The Effects of Alcohol Sale Bans on Children: The Case of Russia

Margarita Petrusevich*

Alcohol control policies are implemented to reduce alcoholism and related harms around the globe. This work examines the effects of a policy that restricted when alcohol could be purchased on child outcomes in Russia. To identify causal impacts, I exploit variation in the timing and severity of the restriction, which was implemented in Russian states between 2005 and 2010. Utilizing household survey data and a difference-in-differences estimation approach, I find that the policy has improved children's physical health, with younger children being more affected, and additionally has decreased a variety of risky behavior indicators. Potential mechanisms for these effects include alcohol consumption, parental employment, household income, family stability, and time use. This work demonstrates that policies controlling parental substance access can have important effects on child health.

Keywords: Alcohol Consumption, Child Health, Russia, Alcohol Sale Bans, Youth Risk Behavior, State Alcohol Policy, Temporal Alcohol Sale Restrictions
JEL Codes: I12, I18, H75

* University of Texas at Austin (email: margarita_petrusevich@utexas.edu). I am grateful to the Editor, Christopher Carpenter, and two anonymous referees for constructive and insightful comments on the paper. I thank Manuela Angelucci, Marika Cabral, Eric Chyn, Mary Evans, Michael Geruso, Leigh Linden, Richard Murphy and Stephen Trejo for helpful comments and suggestions. Comments from participants at UT Austin seminars are gratefully acknowledged.

Not only does excessive alcohol consumption lead to approximately 3 million deaths per year and causes more than 5% of the global disease burden (World Health Organization, 2018*b*), but it also has many externalities on society. Excessive drinking has been associated with violent crimes, injury deaths, traffic accidents, public costs of policing, and health care (Bouchery et al., 2011; Navarro et al., 2011). In addition to the externalities on the societal level, there are indirect economic costs of alcoholism on the individual level, such as the costs that one individual's drinking inflicts upon other members of their family. To tackle alcohol-related harms, countries across the globe implement alcohol control policies.[1] These vary from regulating access to alcohol (e.g., age restrictions, hours of sale) and alcohol sale locations (e.g., public events, on- versus off-premise outlets) to regulation via pricing and alcohol taxation strategies.[2]

This paper focuses exclusively on one type of alcohol control policy: temporal access. It has two goals: (1) to study the effects of the policy on child outcomes during childhood (specifically physical health, prevalence of risky behaviors, life satisfaction, and educational progression) and (2) explore the potential channels of these effects: as arising from a reduction in the *child personal drinking* channel, consisting of children and especially teenagers themselves drinking less, versus the *parent drinking reduction* channel, consisting of parents drinking less and other associated mechanisms (e.g., increased household income or greater family stability).

To accomplish the first goal, I focus on the policy implemented in Russian states from 2005-2010. This policy decreased the availability of alcohol by restricting the hours when alcohol sales were allowed. Notably, the policy was introduced on different dates in different treatment states. This staggered adoption generated geographic and temporal variations in alcohol availability and, consequently, child outcomes. Since I am interested in estimating the dynamic effect of alcohol sales restrictions over time, I employ an estimator that accounts for potential biases that may arise when treatment

[1] For a more detailed discussion, see the review of recent studies on the effectiveness of alcohol control measures on a societal level by Burton et al. (2017) and Siegfried & Parry (2019).

[2] There exists extensive research on the impacts of minimum legal drinking age, underage drunk driving laws, and alcohol taxes on alcohol consumption and related harms. See, for example, Ahammer et al. (2022); Carpenter (2005); Carpenter et al. (2007); Carpenter & Eisenberg (2009); Carpenter & Dobkin (2011); Carpenter (2014); Carpenter & Dobkin (2017); Conover & Scrimgeour (2013); Cook (1998); Dee (1999); Grossman et al. (1993); Hansen & Waddell (2018); Johansson et al. (2014); Lovenheim & Slemrod (2010); Ruhm (1996); Wagenaar & Toomey (2002); Wagenaar et al. (2010); Young & Bielinska-Kwapisz (2006); Yörük (2014).

effects vary over time (Sun & Abraham, 2021). In addition, the Russian setting is relevant for this study, because of relatively high absolute levels of drinking and the prevalence of heavy episodic drinking. Indeed, the prevalence of heavy episodic drinking in Russia was 60.6% among drinkers aged 15 years and older in 2016 (World Health Organization, 2018*b*).[3]

Using household survey data from 1994 to 2010, this paper analyzes the effects of the policy on a range of child outcomes. I find a positive effect of the policy on physical health measures and somewhat significant reductions in child risky behaviors (as proxied by alcohol intake and teen pregnancies), while there is no evident effect on child well-being and school progression. Children below age 12 benefit more from the policy in terms of health improvement than their older counterparts. This potentially reflects that younger children are more sensitive to the household environment and parental behaviors (Heckman, 2007).

Given that I only find a marginally significant reduction in teenage personal alcohol consumption, I provide evidence on an alternative pathway: reduced parental drinking and associated mechanisms, which may lead to observed changes in child outcomes. There is a substantial reduction in alcohol intake (13%) following the adoption of the policy in treated states compared to control states. The effect sizes for fathers are larger in absolute terms which is not surprising given that fathers are generally more susceptible to drinking. Interestingly, the policy only affects males' alcohol consumption at the higher values of the alcohol consumption distribution, exceeding the threshold for extreme binge drinking of 120 grams of pure alcohol.

In addition, I study household and parental outcomes that could be affected by reduced parental consumption and can in turn influence child outcomes: real household income, parental employment, salaries, and family stability.[4] The policy positively impacts household income primarily through increased maternal labor force participation and earnings, while household expenditures for food, child education, and healthcare remain largely unaffected. The sole category of expenditures impacted

[3]Heavy episodic drinking is defined as consuming at least 60 grams or more of pure alcohol on at least one occasion in the past 30 days. In comparison, in the US, it was 36.4% among drinkers aged 15 years and older for 2016, while the worldwide average was 40% (World Health Organization, 2018*b*).

[4]While there are several possible mediating factors, the data does not provide sufficient power to distinguish between them.

by the policy is alcohol expenditures, experiencing a roughly 10% decrease in the post-period, which broadly aligns with the change observed in alcohol consumption.

To further investigate the effects of the policy on household environment and parental behavior, I consider its impact on family stability. Specifically, family stability is estimated to increase by 2.7% in states with restrictions compared to those without. This increase is primarily driven by a decrease in parent divorce rates. Such stability is crucial as households with two married parents often provide economic advantages to children that positively impact longer-term children's behavioral and educational outcomes (Kearney & Levine, 2017; Kearney, 2022). Additionally, there is suggestive evidence of increase in time spent on homemaking tasks and childcare.

This paper makes several contributions. First, by providing novel evidence of the impacts of time-restricted alcohol sales in Russia, I contribute to a broader literature that explores the effects of policies targeting temporal alcohol access on alcohol consumption and related harms (traffic fatalities, hospitalizations, and crime).[5] Many of these studies focus on restricting alcohol sales on specific days, such as "Sunday liquor laws" (Bernheim et al., 2016; Heaton, 2012; McMillan & Lapham, 2006). Others explore the impacts of changes in the hours during which alcohol can be legally bought or consumed (Green et al., 2014; Green & Krehic, 2022; Martin Bassols & Vall Castello, 2018; Tesch & Hohendorf, 2018). These studies generally focus on the impacts of restrictions on alcohol access on adult outcomes while my primary interest is on understanding how these policies impact children. Other studies on the impact of alcohol control policies on child outcomes concentrate on more severe policy measures, such as the minimum drinking age, drunk driving laws, and alcohol taxes, and focus on child personal consumption as the main channel of policies effects.[6]

To my knowledge, the few studies (Marcus & Siedler, 2015; Bäuml et al., 2023) on

[5] See reviews by Stockwell & Chikritzhs (2009), Sanchez-Ramirez & Voaklander (2018)and Wilkinson et al. (2016), along with individual studies such as Duailibi et al. (2007), Hahn et al. (2010), McMillan & Lapham (2006), Rossow & Norström (2012), Norström & Skog (2005), Stehr (2007), Popova et al. (2009), Vingilis et al. (2005), Vingilis et al. (2007).

[6] The findings of this strand of literature include finding that reaching MLDA leads to a substantial increase in frequency and drinking intensity (Ahammer et al., 2022), alcohol-related hospitalizations (Conover & Scrimgeour, 2013) and criminal engagement (Dehos, 2022). False ID laws significantly reduce underage drinking (Yörük, 2014). Further, underage drunk driving laws have been shown to reduce risky sexual behaviors and STDs among youths (Carpenter, 2005), and beer taxes can have statistically significant negative effects on teen abortions (Sen, 2003). However, there is no statistically significant effect of child personal alcohol consumption on educational attainment (Dee & Evans, 2003).

child outcomes come from a German context. These studies find that time-restricted sales reduced hospitalizations and alcohol-related doctor visits for adolescents. However, it is relevant to explore beyond hospitalizations and doctor visits to provide a more comprehensive understanding of the consequences of late-night alcohol restrictions. This includes examining less severe health outcomes and effects beyond the health sector, which is precisely the focus of this work. Additionally, by including all child age groups, not just adolescents, this research reveals broader health impacts, particularly among younger children, whose greater sensitivity to household environments underscores the potential long-term implications of alcohol policies on their well-being and future outcomes.

Secondly, this work also relates to the literature on the spillover effects on child outcomes of policies that target adult substance use and abuse (Adda & Cornaglia, 2010; Cunningham & Finlay, 2013; Markowitz et al., 2014; Evans et al., 2022).[7] Previous research identifies the broader impacts of substance control policies for children but is limited in their exploration of the specific mechanisms that underlie their results. In contrast, my analysis identifies changes in parental alcohol consumption and associated risky behaviors, improvements in household stability and resources, and enhancements in parental care-giving capacities as likely mechanisms.

Beyond just the impact on children, this study also provides important policy insights on how time-restricted alcohol sales can shape adult behavior, in the context of Russia, a developing country.[8] While existing research predominantly focuses on

[7]For example, Adda & Cornaglia (2010) evaluate the effect of public smoking bans and find unintended negative consequences for children due to displacing smokers to private places where they expose nonsmokers to secondhand smoke. Cunningham & Finlay (2013) found that reducing access to methamphetamine reduced foster care admissions. More recently, Evans et al. (2022) examined how the unintended consequences of interventions designed to curtail prescription opioid misuse adversely impacted children via increased maltreatment.

[8]In a Russian context this study expands on the literature analyzing the effects of alcohol sales hour restrictions by utilizing a causal approach. Specifically, it differs from prior work on this policy by utilizing the time and spatial variation of selling hour restrictions across Russian states to provide more credible causal evidence on the effects of the policy. Prior research on this policy was, for the most part, correlational. Previous papers show the negative association of the policy with state-level alcohol sales and individual-level consumption (Kolosnitsyna et al., 2014), juvenile and adult crime rates (Kolosnitsyna et al., 2017) as well as alcohol-related mortality from cardiovascular diseases, alcohol poisonings and injuries (Neufeld & Rehm, 2013). The only study using a quasi-experimental design and a Russian setting, (Skorobogatov, 2014), employs a difference-in-difference approach and shares the dataset used in this study to assess the impact of hour restriction policies on alcohol consumption. However, the choice of control and treatment groups seems problematic. Specifically, the author uses the time variation of the restriction being introduced, and the differential response to the policy when applied to unemployed respondents (treatment group) and employed respondents (control group). However, it has been shown in earlier research that employment status is endogenous to alcohol consumption (Barrett, 2002; MacDonald & Shields, 2004), potentially compromising

developed countries, this study contributes to the literature by examining alcohol trading restrictions in a different socio-economic setting. Findings on the effectiveness of alcohol restriction to reduce alcohol consumption and sales in developed countries varied across settings with some studies finding no change on population drinking rates (Knight & Wilson, 1980; Hoadley et al., 1984; Carpenter et al., 2007), while others finding significant changes.[9][10] Compared to studies in developed countries, I find that restriction introduction has a relatively larger effect on alcohol consumption in Russia, likely due to several contributing factors. In Russia, drinking is socially accepted, and alcohol is readily available and relatively inexpensive compared to developed nations. The purchasing-power-adjusted price of alcoholic beverages in Russia is 32.2% below the global average, making it one of the lowest in the world (World Bank, 2011). Additionally, Russia is renowned for its high levels of alcohol consumption, ranking fourth globally in per capita alcohol consumption (World Health Organization, 2010). Furthermore, compared to developed countries, Russia has limited additional regulations in place to moderate alcohol consumption, such as the absence of minimum pricing policies, high alcohol excise taxes, and restrictions on the availability of high-strength alcohol. As a result, late-night sales restrictions have potential to become a more substantial intervention in shaping drinking behavior.

1. Background

Russia is known for having a 'legendarily high' alcohol consumption (Baltagi & Geishecker, 2006). Indeed, the World Health Organization estimates that the average consumption of pure alcohol was 15.8 liters a year per capita among the population aged 15 years and older in 2010 (World Health Organization, 2018*b*). At the beginning of the nineties, when the USSR dissolved, the state monopoly on alcohol production and trade was abolished. This led to alcohol, particularly strong spirits,

the validity of the (Skorobogatov, 2014) study control and treatment group composition.

[9] For instance, Norström & Skog (2005) found that the Saturday opening of retail alcohol shops in Sweden was associated with 4% increase in alcohol sales and 12% increase in drunk driving. Stehr (2007) found that Sunday sales-ban repeals increased overall alcohol sales between 2.5% to 4%. d'Abbs et al. (2000) and Gray et al. (1998) examined effect of on-premise reduced trading hours on alcohol sales in Australia and found a reduction in alcohol sales and consumption levels.

