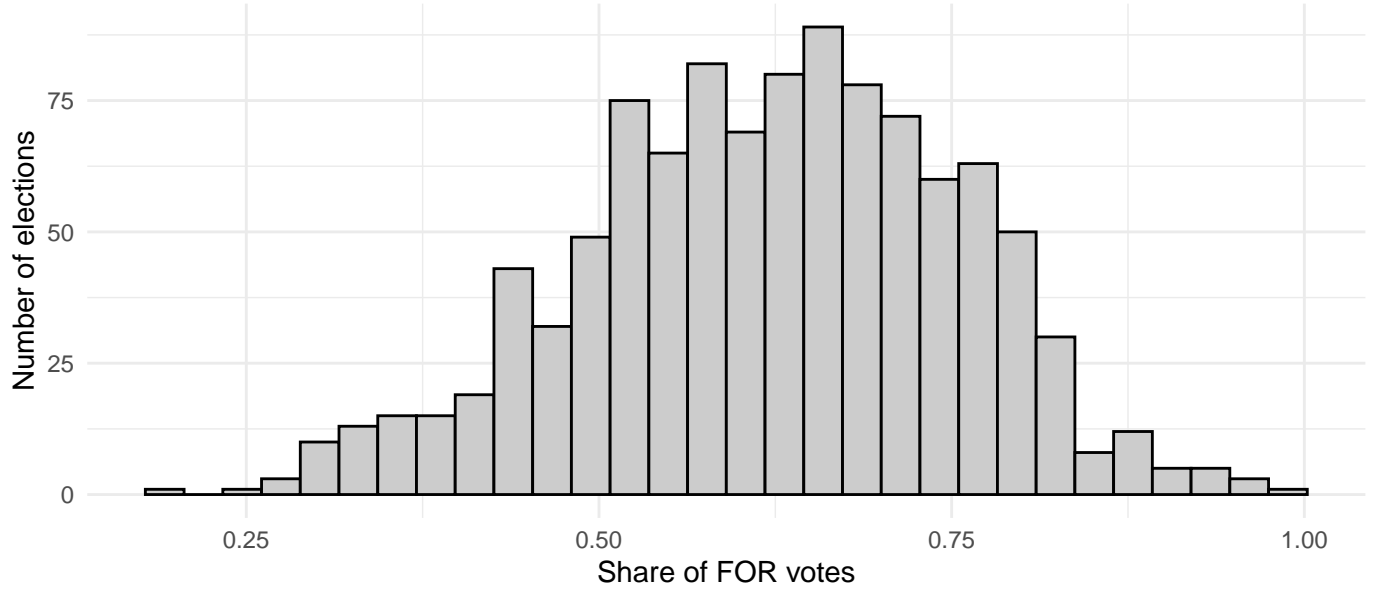
availability also increases consumption of alcohol, this can lead to an increase in the incidence of drunk driving. Instead, if the liberalization of alcohol sales in formerly dry counties simply means that residents have to drive less in order to buy alcohol (that they were buying anyway), we can expect the number of traffic fatalities to go down. It is also important to note that there are spatial spillovers of the treatment status of a region. For example, an area that becomes wet in a cluster of dry communities causes spillover effects in surrounding. For this analysis, I am ignoring any spillover effects and complex within-county status changes. By using a staggered difference in difference approach, I can identify the effect of dry/wet status changes on traffic crashes. Essentially, I would be estimating group-time average treatment effects of the form

$$ATT(g, t) = \mathbb{E}[Y_t(g) - Y_t(0)|G = g, X]$$

where  $Y_t(g)$  is the outcome of interest (traffic crashes) in year  $t$  for a municipalities that gets treated in year  $g$ , and  $Y_t(0)$  is the outcome in year  $t$  for the control municipalities.

My second empirical strategy hinges on leveraging close elections to identify the effect of a dry-to-wet status change through a regression discontinuity design. Using a vote-share RD strategy can allow me to address the endogeneity of these wet/dry status changes. Figure 4 shows the

Figure 4: Distribution of FOR vote shares, ALL elections (1997-2020)



distribution of FOR vote shares in elections from 1997-2020. Note that a FOR vote signifies voting in favor of a less restrictive, more wet regime. By restricting my attention to only elections within a narrow bandwidth of the 50% FOR vote share, I can rule out other underlying conditions that led the municipality to undergo the election in the first place.

## 4 Plan of research

The objective of this research is to comprehensively analyze the impact of alcohol availability on various public safety and health indicators. To achieve this, I will need to build a robust dataset that combines historical records of local option elections with detailed administrative data on public health, safety, and economic indicators. The plan of research includes digitizing historical records, collecting restricted administrative data, and addressing any issues related to data quality.

- Digitizing records from 1937-96: Records of elections before 1997 are currently available as scanned images. I plan to digitize and convert them to a format suitable for analysis.
- Collecting data from additional data sources:
  - Administrative data on liquor licenses: This data will be obtained from the Texas Al-

coholic Beverages Commission, providing insights into the number and distribution of alcohol-selling establishments across different counties.

- Administrative data on traffic fatalities: Fatality Analysis Reporting System (FARS) provides microdata on the census of all traffic fatalities from 1975 onward.
- Vital statistics (U.S.): Microdata on all births and deaths in the United States. I am currently in the process of obtaining restricted geo-identified vital statistics data for the state of Texas.
- Uniform Crime Reporting (UCR) data: Provides county-level crime statistics. However, there are known issues with the county-level data from UCR that need to be addressed.

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