[10] Overall, the reviews generally agree that restrictions on alcohol trading hours have the potential to mitigate alcohol-related harm, but their effectiveness varies depending on the outcomes studied, policy design and specific circumstances. See reviews by Stockwell & Chikritzhs (2009), Sanchez-Ramirez & Voaklander (2018) and Wilkinson et al. (2016).

becoming available as never before. As a consequence, alcohol consumption and related mortality substantially increased during the post-Soviet period (Denisova, 2010; Bhattacharya et al., 2013). To address these detrimental consequences, one of the measures undertaken by the government was to reduce alcohol availability by imposing time restrictions on night sales. Starting in 2005, the Federal government allowed state authorities to establish time restrictions on night sales of alcoholic beverages at off-premise outlets (e.g., supermarkets, kiosks, liquor stores, gas stations). Before this policy it was possible in theory to buy alcoholic drinks 24 hours per day at off-premise locations. Since the restrictions applied only to off-premise locations, restaurants, bars, and other on-premise locations were not influenced. Compliance with this policy was high, enforced using high fines up to 100000 roubles,[11] along with the confiscation of alcohol-containing products.[12]

Table 1—Timing of adoption and duration of time restriction in states

State	Hours of restriction	Year of adoption	State	Hours of restriction	Year of adoption
Altai Republic	12 a.m.–7 a.m.	2010	Penza Region	11 p.m.–6 a.m.	2010
Amur Region	11 p.m.–8 a.m.	2006	Perm Territory	11 p.m.–8 a.m.	2008
Chelyabinsk Region	11 p.m.–7 a.m.	2005	Primorsky Territory	10 p.m.–9 a.m.	2009
Chuvashi Republic	11 p.m.–7 a.m.	2007	Rostov Region	11 p.m.–7 a.m.	2005
Kabardino-Balkarian Republic	10 p.m.–10 a.m.	2010	Saratov Region	12 a.m.–6 a.m.	2008
Kaluga Region	11 p.m.–8 a.m.	2006	Smolensk Region	no restriction	no restriction
Komi Republic	11 p.m.–8 a.m.	2007	Stavropol Territory	10 p.m.–9 a.m.	2007
Krasnodar Territory	10 p.m.–11 a.m.	2007	Tambov Region	11 p.m.–8 a.m.	2009
Krasnoyarsk Territory	no restriction	no restriction	Tatarstan Republic	10 p.m.–10 a.m.	2010
Kurgan Region	no restriction	no restriction	The City of Moscow	10 p.m.–10 a.m.	2006
Leningrad Region	11 p.m.–7 a.m.	2006	The City of Sankt-Petersburg	11 p.m.–7 a.m.	2006
Lipetzk Region	11 p.m.–8 a.m.	2005	Tomsk Region	11 p.m.–8 a.m.	2006
Moscow Region	9 p.m.–11 a.m.	2006	Tver Region	9 p.m.–10 a.m.	2010
Nizhni Novgorod Region	10 p.m.–8 a.m.	2006	Tula Region	11 p.m.–7 a.m.	2006
Novosibirsk Region	11 p.m.–8 a.m.	2006	Udmurtian Republic	11 p.m.–7 a.m.	2009
Orenburg Region	10 p.m.–10 a.m.	2010	Volgograd Region	11 p.m.–8 a.m.	2006

Note: This table shows the timing of adoption and duration of time restrictions on alcohol sales in states of the Russian Federation, 2005-2010.
Source: data from collection of local legal acts Consultant Plus (2021).

In general, it is still possible for consumers to legally avoid the restriction by buying the alcohol before the hourly restriction (starting time varies from 9 pm to 12 am depending on the state). The main reason the restriction can still be effective is that it prevents the spontaneous purchase of alcoholic beverages at off-premise locations. It makes it harder to access alcohol drinks in situations where those who have already

[11] This is approximately five times higher than the average monthly nominal wage in 2010 (Rosstat, 2021) or 3300 USD using the exchange rate of 1 USD=30.6 RUB from the end of 2010.

[12] Although specific statistics on the enforcement of alcohol trading hours are unavailable, overall data on alcohol-related infringements suggest significant enforcement efforts. From 2005 to 2010, approximately 1,777,000 administrative offenses related to alcohol were recorded, indicating active enforcement (Rosstat, 2010).

begun consuming alcohol might otherwise keep on doing so (Cawley & Ruhm, 2011; Xu & Chaloupka, 2011). A potential alternative mechanism through which this policy affects consumption is that it acts as a commitment device for individuals whose preferences are time-inconsistent (Bryan et al., 2010; Hinnosaar, 2016). Specifically, in the morning hours, individuals can decide to consume less or no alcohol that evening, but later at night change their mind and decide to buy alcohol. From this standpoint, the policy might be effective in reducing binge drinking, as it controls access to alcohol at night, which is when most of the excessive drinking happens.[13]

An additional reason is that people mostly drink at home, rather than in bars, in Russia, as alcohol in bars is more expensive (Public Opinion Fund, 2014).[14] Therefore, the newly imposed restrictions targeted at off-premise outlets make alcohol less likely to be available for drinking at home. Finally, one more supportive piece of evidence is found in the economic psychology literature. The cross-country study conducted by Wang et al. (2016) has identified that the Russian population has one of the highest individual discount rates both in the short and the long run in the sample of 53 counties used.[15] At the same time, Kossova et al. (2017) have identified a positive association between the individual discount rate and consumption of alcoholic beverages for both women and men in Russia. Intuitively, this means that impatient individuals with a higher personal discount rate are not willing to delay the utility from drinking alcohol to future periods.

Looking at the implementation details of the alcohol sale ban in Russia, the restrictions varied significantly across the country in their timing and relative severity. Figure 1 summarizes the timing details, while Table 1 contains more detailed information on the policy variation across states. The adoption of the regulation was staggered. Depending on a state, the duration of restriction varied from 6 to 14 hours per day, and the most widely applied restriction was 9 hours. Importantly, state-level

[13] To empirically support this explanation, I will test two implications of it. Specifically, Section 4.4 provides the regression results on the policy's ability to reduce the prevalence of heavy drinking and compares the efficiency of morning and evening hour restrictions.

[14] Furthermore, anecdotal evidence from the RLMS survey indicates that approximately 96% of people who drink do so at their own or friends' homes. Additionally, a majority of individuals (approximately 67%) report drinking exclusively at their own or friends' homes.

[15] For instance, a 10-year individual discount rate is estimated to be 0.52, which is comparable to other counties in Eastern Europe (e.g., Estonia (0.58), Greece (0.58), Moldova (0.45), Romania (0.68)) but is much higher as compared to Germanic-Nordic and Anglo-American countries (Wang et al., 2016).

variations in alcohol laws persisted until 2011, when a Federal policy (Federal Law N 218-ФЗ, 2011) was implemented prohibiting the retail sale of alcoholic beverages from 11:00 PM to 8:00 AM local time (Consultant Plus, 2021). This policy effectively banned nighttime alcohol sales nationwide, superseding local regulations.[16]

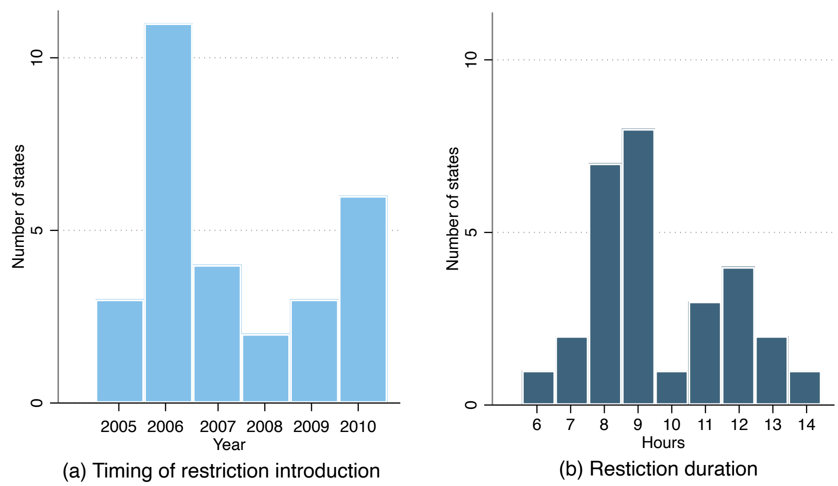


Figure 1. Variation in the timing of policy adoption and duration of restriction.

Note: Panel (a) shows the timing of the introduction of night sale hour restrictions across Russian states and the number of states that have implemented the restriction in the corresponding year. Panel (b) shows the distribution of hour restriction duration among implementing states.

The advantage of the Russian setting for analyzing the policy's effect is that it is clean: most alcohol market regulations are Federal laws and are implemented on a nationwide level, so they do not represent a threat to identification.[17] However, some relevant policies differ between states and over time. They include the imposition of stricter technical and licensing requirements for alcohol producers, restrictions on the location of liquor stores, and mandatory requirements of cash registers for retailers.

[16]Consequently, all states became treated after 2010. Since there were no longer any "never-treated" units after 2010, the treatment effects cannot be identified using the Sun & Abraham (2021) approach. Thus, I only include data up to 2010.

[17]Federal regulations include consumer age limits, excise taxes, maximum blood alcohol content requirements for driving, and bans on alcohol advertising on television.

They started to be implemented in 1994 when states gained more independence in setting their own alcohol market policy (Yakovlev, 2018). To take into account that these policies could potentially represent confounding factors for the identification of the effect of the night sales ban, I am including a set of dummy variables capturing their effect in all my regression specifications.[18]

To understand how alcohol-restricted time policies affect children's drinking habits, it is important to note that the minimum legal drinking age, established by Federal Law N 171-ФЗ (1995) is 18 years old (Consultant Plus, 2021). If a seller doubts whether a buyer meets the legal drinking age, they are required to verify the buyer's age. Violations of this law result in fines for the seller, and repeat offenders risk having their alcohol-sales license revoked. Moreover, there are penalties for parents and adults who purchase alcohol for individuals below the age of 18 as established by Federal Law N 156-ФЗ (2005) (Consultant Plus, 2021). The extent to which these regulations are enforced is unclear. Data from the RLMS survey indicate that the median age for children to start drinking is 16 years old. Furthermore, approximately 43% of underage drinkers report access to places where they can consistently purchase alcoholic beverages during the daytime.[19]

2. Data

1. Individual level data

The main data source for this study is the Russian Longitudinal Monitoring Survey (RLMS).[20] The survey design features repeated sampling with a split-panel component to achieve national representativeness. Specifically, the sample frame is based on dwellings. During each round, interviewers, in both urban and rural areas, attempt to conduct interviews in the same dwellings that have been chosen randomly for the first round. They return to these same dwellings, even if the household has refused to participate during previous rounds, or if the household they interviewed in previous

[18]In addition, in the robustness Section 4.5, I will also restrict my analysis time span to a period where these policies did not change in any state (2002-2010).

[19]The RLMS survey indicates that approximately 68% of children who drink do so exclusively at their own or friends' homes, or outdoors.

[20]Official source name: "Russia Longitudinal Monitoring Survey, RLMS-HSE," conducted by Higher School of Economics and ZAO "Demoscope" together with Carolina Population Center, University of North Carolina at Chapel Hill, and the Institute of Sociology RAS. (RLMS-HSE websites: https://www.cpc.unc.edu/projects/rlms-hse, http://www.hse.ru/org/hse/rlms).

rounds has moved to a new dwelling before the interview. This way, the survey design ensures the sample is not decreasing with time, since people moving out are substituted with new people moving into the same set of chosen dwellings. Further, to keep the sample broadly statistically representative, replenishments and expansions of the sample were conducted in years: 2000, 2003, 2006, 2010. The people in the sample have characteristics that are close to those of people in the nearest date census as shown by Kozyreva et al. (2016).[21] For the purpose of this study, I use the cross-sectional component of the survey[22] which includes the people that reside at the addresses of the 1994 sample and addresses of replenishments.

This study utilizes rounds 5 through 19 (Phase II) of the RLMS over a time period from 1994 to 2010.[23] My primary population of interest is children aged 18 years or younger, who have at least one biological or foster parent in the household. I choose the threshold of 18 years, because after this age children often migrate to get higher education and are less likely to be found within the household (Francesconi et al., 2019). I use the family roster to match children with their parents. The individuals in the sample reside in 32 states across 7 federal districts of the Russian Federation. Summary statistics for the main variables are presented in Table A1. The measures of child physical health include self-evaluated health status (on average 3.67 out of 5 points)[24] and the probability of not reporting any health issues last month (0.635 on average).[25] Both outcome measures are available for children of all ages. Teen

[21] The multivariate distribution of the sample by sex, age, education, ethnic composition, and urban-rural location compares well with the corresponding multivariate distributions of the nearest census data (Kozyreva et al., 2016).

[22] For instance, it is similar to how most of the researchers use CPS, which is one of the leading examples of rotating panels. Due to the 4-8-4 sampling pattern, individuals in the CPS show up a total of eight times over a 16 months. Despite this panel element of the CPS, most researchers use the survey as a repeated cross-section (Kleven, 2019).

[23] The data for 1997 and 1999 is not available as the survey was not conducted in these years due to funding reasons. Further, I do not use data on rounds 1 through 4 (Phase I) because they were done by another institution, employ a different methodology, and are generally found to be of worse quality (Kozyreva et al., 2016). Finally, I only include data up to the year 2010 in my analysis, because all states became treated after 2011 Federal Law adoption. Since there were no longer any "never-treated" units after 2010, the treatment effects cannot be identified using the SA approach.

[24] Health status is an ordinal measure that varies from 1 ("very bad") to 5 ("very good"). I standardize this measure in the empirical analysis.

[25] The probability of health issues includes headache, sore throat or toothache, runny nose or slight indigestion, slight fever or burns, bruises, abrasions, feeling nervous. To validate the measure from the RLMS-HSE survey, I compare it to the similar measure found in Health Behavior in School-aged Children study (HBSC) (World Health Organization, 2008). Specifically, for the HBSC study conducted in 2005-2006, the WHO indicator for Russia was 0.655, while the measure from RLMS-HSE was 0.646 for the same age group and same period. Results were also similar for other eastern European countries (e.g., Croatia (0.684), Czech Republic (0.657), Latvia (0.647), Poland (0.647).)

pregnancies and alcohol consumption are used to measure the prevalence of risky behaviors, while self-reported life satisfaction is used to measure a child's well-being. The survey provides information on these outcomes for children from ages 14 to 18. I also focus on short-term measures of educational progression, proxied by the indicator variable of being below age-appropriate grade.

The key parental variable is alcohol consumption. I will study overall alcohol consumption defined using only parents in the household as well as alcohol consumption separately by gender of a parent.[26] Each individual is asked to report how many grams of different alcoholic beverages (wine, beer, fortified wine, vodka, moonshine, and other alcoholic drinks) they usually drink per day during the last month.[27] The summary statistics imply that mothers consume around 2.7 standard drinks on average while fathers consume 8.2 standard drinks on a typical drinking occasion.[28] In general, self-reported measures of alcohol consumption may be subject to criticism on their validity (Midanik, 1989). However, following Baltagi & Geishecker (2006), the alcohol consumption data should not be systematically under-reported in Russia as there is no social stigma attached to drinking within the country.[29] Additionally, I winsorize the top 1% of parental alcohol consumption to ensure that outliers do not drive estimated results. There is missing data for some parental and household characteristics (household income, years of parental education) used as control variables. I do mean imputation for these characteristics and include dummies in the regression to indicate that the characteristics were imputed. Monetary variables (such as household income, wages and expenditures) are adjusted for inflation and expressed in 2003-year rubles.

2. State level data

The analysis requires the use of state-level variables to check if local trends in the population characteristics can explain the introduction and severity of the policy

[26] In accordance with the study by Laslett et al. (2012), the majority of alcohol-related harms that occur to children because of others' drinking are from parents.

[27] To make the different types of alcoholic drinks comparable, the declared amounts are adjusted for pure alcohol content and then added to calculate total individual alcohol intake. Following Yakovlev (2018) the weights used are 40% for the alcohol content of vodka and other hard drinks, 5% for beer, 10% for wine, 15% for fortified wine, 12% for champagne, 40% for moonshine, and 20% for other alcohol.

[28] According to the CDC (2021), a standard drink contains around 14 grams of pure alcohol.

[29] Although errors recalling past consumption are still possible, there should not be a clear negative bias in the reported amounts.

adopted in states. Russian official statistical agency Rosstat (2021) provides yearly information about a number of relevant state characteristics. These include annual figures on the percentage of the urban population, the percentage of unemployed among the working-age population, the percentage of minority status and Muslim population, the percentage of the population with tertiary education, and the percentage of population below federal and state poverty lines. In addition, I collect information on recorded sales of different alcoholic beverages per capita. Finally, I utilize the data on state-level alcohol-related mortality per 100000 population.[30] The data on state level regulations comes from the collection of local legal acts Consultant Plus (2021). I focus on examining the effects of policies restricting alcohol sales hours, while other alcohol-market policies serve as control variables.

3. *Empirical framework*

The source of plausibly exogenous variation for this study comes from the staggered adoption of the policy restricting hours of alcohol sales. This generates geographic and temporal variations in alcohol availability and, consequently, child outcomes. The standard estimation approach for such a scenario commonly employs the Two-Way Fixed Effects (TWFE) estimator. However, recent literature has highlighted the limitations of TWFE when dealing with groups treated at various time points (Goodman-Bacon, 2021; Callaway & Sant'Anna, 2021; Sun & Abraham, 2021). First, TWFE can be vulnerable to bias that can arise under dynamic treatment effects.[31][32] Secondly, even if there are no dynamic effects, TWFE can still introduce bias when there are heterogeneous treatment effects across groups due to treatment timing.[33][34]

[30] Following Neufeld & Rehm (2013), the definition of alcohol-related mortality includes deaths from cardiovascular diseases, external death causes, and alcohol poisonings.

[31] TWFE uses already-treated groups as controls, overlooking potential dynamic treatment effects (Goodman-Bacon, 2021).

[32] In practice, it is conceivable that the policy could have a dynamic effect on alcohol consumption. It is possible that over time, the effect of the ban could diminish to zero as a result of enhanced strategies to avoid it, both from the perspective of alcohol consumers and producers. For example, individuals might shift their drinking behavior to earlier hours or stock up beforehand. On the supply side, store owners might open restaurants or bars nearby to legally circumvent restrictions on off-premise alcohol sales. Moreover, it may take time for a black market for off-premise alcohol sales or homemade alcohol production to emerge.

[33] The TWFE estimator assigns varying weights to observations within a panel. It gives higher weights to observations in the middle of the panel and lower weights to those at the ends. Consequently, the TWFE estimator calculates a parameter that is specific to the length of the data used, rather than the actual average treatment effect. For an in-depth discussion, refer to Goodman-Bacon (2021) and De Chaisemartin & d'Haultfoeuille (2020).

[34] It is reasonable to expect heterogeneous treatment effects across groups, because reasons such as earlier policy adoption might signal a higher motivation and higher perceived benefits of decreased alcohol access.

To address these issues, I follow the method proposed by Sun & Abraham (2021) (SA, hereafter) for my baseline analysis. This approach explicitly allows for multiple time periods and variation in the treatment timing. The SA estimator involves several steps. It relies on obtaining estimates for cohort-specific treatment effects, determining the weights for each cohort, and combining the estimates with the determined weights to produce the overall treatment effects.[35]

Step 1. I calculate the full set of cohort-specific relative-time treatment effects, denoted by $\beta_{c,g}$, by estimating the following equation:

$$(1) \quad Y_{imst} = \alpha + \sum_{c \in T} \sum_{g=-6}^{5} \beta_{c,g} * (I(Restriction)_{g,st} * D_c) + X_{imst} + \lambda_s + \theta_t + \epsilon_{imst},$$

where Y_{imst} represents an educational, well-being, risky behaviour or physical health outcome of a child i in municipality m of state s in year t. $I(Restriction)_{g,st}$ is a dummy variable that equals unity if state s at time t adopted alcohol sales hour restriction g years ago; $g = 0$ denotes the year of adoption and the year prior to adoption ($g = -1$) is the omitted category. D_c is a dummy variable denoting the year of restriction for each cohort in the treatment set T (2005,...,2010). X_{imst} is a vector of controls for parent, child, household, municipality and state characteristics. State-level controls include indicators of presence of other state alcohol market policies. Unobservable determinants of child outcomes that are fixed at the state level are controlled for through the state indicators λ_s, as well as common time shocks are absorbed by the year indicators θ_t. Throughout this paper, all standard errors are robust to heteroskedasticity and clustered at the state level to make statistical inference robust to serial correlation within states over time (Bertrand et al., 2004).[36]

Step 2. To generate an aggregated relative-time coefficient (i.e., β_g), I take a weighted average of the cohort-specific estimates $\beta_{c,g}$ obtained in the previous step,

[35] Sun & Abraham (2021) provide a Stata package (eventstudyinteract) for researchers to implement the estimator.

[36] Note that in this context, one-way clustering on the state level is equivalent to the two-way clustering on the state and individual level since individuals are nested within states. Thus state-level clustering is enough to account for the correlation between individual outcomes from one year to the next (Cameron & Miller, 2015).

with weights equal to the sample shares of each cohort in the relative period g. This weighting process can be written as:

$$\beta_g = \sum_{c \in T} (\frac{N_g^c}{N_g}) \beta_{c,g}, \tag{2}$$

where N_g is the total number of treated states observed for a relative year g, and N_g^c is the number of treated states observed for a relative year g within cohort c.

There are a few points worth noting regarding the estimator. First, the never-treated states are repeatedly used as clean controls in each cohort-specific treatment effect estimation. Second, compared to the TWFE estimator which sometimes involves uninterruptible negative weights, the SA estimator uses an intuitively transparent weighting scheme.[37] The central identifying assumption of the SA approach is that there is no treatment anticipation. Secondly, the approach relies on the parallel trends assumption, which is based on a never-treated states. This assumption posits that the underlying trends of the treatment and control groups are similar. Specifically, it assumes that the trends in child outcomes between the treatment and control states would have been the same in the absence of a policy intervention. I discuss the validity of the parallel trend assumption in the Results Section.

In addition, my empirical strategy relies upon the idiosyncratic nature of the timing of the introduction of the hour restrictions. Thus, each state's social and cultural characteristics should not be predictive of the year of policy adoption and the severity of the restriction. As an empirical test for this assumption, Table 2 examines whether different state-specific population characteristics and their changes can predict the policy roll-out.[38] It shows that most characteristics of the states, as well as changes in these characteristics, cannot explain whether a state adopted the policy, the year of adoption, or the extent of policy restriction. Certain isolated characteristics, such as states with a higher proportion unemployed, larger increases in the proportion of

[37] The SA estimator for each β_g is asymptotically normal and consistent under a few standard assumptions, thereby allowing for directly constructing its asymptotic standard errors. For more details please refer to Appendix C in Sun & Abraham (2021).

[38] The state-specific baseline characteristics are computed as state-level averages for 1994-2004 (years preceding the treatment). Changes in state characteristics are expressed as relative changes between the years 2000 and 2010.

Table 2—State-level characteristics and their trends do not predict the timing or severity of policy restriction

	State characteristics			Changes in state characteristics (2000 to 2010)		
	Ever treated	Year of Adoption	Degree of Restriction	Ever treated	Year of Adoption	Degree of Restriction
	(1)	(2)	(3)	(4)	(5)	(6)
Alcohol sales per capita	-1.556	-0.354	-0.094	1.587	-0.019	0.156
	(1.415)	(0.245)	(0.124)	(1.325)	(0.231)	(0.115)
Alcohol-related mortality per 100000 of population	5.399	-8.649	-0.024	-12.114	10.944	-6.498
	(101.030)	(19.006)	(8.784)	(63.784)	(11.829)	(5.442)
% Urban	0.014	-0.028	0.000	-0.019	-0.002	-0.002
	(0.061)	(0.018)	(0.005)	(0.018)	(0.002)	(0.002)
% Unemployed among working age population	-0.012	0.006*	-0.001	0.009	0.006**	0.001
	(0.016)	(0.003)	(0.001)	(0.014)	(0.002)	(0.001)
% Population with tertiary education	-0.076	-0.008	-0.003	-0.005	-0.006	0.000
	(0.058)	(0.011)	(0.005)	(0.032)	(0.006)	(0.003)
% Population below federal poverty level	0.069	0.030	0.001	-0.032	-0.035	0.005
	(0.069)	(0.019)	(0.006)	(0.076)	(0.022)	(0.007)
% Population below state poverty level	0.026	0.020**	0.003	-0.023	-0.003	-0.004
	(0.045)	(0.007)	(0.004)	(0.034)	(0.006)	(0.003)
% Muslim	0.051	0.035	0.011	0.022	0.003	0.002
	(0.096)	(0.022)	(0.008)	(0.020)	(0.004)	(0.002)
% Minority status	0.082	0.027	0.012	-0.011	0.002	0.002
	(0.105)	(0.020)	(0.009)	(0.051)	(0.010)	(0.004)
Joint significance test (p-value)	0.681	0.208	0.546	0.673	0.233	0.364

Note: This table examines whether different social and cultural state-specific population characteristics as well as changes in these characteristics can predict the policy roll-out. Each cell represents a separate regression which regresses the state variable (or its change) on the indicator of policy adoption, year of adoption or restriction duration for each state characteristic. Ever treated refers to whether a state had implemented alcohol trading hour restriction before the adoption of the federal hour restriction regulation in 2011. The baseline state characteristics are computed as state-level averages for 1994-2004. Changes in state characteristics are expressed as relative changes between years 2000 and 2010. Alcohol sales per capita are measured in grams of pure alcohol. Alcohol-related mortality includes deaths from cardiovascular diseases, external death causes, and alcohol poisonings. The bottom line indicates p-value of joint significance test for the regressions of policy adoption(Columns (1) and (4)), year of adoption(Columns (2) and (5)) or degree on restriction(Columns (3) and (6)) on state characteristics(or changes in state characteristics) taken jointly. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Source: data from Russian official statistical agency Rosstat (2021).

the unemployed and a higher proportion of the population below the regional poverty rate, are linked with states being more likely to introduce the policy later, but when taken jointly with other characteristics overall fail to explain adoption timing.

In addition, using estimation results from the SA approach for parental outcomes (parental alcohol consumption, household income, employment and wages of parents, family stability, household expenditures and time use) to examine possible pathways related to parental alcohol consumption through which the policy can affect child outcomes. The same assumptions apply to this estimation as discussed above for child outcomes estimation. Finally, I also apply the TWFE estimation approach, and include the corresponding results in the tables and figures. For more details on estimation using TWFE please refer to Section Appendix B.

4. *Results and Discussion*

1. *Assessing the validity of the identification assumptions*

As discussed above, the pre-treatment trends in the outcomes I examine should be parallel across treatment and control groups. Before presenting my results, I use an event-study framework based on SA approach to rule out differential pre-trends. The event-study specification provides a natural test for the identification assumption of the model as differences in pre-trends can be examined visually.

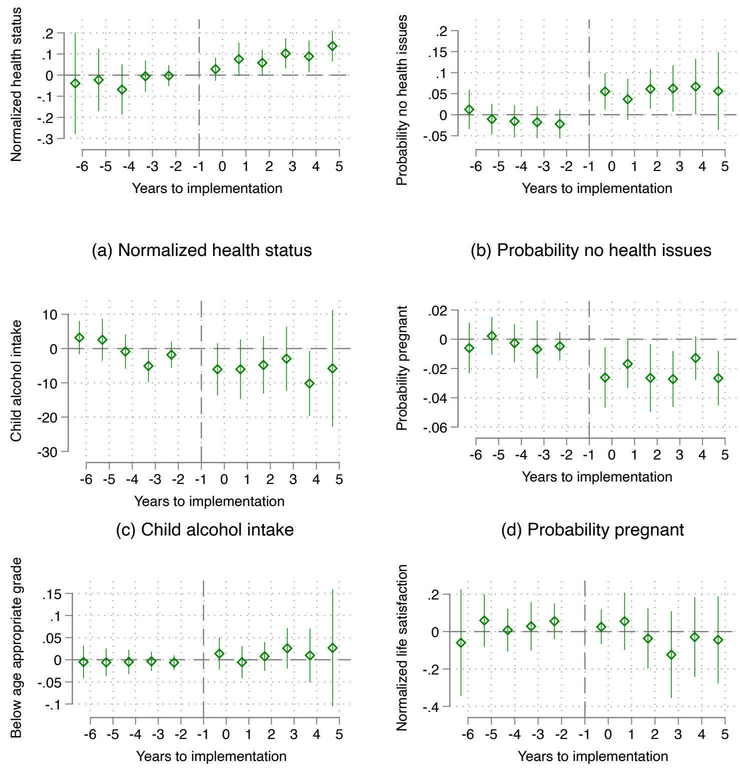
I plot the point estimates from the event-study regression in Panels of Figure 2 for child outcomes (probability of no health issues, health status, probability of being pregnant, child alcohol consumption). The plotted pattern shows no evidence of clear pre-trends. Conditional on year and state fixed effects, as well as child, parent, household, and location controls, the estimates of the pre-treatment dummies are all close to zero and insignificant. On the other hand, all point estimates for post-implementation years are positive (for child health status, probability of no health issues) and negative (for the probability of being pregnant, and alcohol consumption), and some are significant at a 5% level.[39] I further provide the corresponding event study figures incorporating estimates from both SA and the TWFE approaches in Appendix Figure A6 to facilitate the comparison between the models. TWFE and SA estimates are closely aligned, which is not surprising given that we do not observe strong dynamic effects for most outcomes.[40]

2. *Further reduced-form evidence on child outcomes' effects*

Table 3 presents the results of estimation for child outcomes with a standard set of covariates: state and time fixed effects, dummies for the presence of other state level alcohol market policies, parental, location, household and child characteristics. Panel A reports estimates of the effects of binary treatment (having hour restriction policy in place) on child outcomes using SA approach. At the same time, Panel B contains estimates of the effects based on TWFE. The estimated results are broadly consistent

[39]Only a few observations are allocated to some of the dummy variables indicating each specific year of treatment duration. Thus, I do not have the power to identify significant effects for all the different years of duration of exposure.

[40]SA estimates are less precise (feature wider confidence intervals) for some of the outcomes in later post periods as they are using less data than estimates corresponding to TWFE.



(a) Normalized health status (b) Probability no health issues

(c) Child alcohol intake (d) Probability pregnant

(e) Below age appropriate grade (f) Normalized life satisfaction

Figure 2. Event-study: effects of policy on child outcomes

Note: The figure plots the post-treatment and anticipatory effects from the event-study specification based on Sun & Abraham (2021) approach as well as the 95% confidence intervals for child outcomes. The set of control variables includes child level, parent level, household level, alcohol policies, municipality controls as well as state and time fixed effects. Child alcohol intake is measured in grams of pure alcohol consumed on a typical drinking occasion. Robust standard errors are adjusted for clustering at the level of the state.

among the specifications for all outcomes.[41]

Physical health. The estimation results for health issues and health status during the last month are reported for a sample of all children. Both outcome measures indicate a health improvement. In particular, having the restriction in place significantly increases the probability of not having health issues by 5.6 pp and increases the

[41]Importantly, the results should be interpreted as the results for early adopter states (given that the sample changes over time, for instance, the estimates in the year T+5 are driven by the states that adopted a policy in the year 2004; estimates in year T+4 are driven by the states that adopted a policy in the year 2004 and 2005 and so forth.)

normalized health status by 0.08 SD.[42]

Risky behaviours and well-being. For this analysis, well-being is measured by normalized subjective life satisfaction, while risky behaviour measures include child alcohol consumption, and pregnancy probability.[43] Imposing hour restriction results in a significant reduction of teen pregnancies by 2.3 pp.[44] The results for child alcohol intake are not statistically significant; however, they have the correct sign, and imply a reduction of 5.95 grams after policy implementation.[45] I do not find significant results suggesting that policy leads to changes in subjective well-being.

Table 3—Effects of policy on child outcomes

	Child outcomes					
	Probability no health issues Ages 0-18 (1)	Normalized self-reported health status Ages 0-18 (2)	Probability pregnant teenage girls Ages 14-18 (3)	Alcohol intake in grams of pure alcohol Ages 14-18 (4)	Normalized life satisfaction Ages 14-18 (5)	Below age appropriate grade Ages 14-18 (6)
Panel A: Sun and Abraham						
Indicator(hour restriction)	0.056***	0.082***	-0.023***	-5.967	-0.026	0.013
	(0.022)	(0.020)	(0.005)	(4.018)	(0.073)	(0.025)
Panel B: TWFE						
Indicator(hour restriction)	0.041**	0.087***	-0.018***	-5.954*	0.038	0.004
	(0.020)	(0.029)	(0.005)	(3.643)	(0.103)	(0.014)
Baseline mean	0.627	0.070	0.026	18.827	0.205	0.058
Observations	44280	44280	6260	12574	12574	12574

Note: Panel A displays the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021), while Panel B showcases the results derived from Two-way Fixed Effects estimations as detailed in Equation A1. Standard errors are clustered at the state level and presented in parentheses. All regressions include a standard set of controls. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). Parent Controls: age, weight, height, health status, marital status, completed college education, employment status for both parents. Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income. Child Controls: age fixed effects, gender. Columns (1) to (2) estimated on a sample of children aged 0-18. Column (3) estimated on a sample of females aged 14-18. Columns (4) to (6) estimated on a sample of children aged 14-18. The alcohol intake is measured in grams of pure alcohol consumed on a typical drinking occasion. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Educational attainment. I focus on the short-term outcome of school progression, which uses being below age-appropriate grade as a proxy. The estimated result for educational attainment is close to zero and not significant.[46] This result could be

[42] These estimates are broadly consistent with estimates implied by the TWFE approach reported in Panel B. Specifically, the results from Panel B imply 4.1 pp increase in the probability of not having health issues and 0.087 SD increases in health status.

[43] The estimates for the latter outcome are reported for females aged 14 to 18, while the estimates for the former two outcomes are reported for children of both sexes aged from 14 to 18 (as survey questions concerning these outcomes are administered to children aged at least 14).

[44] To compare to other anti-alcohol policies effect sizes, Sen (2003) shows that doubling alcohol taxes decreases abortions among 15-19-year-old women by around 7% in the US.

[45] This result is equivalent to reducing alcohol consumption by 0.43 of standard alcohol drink. In comparison, Carpenter (2004) indicates that Zero Tolerance driving laws to curb heavy episodic drinking by young males by about 13% while results for females are mixed.

[46] The previous research on alcohol policies has also found either minor or no effects of alcohol policies on

driven by the fact that my measure of educational attainment is imperfect. Firstly, although there is a general rule for school admission age, parents might be able to manipulate child enrollment on a case-by-case basis. Secondly, the age of a child reported in the survey corresponds to the time when the interview is conducted. Thus, age might not be fully comparable across children if the time range of interviews varied significantly across states. Alternatively, the model is misspecified for measuring educational attainment since one might need to account not only for contemporaneous inputs, but also for historical inputs.

3. Heterogeneity by gender and age

I first consider heterogeneous effects by gender. Table A2 displays the estimated impacts of implementing an hour restriction, utilizing the SA approach, on sub-samples of children divided by gender. Regarding the likelihood of experiencing health issues and normalized health status outcomes, there are no significant differences between boys and girls. However, for the alcohol intake outcome, the effect for males is nearly three times larger than that for females, although the estimate is imprecise.

As younger children spend more time at home and might be more sensitive to the home environment, the benefits from policy might differ by the child's age. Additionally, research shows that most young people begin using alcohol between the ages of 12 and 16, an age at which they gain increasing independence and spend more time outside the home unsupervised (World Health Organization, 2018*a*). Thus, in Table 4, I present the results for health outcomes for children below and above the 12-year-old threshold. The age threshold naturally divides children into ones affected by policy only through parental alcohol consumption (younger children), and affected by both personal and parental alcohol consumption (older children). The estimated results show that the effects are indeed larger for children below 12 years old.[47][48] While the

children's educational attainment. In particular, Dee & Evans (2003) demonstrate that changes in the MLDA have statistically insignificant effects on high school completion, college entrance, and college persistence. The later paper by Lindo et al. (2013), finds a significant but small effect of MLDA: students' scores fall by approximately 0.03 SD upon being legally allowed to drink.

[47]More pronounced effects on younger children are consistent with the fact that earlier childhood is a comparatively more important period of parental investment (Heckman, 2007).

[48]I further investigate the heterogeneity of health effects across different age brackets. Generally, the effects seem to be primarily driven by younger children in age groups spanning from 0 to 12 years old. Additionally, the effects remain relatively stable across most of these age groups (0-3, 4-6, 7-9, 10-12) for both health outcomes.

effects on adolescents' health outcomes are positive and in the expected direction, they are not precisely estimated. This differs from most related studies (Marcus & Siedler, 2015; Bäuml et al., 2023), which found improved health (reduced hospitalizations and alcohol-related doctor visits) for adolescents due to time-restricted sales in the German context. These differences could be attributed to several factors, including the use of distinct data and outcome measures, targeting different population groups with the policy, and variations in cultural contexts.[49]

Table 4—Heterogeneous effects by age of a child

	Child outcomes		
	Probability no health issues Ages 0-18 (1)	Normalized self-reported health status Ages 0-18 (2)	Alcohol intake in grams of pure alcohol Ages 14-18 (3)
Panel A: Effects by age			
Age<12	0.067***	0.101***	
	(0.024)	(0.033)	
Age≥12	0.002	0.049	
	(0.032)	(0.047)	
Age<16			-3.730
			(2.392)
Age≥16			-8.973
			(6.334)

Note: Each cell in the table presents estimation results based on the Sun & Abraham (2021) approach and conducted for sub-samples of children. Panel A divides the sample by age (below or over 12 for health outcomes; below or over 16 for alcohol intake outcomes). Data for health outcomes (probability of no health issues, normalized self-reported health status) is available for a sample of children aged 0-18, while data for alcohol intake in grams is only available for children aged 14-18. Standard errors are clustered at the state level and presented in parentheses. All regressions include a standard set of controls. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). Parent Controls: age, weight, height, health status, marital status, completed college education, employment status for both parents. Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income. Child Controls: age fixed effects, gender. The alcohol intake is measured in grams of pure alcohol consumed on a typical drinking occasion. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

4. Parental drinking reduction and associated mechanisms

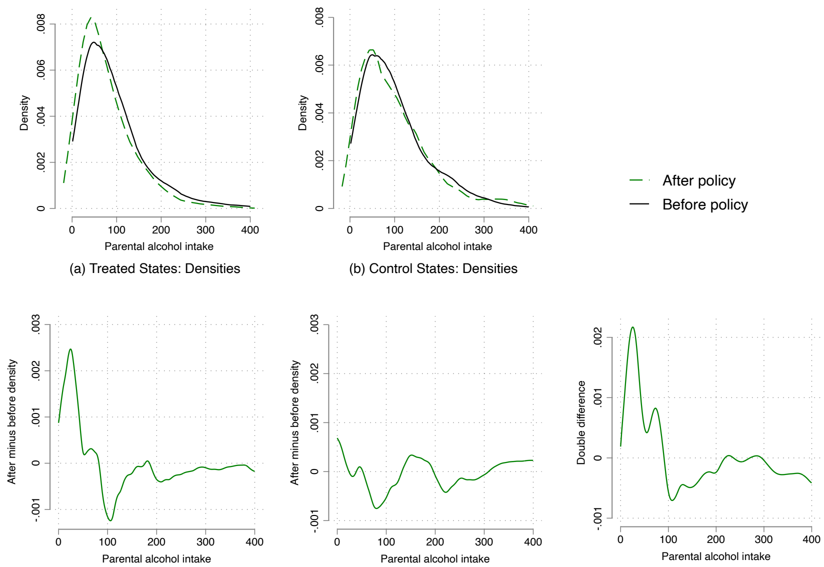
Given the observed changes in child outcomes, it would be of interest to study the possible pathways through which these changes take place. In Section 4.2, I have

[49]First, these studies utilize different outcome measures, with hospitalizations and doctor visits providing objective data, while health issues and status rely on subjective parental reports in the RLMS survey, potentially resulting in more precise reporting for younger children due to increased parental involvement. Secondly, the policies in these studies target different groups. The German policy primarily targeted reducing alcohol-related crime and health risks among adolescents by restricting alcohol sales through gas stations, whereas the broader policy implemented in Russia aimed to curb alcohol consumption and related mortality by restricting sales in supermarkets and local shops open 24 hours a day. Finally, there are notable cultural disparities in drinking behaviors between countries, with 12-month teenage drinking prevalence among 15-year-old teenagers notably higher in Germany (89%) compared to Russia (71%) in accordance with World Health Organization (2011).

shown that the policy potentially affects children directly by reducing their alcohol intake. However, effects on teenage alcohol consumption are not precisely estimated and the policy's age heterogeneity on children's physical health implies the importance of other channels. Consequently, this Section analyses other possible mechanisms, putting special attention on the effects of the policy on parental alcohol consumption and mechanisms that might arise with reduced parental drinking (increased household income, parental employment, earnings, greater family stability, household expenditure, time-use and parental health).[50]

Parental alcohol consumption. I start by presenting descriptive evidence on parental alcohol consumption in treated and control states in Figure 3. Panels (a) and (b) illustrate distributions of parental alcohol intake for these groups of states before and after policy implementation. The Figure 3 shows that distributions both in Control and Treatment groups are heavily positively skewed, reflecting the extent of heavy drinking incidence in both groups. In addition, Panel (a) shows that the distribution of intake in treatment regions after the policy (dashed line) has more mass for lower values of alcohol intake and a thinner right tail than the distribution before the policy (solid line). At the same time, Panel (b) illustrates no apparent differences between pre and post-reform densities in Control states. To further reflect how the distributions of alcohol intake change over time, I provide the First Differences of densities before and after the policy in Panels (c) and (d) for Treated and Control states, respectively. The difference for Treatment states is positive from the left tail to just below 100 grams, and negative for moderate and high alcohol intake values as reflected in Panel (c). This suggests a reduction in the incidence of heavy drinking in the post reform period. At the same time, for Control states, the densities pre-policy and post-policy are very similar, causing the density difference to fluctuate around zero. To compare changes in alcohol consumption patterns across regions more precisely, I show the double density difference in Panel (e). The double density difference is positive just below 100 grams and negative above 100 grams. This is consistent with the effectiveness of the policy to reduce alcohol consumption.

[50]While this paper examines changes in parental outcomes as a potential mechanism shaping child health outcomes, it is important to note that parental outcomes could also be influenced by changes in child outcomes. For example, parental stress levels and mental health may be affected by changes in child outcomes.



(a) Treated States: Densities (b) Control States: Densities

(c) Treated States: After Minus Before (d) Control States: After Minus Before (e) Double Difference

Figure 3. Distributions of parental alcohol intake in Treatment and Control States, First and Second Differences in distributions.

Note: (a) Distributions of parental alcohol intake in Treated States (pooled sample of states whose timing of policy implementation varied from 2005 to 2010). Before Policy refers to years 1994-2004, while After Policy includes year 2010. This is the year by which all states in the Treatment group have already implemented the policy. (b) Distributions of parental alcohol intake in Control States (states that never implemented the policy before the adoption of the Federal policy in 2011). Before Policy refers to years 1994-2004, while After Policy includes year 2010. (c) Treated States: Density Before Policy minus Density After Policy. (d) Control States: Density Before Policy minus Density After Policy. (e) Double Density Difference: (Density Before Policy minus Density After Policy in Treatment states) minus (Density Before Policy minus Density After Policy in Control states). Parental alcohol intake is measured in grams of pure alcohol consumed on a typical drinking occasion. Distributions are reported conditional on positive drinking. All estimates are based on an Epanechnikov kernel.

Appendix Figure A1 provides event-diagram type estimation for parental alcohol intake. The plotted point estimates show no evidence of differential pre-trends before the policy implementation year. Further, most point estimates for positive years of exposure to the restriction are negative and significant at the 5% level.[51] Table 5 reports estimates for the effects of the policy on alcohol consumption by parents conditional on the standard set of controls.[52] Column (1) of Panel A reports estimates

[51] I further provide the corresponding event study figures incorporating estimates from both SA and the TWFE approaches in Appendix A7 to facilitate the comparison between the models. TWFE and SA estimates are closely aligned.

[52] The standard set of controls includes state and time fixed effects, dummies for the presence of other state

of the policy effects on parental alcohol consumption using SA approach. It shows that on average, having an hour restriction in place results in a reduction of parental alcohol consumption by approximately 11 grams (13% reduction) of pure alcohol on a typical drinking occasion as compared to a state without restrictions.[53]

Table 5—Parental alcohol consumption: Heterogeneous effects by gender

	Alcohol intake (grams pure alcohol)						
	Parental	Mother			Father		
	alcohol intake	Alcohol intake	Heavy drinker $\geq$60 grams	Heavy drinker $\geq$120 grams	Alcohol intake	Heavy drinker $\geq$60 grams	Heavy drinker $\geq$120 grams
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Sun and Abraham							
Indicator(hour restriction)	-10.976***	-7.545**	-0.048***	-0.023**	-17.223***	-0.005	-0.088*
	(2.853)	(3.000)	(0.014)	(0.009)	(6.566)	(0.047)	(0.044)
Panel B: TWFE							
Indicator(hour restriction)	-14.691***	-7.487***	-0.062***	-0.025***	-20.551***	-0.013	-0.074*
	(3.994)	(2.033)	(0.013)	(0.008)	(6.808)	(0.030)	(0.043)
Baseline mean	77.267	38.533	0.253	0.058	125.405	0.632	0.342
Observations	77412	43267	43267	43267	34145	34145	34145

Note: Panel A displays the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021), while Panel B showcases the results derived from Two-way Fixed Effects estimations as detailed in Equation A1. Following Carpenter et al. (2016), I use two cutoffs of alcohol consumption to define binge drinking: "heavy drinking" or consuming above 60 grams(World Health Organization, 2018*b*) and "extreme drinking" or consuming above 120 grams of pure alcohol per typical drinking occasion. Standard errors are clustered at the state level and presented in parentheses. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). All regressions include a standard set of controls. Parent Controls: age, weight, height, health status, marital status, completed education group, employment status for both parents. Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income. Child Controls: age fixed effects, gender. The alcohol consumption is measured in grams of pure alcohol consumed on a typical drinking occasion. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Further, Table 5 presents the results for the heterogeneous effect by gender of a parent. It can be seen that effect sizes for fathers are larger in absolute terms.[54] Living in a state with a policy in place reduces alcohol consumption by 7.55 grams for mothers and 17.23 grams for fathers compared to living in a no restriction state. In addition, Appendix Table B4 Columns (3) and (5) further report heterogeneous effects for parents with and without alcohol-related health problems. This analysis is motivated by the fact that there might be a differential response to the policy from people with and without alcohol addiction.[55] In line with the addiction hypothesis, I

level alcohol market policies, parental, location, household and child characteristics.

[53]This is approximately equivalent to reduction of alcohol consumption by 0.8 standard drink. Specifically, this is equivalent to reducing consumption by 285 ml (9.6 oz) of beer with a concentration of 5% or 35 ml (1.2 oz) of vodka with a concentration of 40%. At the same time, column (1) Panel B contains estimates of the effects based on TWFE. It shows that being in a state with a restriction results in a reduction of parental alcohol consumption by approximately 14.6 grams of pure alcohol.

[54]This is not surprising given that fathers are generally more susceptible to drinking (mean paternal alcohol intake is approximately 3.25 times larger than mean maternal alcohol intake in the sample).

[55]For the purpose of this study, alcohol health problems include ever having liver disease and alcoholic

find that males that have experienced alcohol-related health problems in the past are less sensitive to the policy introduction than average males without these problems. The reduction in alcohol consumption among males with past issues is more than two times smaller than the effect observed in fathers without alcohol issues. Interestingly, I do not find any significant effects on women. This suggests that maternal alcoholism is less persistent.

The results showing that restricting hours of alcohol sales decreases consumption is consistent with other studies carried out in an international (Hahn et al., 2010; Stockwell & Chikritzhs, 2009; Rossow & Norström, 2012) and in a Russian context (Kolosnitsyna et al., 2014; Skorobogatov, 2014). To further rationalize the effectiveness of the policy using the commitment device explanation, I will test two empirical implications of this explanation. First, I check if the policy can curb heavy drinking.[56] Panel (A) of Table 5 indicates that having an hour restriction in place on average leads to the significant reduction of heavy drinking by women 5pp (19%) at 60 grams cutoff, while only a 1 pp (1.5%) insignificant decrease in heavy drinking by men. However, after I turn to the "extreme drinking" cutoff of 120 grams, I find a significant reduction of 8.8 pp (25%) for men and a significant 2.3 pp (38%) reduction for women, suggesting that male drinking is affected only at higher values in the alcohol consumption distribution.[57]

In addition, I test whether evening policy hours can indeed curb drinking more than morning policy hours. The results are presented in Panel (C) of Appendix Table B3. Specifically, the regression model is similar to one described in Equation A2, but in addition to the variable number of *Hours closed* (indicating severity of restriction in hours), it includes the *Closing hour* (e.g., 8 pm, 9 pm, etc.). Intuitively, given the fixed restriction duration, the coefficient of Closing hour measures the effect on

hepatitis. Having any of these diseases serves as a proxy for having drinking issues in the past and might signal the individual's degree of alcohol addiction.

[56] Following Carpenter et al. (2016), I use two cutoffs of alcohol consumption to define binge drinking: "heavy drinking" or consuming above 60 grams (World Health Organization, 2018*b*) and "extreme drinking" or consuming above 120 grams of pure alcohol per typical drinking occasion. The second definition is used to complement the first one since it has been found that alcohol control policies substantially reduce alcohol consumption at levels well above the standard binge drinking threshold (Carpenter et al., 2016).

[57] This is similar to the findings of Carpenter et al. (2016), who examined MLDA effects on young people drinking in Canada. They found that the MLDA affects moderate and heavy drinking among young women while not among men. At the same time, the reverse is true for extreme drinking: the MLDA significantly reduces the probability of extreme drinking by men while there is no evidence of significant effects on women drinking.

alcohol consumption achieved by closing an outlet one hour later, and thus opening one hour later. Column (1) of Panel (C) shows that substituting one evening hour of restriction by one additional morning hour of restriction has a positive and significant effect on parental alcohol consumption. The positive sign of the coefficient potentially implies that the per-hour effect of morning restriction is smaller than the per hour effect of the evening restriction given fixed restriction duration.[58]

Other mechanisms: income, employment, family stability, time-use and health. Appendix Figure A1 provides event-diagram type estimation for other possible mediating factors at play. I estimate the effects of policy change on household income, parental employment, wages, family stability. The plotted point estimates show no evidence of differential pre-trends before the policy implementation year. Further, all point estimates for positive years of exposure to the restriction are positive (for household income, probability mother employed, mother's salary, family stability), and some are significant at a 5% level.[59] However, it is important to acknowledge that the data does not provide sufficient power to conclusively test for mechanisms and distinguish between them.[60]

Table 6 provides estimates for these mechanisms formally. The policy led to increased real household income by approximately 3.8 pp. Further, estimated effects of policy have expected positive signs for both maternal and paternal employment and salaries. However, only the effects on maternal employment are significant at a 10% level and amount to approximately 2.5 pp. In addition, maternal salary increases by approximately 6.2 pp, while there is no evident effect on paternal earnings.[61]

Given the observed changes in household income and wages, it would be relevant to examine further if these changes translate into changes in household expenditures

[58]This is true under the assumption of linearity of the effect of the closing hour on alcohol consumption. The specifications with higher-order terms of the Closing hour (e.g., quadratic, cubic, etc.) do not significantly add to the explanatory power of the model in accordance with Wald test results.

[59]I further provide the corresponding event study figures incorporating estimates from both SA and the TWFE approaches in Appendix Figure A7 to facilitate the comparison between the models. TWFE and SA estimates are closely aligned.

[60]Specifically, only a few observations are allocated to some of the dummy variables indicating each specific year of treatment duration. Thus, I do not have the power to identify significant effects for all the different years of duration of exposure.

[61]The increase in income by itself might signal changes in the child's environment. For instance, previous research indicates that additional income received by parents has the potential to reduce child maltreatment (Rittenhouse, 2023).

Table 6—Effects of policy on parental outcomes: alcohol consumption, household income, employment, salaries and family stability

	Parental Alcohol Intake (1)	Household Income (2)	Mother Employed (3)	Mother Salary (4)	Father Employed (5)	Father Salary (6)	Family Stability (7)
Panel A: Sun and Abraham							
Indicator(hour restriction)	-10.976***	0.0380*	0.0251*	0.0620*	0.0082	0.0022	0.0201*
	(2.853)	(0.0210)	(0.0141)	(0.0351)	(0.0130)	(0.0661)	(0.0110)
Panel B: TWFE							
Indicator(hour restriction)	-14.6910***	0.0320**	0.0154*	0.0540**	0.0077	0.0186	0.0199**
	(3.9940)	(0.0160)	(0.0088)	(0.0271)	(0.0058)	(0.0271)	(0.0078)
Baseline mean	77.267	9.376	0.853	7.818	0.945	8.076	0.736
Observations	77412	44280	43267	43267	34145	34145	44280

Note: Panel A displays the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021), while Panel B showcases the results derived from Two-way Fixed Effects estimations as detailed in Equation A1. Standard errors are clustered at the state level and presented in parentheses. All regressions include a standard set of controls. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). Parent Controls: age, weight, height, health status, marital status (except column (7)), completed college education, employment status(except columns (3) to (6)). Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income (except columns (2), (4), and (6)). Child Controls: age fixed effects, gender. Columns (4) and (6) report estimates unconditional on whether the parent works or not. Household income and salaries are presented in logarithmic terms. Family stability is a dummy variable that equals 1 if the child currently lives with both biological parents, whereas 0 indicates living with just 1 or 0 parents and indicates family instability. The alcohol consumption is measured in grams of pure alcohol consumed on a typical drinking occasion. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

for food, child education, and healthcare that could further lead to the changes found in child outcomes. Appendix Figure A2 and Table A3 present these results. I find no effects of the policy on household expenditures for main food categories, clothing, children education, and healthcare.[62] The sole category of expenditures impacted by the policy is alcohol expenditures, experiencing a roughly 10% decrease in the post-period. This broadly aligns with the change observed in alcohol consumption, which saw a 13% reduction.[63]

Next, I consider the effect of policy on family stability.[64] Family instability may reflect both the psychological tension within the family and lower resources available for raising the children. According to estimates presented in Table 6, there is a

[62]It is important to know, however, that I am only able to study total household expenditures on these categories rather than child-specific expenditures. The policy might still affect the intrahousehold distribution of expenditures without changing the total expenditure size.

[63]Although the estimated magnitudes are similar for alcohol consumption and expenditure, their trends differ to some extent. Consumption tends to decrease immediately after policy implementation, while the policy's effect on expenditure appears to grow over time. Possible reasons for this disparity include recall-related measurement errors in survey data (Sudman et al., 1996; Brzozowski et al., 2017; Fricker et al., 2015), potential omission of informal alcohol expenditures, and changes in purchasing habits due to policy-induced substitutions, such as opting for pricier alternatives despite overall reductions in purchases.

[64]Family stability is a dummy variable that equals 1 if the child currently lives with both biological parents, whereas 0 indicates living with just 1 or 0 parents and indicates family instability.This picks up divorce, temporal household separation, or death.

significant positive effect of the policy on family stability. Specifically, the family stability is estimated to increase by 2pp (2.7%) in states with restrictions in place as compared to the states with no restriction.[65] I further examine the drivers of family stability by investigating the marital status of parents in Appendix Figure A3 and Table A4. The analysis suggests that improved family stability is associated with a decrease in parent divorce rates (on average, 1.9 pp or 16% decrease in the post-period). However, there appears to be no significant effect on the marriage rates or number of children in the household, although there is some indication of a potential increase in household size. To delve deeper into potential changes in the child's environment and parental behavior, I examine parental time use in Appendix Table A5 and Figure A4. While the data limitations prevent me from making a strong statement, I do find suggestive evidence of changes in household production tasks (on average increase of 2%) and time spent with children (4.6% increase) that might impact the children's outcomes.[66] The final channel examined is the impact of the policy on parental health, particularly focusing on tobacco use. Results are presented in Appendix Figure A5 and Table A6. I observe a suggestive decrease in the probability of tobacco use among parents (2.5% reduction, significant at the 10% level), which may indicate an improvement in parental health.

5. *Robustness checks, clustering and multiple testing*

In Sections 4.2 and 4.4, I have demonstrated that the results are, for the most part, robust to alternative estimators for both child outcomes (Table 3) and parental outcomes (Table 6). This Section addresses additional identification and estimation concerns by investigating the sensitivity of the results to additional controls, sample restrictions, definitions of treatment variables, adjustment for multiple hypothesis testing, and alternative ways of computing standard errors. Table A7 reports the results for these additional robustness checks.

[65]This finding is of particular importance, especially in light of previous research by Kearney & Levine (2017) and Kearney (2022), which suggests that households with two married parents often confer economic advantages to children, known as the 'marriage premium for children'. Such households typically possess greater capacity to provide both financial and non-financial resources compared to single-parent households. These resources have been shown to positively impact children's behavioral and educational outcomes.

[66]The RLMS survey provides time-use data for a limited number of waves (2006-2010). To conduct the analysis, I limit the sample to states where outcomes are observed for at least one year before policy adoption. Interpretation of results should be cautious due to the limited years and states covered and inability to conduct a comprehensive test for parallel trend assumption.

First of all, I investigate the robustness of the results to additional sets of controls. Column (1) estimates regression based on SA approach, and includes state and time fixed effects. The consecutive columns add a broader set of controls. Specifically, Column (2) of Table A7 controls for the presence of other alcohol market policies. Column (3) adds parental characteristics: age, weight, height, health status, marital status, an indicator for having a university degree, employment status for both parents. Column (4) includes location characteristics, while Column (5) and Column (6) additionally control for household-specific characteristics and child characteristics, respectively. This is my preferred specification. Then, in Column (7), I add state-specific linear time trends to distinguish the impact of alcohol availability policy from differential secular trends in child and parent outcomes.[67]

Secondly, there is a concern related to the presence of other state level policies that are potentially confounding for the identification of sale bans effects.[68] For my main analysis, I include a set of dummy variables capturing the effect of the presence of these policies on alcohol consumption in all my regression specifications. As an additional check, I restrict the period of analysis to 2002–2010 when there were no changes in these other state policies in any state in Column (8). Overall, my results are, for the most part, robust to the procedure outlined above that supports the credibility of the identification assumptions used.

Thirdly, there is a need to account for the correlation between individual outcomes from one year to the next, given the multiplicity of observations of the same individuals in the sample. All my main specifications use clustering on the state-level, which is equivalent to the two-way clustering on the state and individual level since individuals are nested within states (Cameron & Miller, 2015). However, as a robustness check, I perform an alternative clustering method for my preferred specification in Column (10). Specifically, I use two-way clustering on the state-year level and individual level. The choice of clustering technique does not substantially change the results. While this alternative method brings higher standard errors for some outcomes, the effects

[67] The identification of policy's effect is determined by whether the implementation of the policy leads to deviations from preexisting linear state-specific time trends.

[68] These policies include the imposition of stricter technical requirements and licensing requirements for alcohol producers, restrictions on the location of liquor stores, and mandatory requirements of cash registers for retailers.

of the policy on these outcomes remain significant.

In addition, given that I analyze many outcomes, I test whether the effects survive after adjusting p-values for multiple hypothesis testing. I use the method described in Anderson (2008) to compute sharpened False Discovery Rate (FDR) q-values.[69] The sharpened q-values are reported in Column (11). All outcomes except for child alcohol intake survive adjustment for multiple hypothesis testing and remain significant at a 10% level.

Furthermore, I show the robustness of my findings to different definitions of treatment variables. I leverage the heterogeneous implementation of the policy across states and report the results for different restriction durations in Table A8. Panel B shows the results of splitting the sample into three groups (states with 6-8, 9-11, and 12-14 hours of restriction) and applying SA method for each group separately. The results of this analysis reveal a pattern that is broadly consistent with the hypothesis that longer restrictions generate larger impacts on child outcomes. Specifically, the magnitude of effects tends to grow in absolute terms with the duration of restriction for outcomes such as child health, child alcohol consumption, and probability of being pregnant.

Finally, I conduct robustness checks using alternate estimation methods. Specifically, Appendix Tables B1 and B2 present estimates for child and parent outcomes, respectively. In each Table, Panel A displays estimates using the SA method, Panel B presents estimates based on the TWFE approach with binary treatment (as described in Equation A1), while Panel C reports results from Equation A2 using the TWFE approach with continuous treatment. Intuitively, Panels A and B showcase the effects of implementing hour restriction policies, while Panel C examines how restricting the time of alcohol sales by an additional hour influences the outcomes.[70] This alternative approach yields very similar conclusions to my baseline analysis, with the exception for teenage alcohol consumption outcome which is now marginally significant.

[69] This is a two-stage procedure that estimates the number of true hypotheses to achieve sharpened FDR control where the FDR is the expected proportion of rejections that are type I errors (false rejections).

[70] For instance, Panel (B) of Table B2 shows that on average, having an hour restriction in place results in a reduction of parental alcohol consumption by approximately 14.7 grams of pure alcohol on a typical drinking occasion as compared to being in a no restriction state. Similarly, column (1) of Panel C shows that being in a state with a restriction of 10 hours per day results in a reduction of parental alcohol consumption by approximately 14.3 grams of pure alcohol.

5. *Conclusion*

This paper examines the effects of policy restricting temporal alcohol availability on child outcomes. The state authorities were given the right to establish state-specific night-hour restrictions on alcohol sales in off-premise outlets in Russian states from 2005-2010. Using a difference-in-differences estimation approach, I find that the policy has improved child physical health outcomes and decreased the prevalence of risky teenage behaviors, while the educational attainment and well-being remain unchanged. Children below age 12 benefit more from the policy in terms of health improvement than their older counterparts possibly indicating their heightened sensitivity to household environments and parental behaviors (Heckman, 2007).

Furthermore, the study explores potential mediating factors that may explain the observed changes in child outcomes, including alcohol consumption, household income, parental employment, salaries, family stability and parental time-use. The findings demonstrate that the policy effectively curbs parental alcohol consumption, with a greater reduction observed among males, consistent with previous literature. Moreover, male alcohol consumption is particularly affected at higher levels of alcohol intake, exceeding the threshold for extreme binge drinking at 120 grams of pure alcohol per drinking occasion. Moreover, the study suggests that the policy's impact on child outcomes extends beyond parental alcohol consumption and encompasses an augmentation in household income, predominantly driven by increased maternal earnings and labor force participation, as well as improved family stability, and increased time spent on homemaking tasks and childcare. Taken together, this work demonstrates that policies controlling parental substance access can have important spillover effects on child health. This in turn suggests that prior evaluations of stricter alcohol control policies have failed to account for the full range of benefits by not including indirect economic costs of alcoholism on the individual level, such as the costs that one individual's drinking inflicts upon other members of their family.

Beyond just the impact on children, this study also provides important policy insights on how time-restricted alcohol sales can shape adult behavior, in the context of Russia, a developing country. Compared to studies in developed countries, I find that the restriction has a relatively larger effect on alcohol consumption in Russia, likely due to several contributing factors. In Russia, drinking is socially accepted, and alcohol is readily available and relatively inexpensive compared to developed nations. The purchasing-power-adjusted price of alcoholic beverages in Russia is 32.2% below the global average, making it one of the lowest in the world (World Bank, 2011). Additionally, Russia is renowned for its high levels of alcohol consumption, ranking fourth globally in per capita alcohol consumption (World Health Organization, 2010). Furthermore, compared to developed countries, Russia has limited additional regulations in place to moderate alcohol consumption, such as the absence of minimum pricing policies, high alcohol excise taxes, and restrictions on the availability of high-strength alcohol. As a result, late-night sales restrictions have potential to become a more substantial intervention in shaping drinking behavior. The empirical findings hold potential value for policymakers in other countries considering the implementation of a similar alcohol sales policy.

References

Adda, Jérôme, and Francesca Cornaglia. 2010. "The effect of bans and taxes on passive smoking." *American Economic Journal: Applied Economics*, 2(1): 1–32. Publisher: American Economic Association.

Ahammer, Alexander, Stefan Bauernschuster, Martin Halla, and Hannah Lachenmaier. 2022. "Minimum legal drinking age and the social gradient in binge drinking." *Journal of Health Economics*, 81: 102571.

Anderson, Michael L. 2008. "Multiple inference and gender differences in the effects of early intervention: A reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects." *Journal of the American statistical Association*, 103(484): 1481–1495.

Baltagi, Badi H., and Ingo Geishecker. 2006. "Rational alcohol addiction: evidence from the Russian longitudinal monitoring survey." *Health economics*, 15(9): 893–914.

Barrett, Garry F. 2002. "The effect of alcohol consumption on earnings." *Economic Record*, 78(240): 79–96.

Bernheim, B. Douglas, Jonathan Meer, and Neva K. Novarro. 2016. "Do Consumers Exploit Commitment Opportunities? Evidence from Natural Experiments Involving Liquor Consumption." *American Economic Journal: Economic Policy*, 8(4): 41–69.

Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan. 2004. "How much should we trust differences-in-differences estimates?" *The Quarterly journal of economics*, 119(1): 249–275.

Bhattacharya, Jay, Christina Gathmann, and Grant Miller. 2013. "The Gorbachev Anti-Alcohol Campaign and Russia's Mortality Crisis." *American Economic Journal: Applied Economics*, 5(2): 232–260.

Bouchery, Ellen E., et al. 2011. "Economic costs of excessive alcohol consumption in the US, 2006." *American journal of preventive medicine*, 41(5): 516–524.

Bryan, Gharad, Dean Karlan, and Scott Nelson. 2010. "Commitment devices." *Annual Review of Economics*, 2: 671–698.

Brzozowski, Matthew, Thomas F. Crossley, and Joachim K. Winter. 2017. "A comparison of recall and diary food expenditure data." *Food Policy*, 72: 53–61.

Burton, Robyn, et al. 2017. "A rapid evidence review of the effectiveness and cost-effectiveness of alcohol control policies: an English perspective." *The Lancet*, 389(10078): 1558–1580.

Bäuml, Matthias, Jan Marcus, and Thomas Siedler. 2023. "Health effects of a ban on late-night alcohol sales." *Health Economics*, 32(1): 65–89.

Callaway, Brantly, and Pedro HC Sant'Anna. 2021. "Difference-in-differences with multiple time periods." *Journal of econometrics*, 225(2): 200–230. Publisher: Elsevier.

Cameron, A. Colin, and Douglas L. Miller. 2015. "A practitioner's guide to cluster-robust inference." *Journal of human resources*, 50(2): 317–372.

Carpenter, C. 2014. "Alcohol." In *Encyclopedia of Health Economics.* , ed. Anthony J. Culyer, 61–66. San Diego:Elsevier.

Carpenter, Christopher. 2004. "How do zero tolerance drunk driving laws work?" *Journal of Health Economics*, 23(1): 61–83.

Carpenter, Christopher. 2005. "Youth alcohol use and risky sexual behavior: evidence from underage drunk driving laws." *Journal of health economics*, 24(3): 613–628.

Carpenter, Christopher, and Carlos Dobkin. 2011. "The Minimum Legal Drinking Age and Public Health." *Journal of Economic Perspectives*, 25(2): 133–156.

Carpenter, Christopher, and Carlos Dobkin. 2017. "The Minimum Legal Drinking Age and Morbidity in the United States." *The Review of Economics and Statistics*, 99(1): 95–104.

Carpenter, Christopher S., and Daniel Eisenberg. 2009. "Effects of Sunday Sales Restrictions on Overall and Day-Specific Alcohol Consumption: Evidence From Canada." *Journal of Studies on Alcohol and Drugs*, 70(1): 126–133.

Carpenter, Christopher S., Carlos Dobkin, and Casey Warman. 2016. "The mechanisms of alcohol control." *Journal of human resources*, 51(2): 328–356.

Carpenter, Christopher S., Deborah D. Kloska, Patrick O'Malley, and Lloyd Johnston. 2007. "Alcohol Control Policies and Youth Alcohol Consumption: Evidence from 28 Years of Monitoring the Future." *The B.E. Journal of Economic Analysis & Policy*, 7(1). Publisher: De Gruyter.

Cawley, John, and Christopher J. Ruhm. 2011. "The economics of risky health behaviors." In *Handbook of health economics.* Vol. 2, 95–199.

CDC. 2021. "Alcohol and Public Health." Accessed 6/30/2021.

Conover, Emily, and Dean Scrimgeour. 2013. "Health consequences of easier access to alcohol: New Zealand evidence." *Journal of Health Economics*, 32(3): 570–585.

Consultant Plus. 2021. "Collection of Federal and Local Legal Acts Consultant Plus." Accessed 03/01/2021.

Cook, Robert T. 1998. "Alcohol Abuse, Alcoholism, and Damage to the Immune System—A Review." *Alcoholism: Clinical and Experimental Research*, 22(9): 1927–1942.

Cunningham, Scott, and Keith Finlay. 2013. "Parental Substance Use And Foster Care: Evidence From Two Methamphetamine Supply Shocks." *Economic Inquiry*, 51(1): 764–782.

d'Abbs, Peter, Samantha Togni, Natasha Stacey, and Joe Fitz. 2000. "Alcohol restrictions in Tennant Creek: a review prepared for the beat the grog committee, Tennant Creek, Northern Territory." *Darwin: Menzies School of Health Research.*

De Chaisemartin, Clément, and Xavier d'Haultfoeuille. 2020. "Two-way fixed effects estimators with heterogeneous treatment effects." *American Economic Review*, 110(9): 2964–2996. Publisher: American Economic Association 2014 Broadway, Suite 305, Nashville, TN 37203.

Dee, Thomas S. 1999. "State alcohol policies, teen drinking and traffic fatalities." *Journal of Public Economics*, 72(2): 289–315.

Dee, Thomas S., and William N. Evans. 2003. "Teen drinking and educational attainment: evidence from two-sample instrumental variables estimates." *Journal of Labor Economics*, 21(1): 178–209.

Dehos, Fabian T. 2022. "Underage access to alcohol and its impact on teenage drinking and crime." *Journal of Health Economics*, 81: 102555.

Denisova, Irina. 2010. "Adult mortality in Russia." *Economics of Transition*, 18(2): 333–363.

Duailibi, Sergio, William Ponicki, Joel Grube, Ilana Pinsky, Ronaldo

Laranjeira, and Martin Raw. 2007. "The Effect of Restricting Opening Hours on Alcohol-Related Violence." *American Journal of Public Health*, 97(12): 2276–2280. Publisher: American Public Health Association.

Evans, Mary F., Matthew C. Harris, and Lawrence M. Kessler. 2022. "The hazards of unwinding the prescription opioid epidemic: Implications for child maltreatment." *American Economic Journal: Economic Policy*, 14(4): 192–231. Publisher: American Economic Association 2014 Broadway, Suite 305, Nashville, TN 37203-2425.

Francesconi, Marco, Fabián Slonimczyk, and Anna Yurko. 2019. "Democratizing access to higher education in Russia: The consequences of the unified state exam reform." *European Economic Review*, 117: 56–82.

Fricker, Scott, Brandon Kopp, Lucilla Tan, and Roger Tourangeau. 2015. "A Review of Measurement Error Assessment in a U.S. Household Consumer Expenditure Survey." *Journal of Survey Statistics and Methodology*, 3(1): 67–88.

Goodman-Bacon, Andrew. 2021. "Difference-in-differences with variation in treatment timing." *Journal of Econometrics*, 225(2): 254–277. Publisher: Elsevier.

Gray, D., S. Saggers, D. Atkinson, B. Sputore, and D. Bourbon. 1998. "Evaluation of the Tennant Creek liquor licensing restrictions: a report prepared for the Tennant Creek beat the grog sub-committee." *Perth: Curtin University of Technology, National Centre for Research into the Prevention of Drug Abuse.*

Green, Colin, and Lana Krehic. 2022. "An extra hour wasted? Bar closing hours and traffic accidents in Norway." *Health Economics*, 31(8): 1752–1769.

Green, Colin P., John. S. Heywood, and Maria Navarro. 2014. "Did liberalising bar hours decrease traffic accidents?" *Journal of Health Economics*, 35: 189–198.

Grossman, Michael, Jody L. Sindelar, John Mullahy, and Richard Anderson. 1993. "Policy Watch: Alcohol and Cigarette Taxes." *Journal of Economic Perspectives*, 7(4): 211–222.

Hahn, Robert A., et al. 2010. "Effectiveness of policies restricting hours of alcohol sales in preventing excessive alcohol consumption and related harms." *American journal of preventive medicine*, 39(6): 590–604.

Hansen, Benjamin, and Glen R. Waddell. 2018. "Legal access to alcohol and criminality." *Journal of health economics*, 57: 277–289. Publisher: Elsevier.

Heaton, Paul. 2012. "Sunday liquor laws and crime." *Journal of Public Economics*, 96(1): 42–52.

Heckman, James J. 2007. "The economics, technology, and neuroscience of human capability formation." *Proceedings of the national Academy of Sciences*, 104(33): 13250–13255.

Hinnosaar, Marit. 2016. "Time inconsistency and alcohol sales restrictions." *European Economic Review*, 87: 108–131.

Hoadley, John F., Beth C. Fuchs, and Harold D. Holder. 1984. "The Effect of Alcohol Beverage Restrictions on Consumption: A 25-Year Longitudinal Analysis." *The American Journal of Drug and Alcohol Abuse*, 10(3): 375–401.

Johansson, Per, Tuomas Pekkarinen, and Jouko Verho. 2014. "Cross-border health and productivity effects of alcohol policies." *Journal of Health Economics*, 36: 125–136.

Kearney, Melissa S., and Phillip B. Levine. 2017. "The Economics of Nonmarital Childbearing and the Marriage Premium for Children." *Annual Review of*

Economics, 9(Volume 9, 2017): 327–352. Publisher: Annual Reviews.

Kearney, Melissa Schettini. 2022. "The "College Gap" in Marriage and Children's Family Structure."

Kleven, Henrik. 2019. "The EITC and the extensive margin: A reappraisal." National Bureau of Economic Research.

Knight, Ian B., and Paul Wilson. 1980. *Scottish Licensing Laws: A Survey.* Vol. 1094, HM Stationery Office.

Kolosnitsyna, Marina, Marat Sitdikov, and Natalia Khorkina. 2014. "Availability restrictions and alcohol consumption: A case of restricted hours of alcohol sales in Russian regions." *The international journal of alcohol and drug research*, 3(3): 193–201.

Kolosnitsyna, Marina, Natalia Khorkina, and Anton Volkov. 2017. "Alcohol Policies and Crime Rates in Russian Regions." *Higher School of Economics Research Paper No. WP BRP*, 11.

Kossova, Tatiana, Elena Kossova, and Maria Sheluntcova. 2017. "Alcohol consumption and individual time preferences of Russians." *International Review of Economics*, 64(1): 47–85.

Kozyreva, Polina, Mikhail Kosolapov, and Barry M. Popkin. 2016. "Data resource profile: The Russia longitudinal monitoring Survey—Higher school of economics (RLMS-HSE) phase II: Monitoring the economic and health situation in Russia, 1994–2013." *International Journal of Epidemiology*, 45(2): 395–401.

Laslett, Anne-Marie, Jason Ferris, Paul Dietze, and Robin Room. 2012. "Social demography of alcohol-related harm to children in Australia." *Addiction*, 107(6): 1082–1089.

Lindo, Jason M., Isaac D. Swensen, and Glen R. Waddell. 2013. "Alcohol and student performance: Estimating the effect of legal access." *Journal of health economics*, 32(1): 22–32.

Lovenheim, Michael F., and Joel Slemrod. 2010. "The fatal toll of driving to drink: The effect of minimum legal drinking age evasion on traffic fatalities." *Journal of Health Economics*, 29(1): 62–77.

MacDonald, Ziggy, and Michael A. Shields. 2004. "Does problem drinking affect employment? Evidence from England." *Health Economics*, 13(2): 139–155.

Marcus, Jan, and Thomas Siedler. 2015. "Reducing binge drinking? The effect of a ban on late-night off-premise alcohol sales on alcohol-related hospital stays in Germany." *Journal of Public Economics*, 123: 55–77. Publisher: Elsevier.

Markowitz, Sara, Alison Cuellar, Ryan M. Conrad, and Michael Grossman. 2014. "Alcohol control and foster care." *Review of Economics of the Household*, 12: 589–612. Publisher: Springer.

Martin Bassols, Nicolau, and Judit Vall Castello. 2018. "Bar opening hours, alcohol consumption and workplace accidents." *Labour Economics*, 53: 172–181.

McMillan, Garnett P., and Sandra Lapham. 2006. "Effectiveness of Bans and Laws in Reducing Traffic Deaths." *American Journal of Public Health*, 96(11): 1944–1948. Publisher: American Public Health Association.

Midanik, Lorraine T. 1989. "Perspectives on the validity of self-reported alcohol use." *British journal of addiction*, 84(12): 1419–1423.

Navarro, Héctor José, Christopher M. Doran, and Anthony P. Shakeshaft. 2011. "Measuring costs of alcohol harm to others: A review of the literature." *Drug* *and alcohol dependence*, 114(2-3): 87–99.

Neufeld, Maria, and Jürgen Rehm. 2013. "Alcohol consumption and mortality in Russia since 2000: are there any changes following the alcohol policy changes starting in 2006?" *Alcohol and Alcoholism*, 48(2): 222–230.

Norström, Thor, and Ole-Jørgen Skog. 2005. "Saturday opening of alcohol retail shops in Sweden: an experiment in two phases." *Addiction*, 100(6): 767–776.

Popova, S., N. Giesbrecht, D. Bekmuradov, and J. Patra. 2009. "Hours and Days of Sale and Density of Alcohol Outlets: Impacts on Alcohol Consumption and Damage: A Systematic Review." *Alcohol and Alcoholism*, 44(5): 500–516.

Public Opinion Fund. 2014. "Russian Public Opinion Research Center (VCIOM), Joint Economic and Social Data Archive." Accessed 05/01/2021.

Rittenhouse, Katherine. 2023. *Income and Child Maltreatment: Evidence from a Discontinuity in Tax Benefits.* SSRN.

Rossow, Ingeborg, and Thor Norström. 2012. "The impact of small changes in bar closing hours on violence. The Norwegian experience from 18 cities." *Addiction*, 107(3): 530–537.

Rosstat. 2010. "Russian Federal State Statistics Service." Accessed 1/25/2024.

Rosstat. 2021. "Russian Federal State Statistics Service." Accessed 05/03/2021.

Ruhm, Christopher J. 1996. "Alcohol policies and highway vehicle fatalities." *Journal of Health Economics*, 15(4): 435–454.

Sanchez-Ramirez, Diana C, and Donald Voaklander. 2018. "The impact of policies regulating alcohol trading hours and days on specific alcohol-related harms: a systematic review." *Injury Prevention*, 24(1): 94–100.

Sen, Bisakha. 2003. "Can beer taxes affect teen pregnancy? Evidence based on teen abortion rates and birth rates." *Southern Economic Journal*, 328–343.

Siegfried, Nandi, and Charles Parry. 2019. "Do alcohol control policies work? An umbrella review and quality assessment of systematic reviews of alcohol control interventions (2006–2017)." *PloS one*, 14(4): e0214865.

Skorobogatov, Alexander. 2014. "The effect of closing hour restrictions on alcohol use and abuse in Russia." *Higher School of Economics Research Paper No. WP BRP*, 63.

Stehr, Mark. 2007. "The Effect of Sunday Sales Bans and Excise Taxes on Drinking and Cross—Border Shopping for Alcoholic Beverages." *National Tax Journal*, 60(1): 85–105.

Stockwell, Tim, and Tanya Chikritzhs. 2009. "Do relaxed trading hours for bars and clubs mean more relaxed drinking? A review of international research on the impacts of changes to permitted hours of drinking." *Crime Prevention and Community Safety*, 11(3): 153–170.

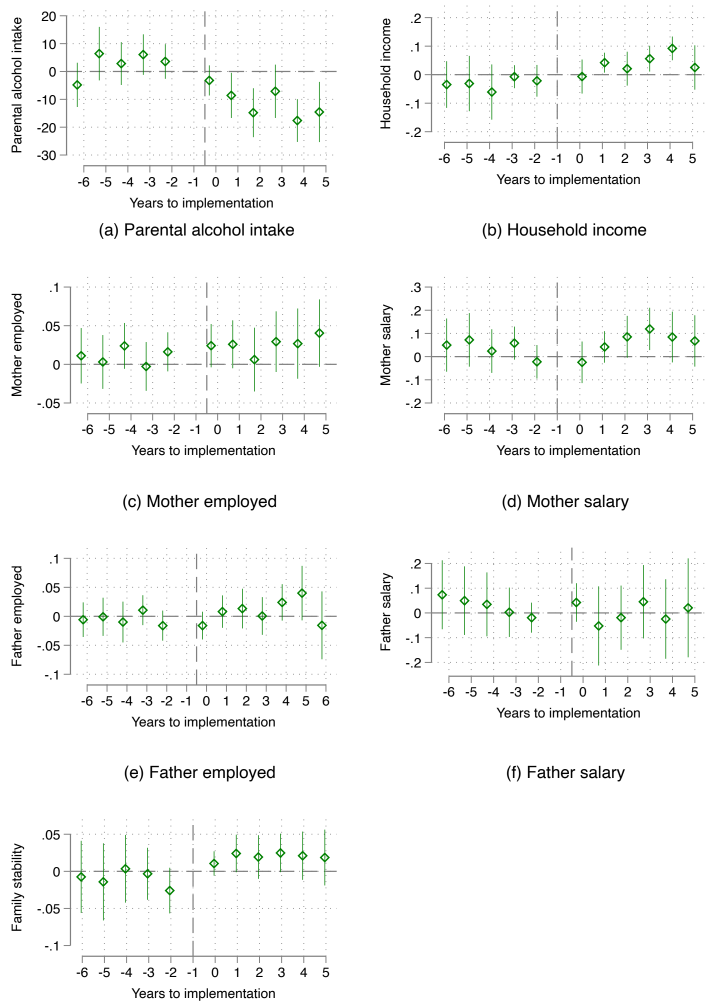
Sudman, Seymour, Norman M. Bradburn, and Norbert Schwarz. 1996. *Thinking about answers: The application of cognitive processes to survey methodology. Thinking about answers: The application of cognitive processes to survey methodology*, San Francisco, CA, US:Jossey-Bass. Pages: xiv, 304.

Sun, Liyang, and Sarah Abraham. 2021. "Estimating dynamic treatment effects in event studies with heterogeneous treatment effects." *Journal of Econometrics*, 225(2): 175–199. Publisher: Elsevier.

Tesch, Falko, and Lukas Hohendorf. 2018. "Do Changes in Bar Opening Hours Influence Violence in the Night? Evidence from 13 Bavarian Towns." *Journal of*

Drug Issues, 48(2): 295–306. Publisher: SAGE Publications Inc.
Vingilis, E., A. I. McLeod, J. Seeley, R. E. Mann, D. Beirness, and C. P. Compton. 2005. "Road safety impact of extended drinking hours in Ontario." *Accident Analysis & Prevention*, 37(3): 549–556.
Vingilis, Evelyn, A. Ian McLeod, Gina Stoduto, Jane Seeley, and Robert E. Mann. 2007. "Impact of Extended Drinking Hours in Ontario on Motor-Vehicle Collision and Non-Motor-Vehicle Collision Injuries." *Journal of Studies on Alcohol and Drugs*, 68(6): 905–911. Publisher: Alcohol Research Documentation, Inc.
Wagenaar, Alexander C., Amy L. Tobler, and Kelli A. Komro. 2010. "Effects of Alcohol Tax and Price Policies on Morbidity and Mortality: A Systematic Review." *American Journal of Public Health*, 100(11): 2270–2278. Publisher: American Public Health Association.
Wagenaar, Alexander C, and Traci L Toomey. 2002. "Effects of minimum drinking age laws: review and analyses of the literature from 1960 to 2000." *Journal of Studies on Alcohol, Supplement*, , (s14): 206–225. Publisher: Alcohol Research Documentation, Inc.
Wang, Mei, Marc Oliver Rieger, and Thorsten Hens. 2016. "How time preferences differ: Evidence from 53 countries." *Journal of Economic Psychology*, 52: 115–135.
Wilkinson, Claire, Michael Livingston, and Robin Room. 2016. "Impacts of changes to trading hours of liquor licences on alcohol-related harm: a systematic review 2005–2015." *Public health research & practice.*
World Bank. 2011. "International Comparison Program: Price Level Index. The World Bank Group."
World Health Organization. 2008. *Inequalities in young people's health: HBSC international report from the 2005/2006 survey.* World Health Organization. Publisher: World Health Organization. Regional Office for Europe.
World Health Organization. 2010. *Total Alcohol per Capita (15+) Consumption. WHO Global Information System on Alcohol and Health.* World Health Organization.
World Health Organization. 2011. *15-Years Old Any Alcoholic Beverage in Past 12 Months by Country. WHO Global Information System on Alcohol and Health.* World Health Organization.
World Health Organization. 2018*a*. *Adolescent alcohol-related behaviours: Trends and inequalities in the WHO European Region, 2002-2014.* WHO Regional Office for Europe.
World Health Organization. 2018*b*. *Global status report on alcohol and health 2018.* World Health Organization.
Xu, Xin, and Frank J. Chaloupka. 2011. "The effects of prices on alcohol use and its consequences." *Alcohol Research & Health*, 34(2): 236.
Yakovlev, Evgeny. 2018. "Demand for alcohol consumption in Russia and its implication for mortality." *American Economic Journal: Applied Economics*, 10(1): 106–49.
Young, Douglas J., and Agnieszka Bielinska-Kwapisz. 2006. "Alcohol Prices, Consumption, and Traffic Fatalities." *Southern Economic Journal*, 72(3): 690–703. Publisher: Southern Economic Association.
Yörük, Barış K. 2014. "Can technology help to reduce underage drinking? Evidence

from the false ID laws with scanner provision." *Journal of Health Economics*, 36: 33–46.



(a) Parental alcohol intake

(b) Household income

(c) Mother employed

(d) Mother salary

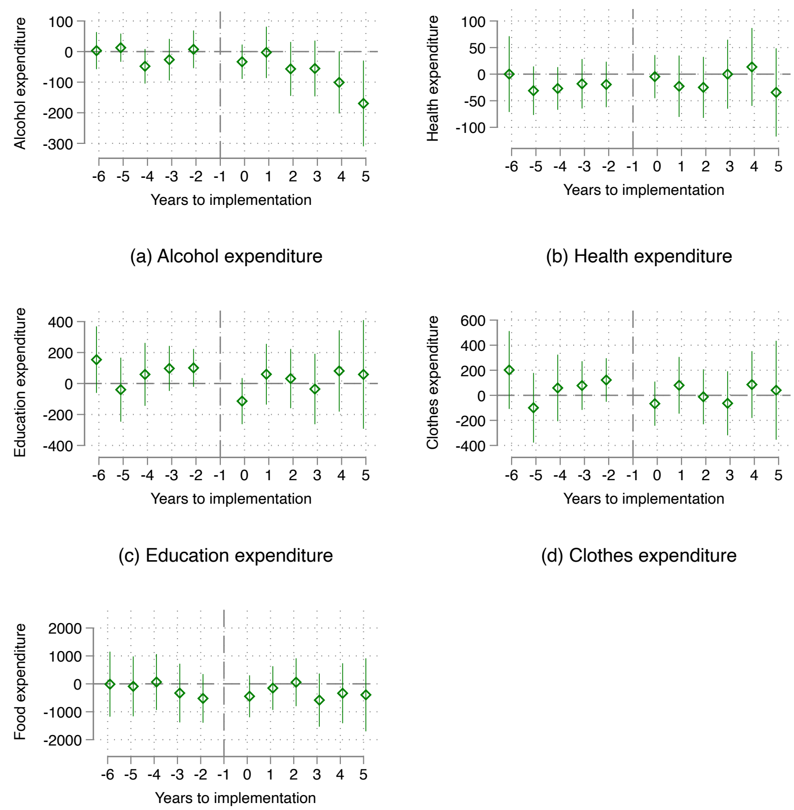
(e) Father employed

(f) Father salary

(g) Family stability

Figure A1. Event-study: effects of policy on parental outcomes

Note: The figure plots the post-treatment and anticipatory effects from the event-study specification based on Sun & Abraham (2021) approach as well as the 95% confidence intervals for parental outcomes. The set of control variables includes child level, parent level, household level, alcohol policies, municipality controls as well as state and time fixed effects. Parental alcohol intake is measured in grams of pure alcohol consumed on a typical drinking occasion. Family stability is a dummy variable that equals 1 if the child currently lives with both biological parents, whereas 0 indicates living with just 1 or 0 parents and indicates family instability. Robust standard errors are adjusted for clustering at the level of the state.



(a) Alcohol expenditure

(b) Health expenditure

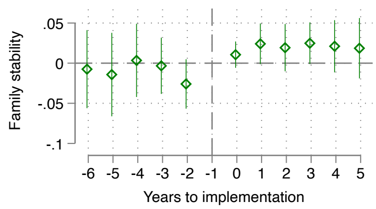
(c) Education expenditure

(d) Clothes expenditure

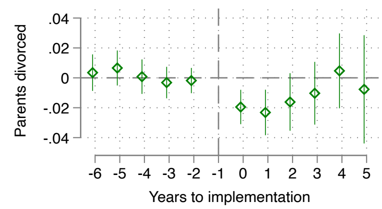
(e) Food expenditure

Figure A2. Event-study: household expenditures

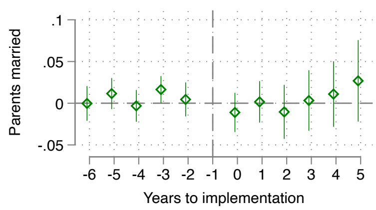
Note: The figure plots the post-treatment and anticipatory effects from the event-study specification based on Sun & Abraham (2021) approach as well as the 95% confidence intervals for parental outcomes. The set of control variables includes child level, parent level, household level, alcohol policies, municipality controls as well as state and time fixed effects. Monthly household expenditures are adjusted for inflation and expressed in 2003-year rubles. Robust standard errors are adjusted for clustering at the level of the state.



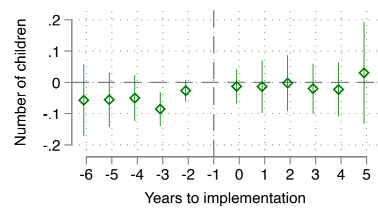
(a) Family stability



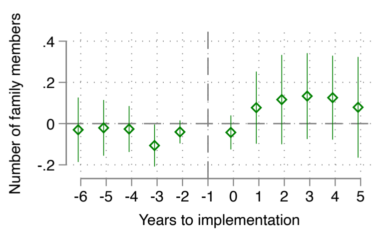
(b) Parents divorced



(c) Parents married



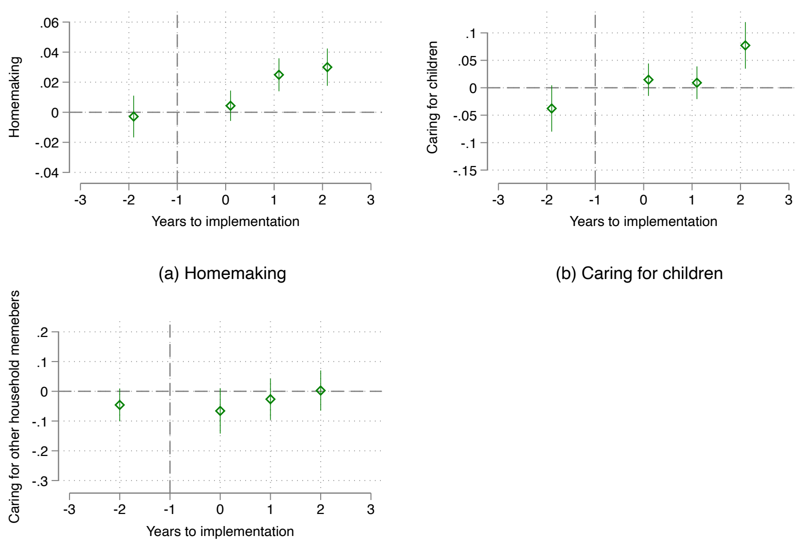
(d) Number of children



(e) Number of family members

Figure A3. Event-study: family stability and associated mechanisms

Note: The figure plots the post-treatment and anticipatory effects from the event-study specification based on Sun & Abraham (2021) approach as well as the 95% confidence intervals for parental outcomes. Family stability is a dummy variable that equals 1 if the child currently lives with both biological parents, whereas 0 indicates living with just 1 or 0 parents and indicates family instability. The set of control variables includes child level, parent level, household level, alcohol policies, municipality controls as well as state and time fixed effects. Robust standard errors are adjusted for clustering at the level of the state.



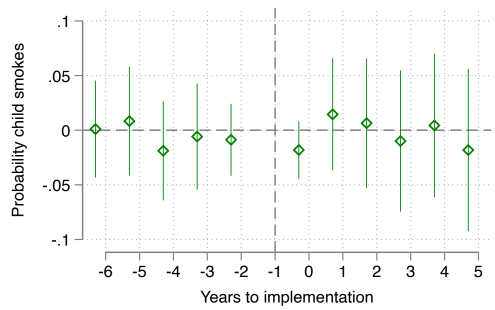
(a) Homemaking

(b) Caring for children

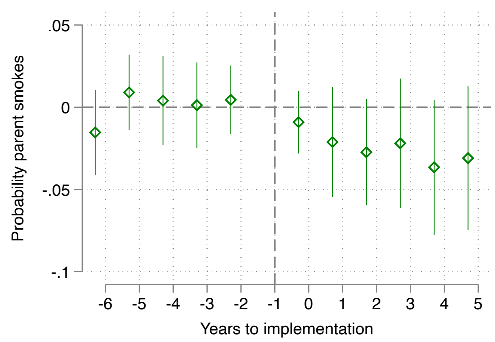
(c) Caring for other household memebers

Figure A4. Event-study: parental time use

Note: The figure plots the post-treatment and anticipatory effects from the event-study specification based on Sun & Abraham (2021) approach as well as the 95% confidence intervals for parental outcomes. The set of control variables includes child level, parent level, household level, alcohol policies, municipality controls as well as state and time fixed effects. The RLMS survey includes questions on time use only for the years 2006-2010. The analysis of time use is limited to states where data on time-use outcomes are available for at least one year before the policy adoption. These outcomes, which include homemaking, taking care of children, and attending to other household members, reflect the likelihood of parents spending time on these activities last month. Homemaking encompasses activities such as purchasing food goods, preparing meals, washing dishes, doing laundry, ironing, cleaning rooms, performing household repairs (including those on a house or dacha), fixing a car, tending to land or garden plots, and driving a car for family purposes. Taking care of children involves playing, spending leisure time with them, supervising them (including tasks like bathing and feeding), accompanying them to lessons, and providing assistance to children who live either with or separately from the adult respondents. Taking care of other household members refers to helping or caring for any other family members, excluding children living with or apart from the adult respondents. Robust standard errors are adjusted for clustering at the level of the state.



(a) Probability child smokes



(b) Probability parent smokes

Figure A5. Event-study: tobacco consumption

Note: The figure plots the post-treatment and anticipatory effects from the event-study specification based on Sun & Abraham (2021) approach as well as the 95% confidence intervals for parental outcomes. The set of control variables includes child level, parent level, household level, alcohol policies, municipality controls as well as state and time fixed effects. "Probability parent smokes" refers to whether either of the parents smoke. Robust standard errors are adjusted for clustering at the level of the state.

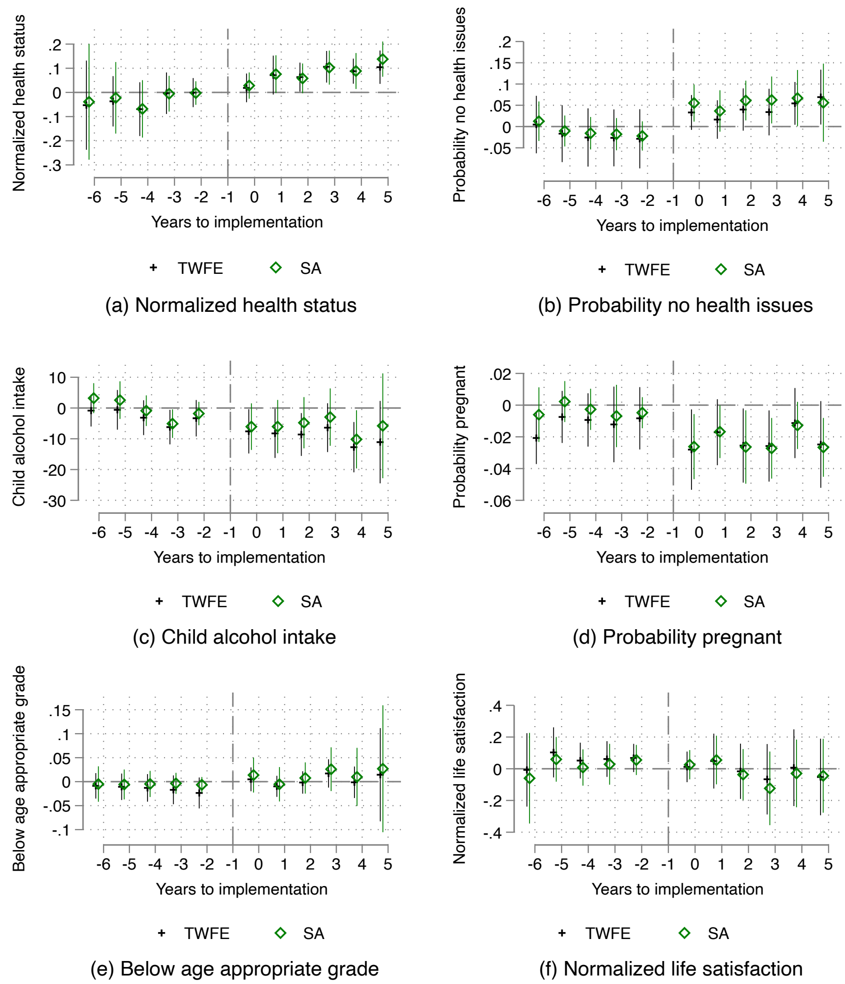
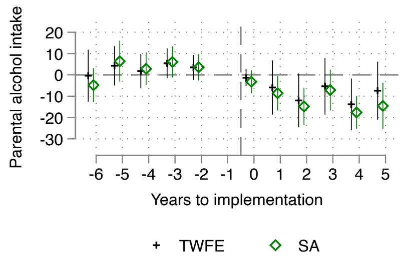
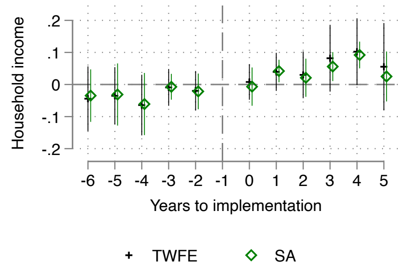


Figure A6. Comparing TWFE and Sun & Abraham (2021) approach: child outcomes

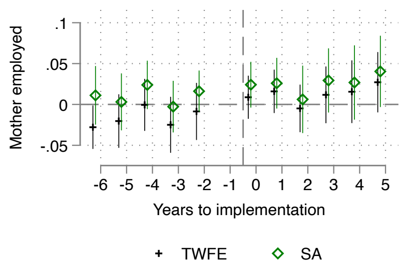
Note: The figure plots the post-treatment and anticipatory effects from from alternative empirical strategies as well as the 95% confidence intervals for child outcomes. Each Panel presents results obtained from the regressions conducted according to the methodology outlined in Sun & Abraham (2021) (referred to as SA) and the results derived from Two-way Fixed Effects (TWFE) estimations as detailed in Equation A3. The set of control variables includes child level, parent level, household level, alcohol policies, municipality controls as well as state and time fixed effects. Child alcohol intake is measured in grams of pure alcohol consumed on a typical drinking occasion. Robust standard errors are adjusted for clustering at the level of the state.



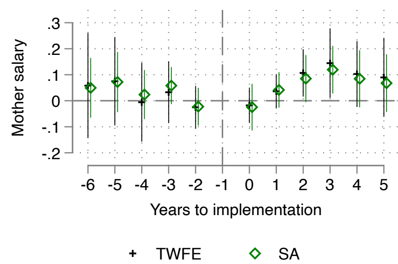
(a) Parental alcohol intake



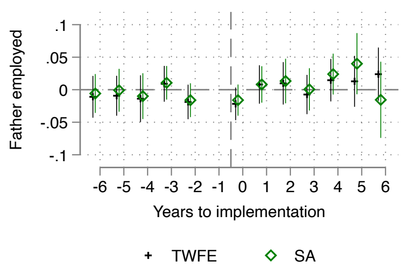
(b) Household income



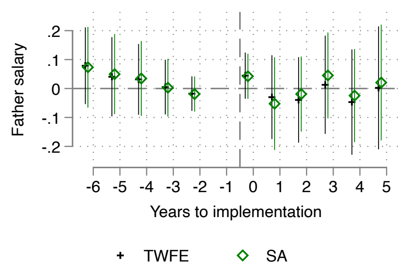
(c) Mother employed



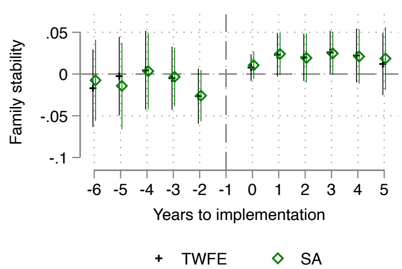
(d) Mother salary



(e) Father employed



(f) Father salary



(g) Family stability

Figure A7. Comparing TWFE and Sun & Abraham (2021) approach: parental outcomes

Note: The figure plots the post-treatment and anticipatory effects from from alternative empirical strategies as well as the 95% confidence intervals for parental outcomes. Each Panel presents results obtained from the regressions conducted according to the methodology outlined in Sun & Abraham (2021) (referred to as SA) and the results derived from Two-way Fixed Effects (TWFE) estimations as detailed in Equation A3. The set of control variables includes child level, parent level, household level, alcohol policies, municipality controls as well as state and time fixed effects. Parental alcohol intake is measured in grams of pure alcohol consumed on a typical drinking occasion. Family stability is a dummy variable that equals 1 if the child currently lives with both biological parents, whereas 0 indicates living with just 1 or 0 parents and indicates family instability. Robust standard errors are adjusted for clustering at the level of the state.

Table A1—Summary statistics of the key variables

Variable	Mean	SD	Observations
Child characteristics			
Age	9.367	(5.460)	44280
I(Male)	0.510	(0.499)	44280
I(No health issues)	0.635	(0.481)	44280
Normalized health status	0.000	(1.000)	44280
Alcohol intake(grams pure alcohol)	17.127	(49.548)	12574
I(Pregnant)	0.026	(0.125)	6260
Normalized life satisfaction	0.000	(1.000)	12574
I(Below age appropriate grade)	0.062	(0.241)	12574
I(Smokes)	0.179	(0.384)	12574
Household characteristics			
I(One-parent family)	0.198	(0.399)	44280
Number of family members	4.193	(1.478)	44280
I(Dwelling ownership)	0.865	(0.341)	44280
Dwelling size(square meters)	55.811	(23.776)	44280
Real income(thousands of rubles)	12.578	(23.084)	44280
I(Real income imputed)	0.059	(0.237)	44280
Mean alcohol intake(grams pure alcohol)	69.483	(81.488)	44280
I(Parent smokes)	0.403	(0.490)	44280
I(Parents married)	0.731	(0.443)	44280
I(Parents divorced)	0.105	(0.307)	44280
I(Parent deceased)	0.036	(0.185)	44280
Number of children	1.706	(0.962)	44280
Alcohol expenditure(thousands of rubles)	0.537	(1.617)	44280
Health expenditure(thousands of rubles)	0.352	(1.348)	44280
Education expenditure(thousands of rubles)	1.435	(3.994)	44280
Clothes expenditure(thousands of rubles)	1.358	(2.140)	44280
Food expenditure(thousands of rubles)	9.009	(4.382)	44280
I(Homemaking)	0.965	(0.183)	44280
I(Caring for children)	0.771	(0.419)	44280
I(Caring for other household members)	0.206	(0.405)	44280
Mother characteristics			
Age	34.694	(7.571)	43267
Weight(kg)	67.855	(13.493)	43267
Height(cm)	163.121	(6.119)	43267
Normalized health status	0.000	(1.000)	43267
I(College degree)	0.235	(0.424)	43267
I(College degree imputed)	0.023	(0.150)	43267
I(Working)	0.740	(0.432)	43267
Salary(thousands of rubles)	3.762	(3.884)	43267
I(Married)	0.715	(0.451)	43267
I(Drinks alcohol)	0.536	(0.499)	43267
Alcohol intake(grams pure alcohol)	37.959	(59.833)	43267
I(Alcohol-related health problems)	0.092	(0.289)	43267

Variable	Mean	SD	Observations
Father characteristics			
Age	36.861	(6.771)	34145
Weight(kg)	78.371	(11.519)	34145
Height(cm)	175.073	(6.096)	34145
Normalized health status	0.000	(1.000)	34145
I(College degree)	0.203	(0.402)	34145
I(College degree imputed)	0.001	(0.012)	34145
I(Working)	0.834	(0.326)	34145
Salary(thousands of rubles)	6.443	(6.319)	34145
I(Married)	0.874	(0.332)	34145
I(Drinks alcohol)	0.726	(0.446)	34145
Alcohol intake(grams pure alcohol)	115.326	(135.659)	34145
I(Alcohol-related health problems)	0.087	(0.282)	34145
State characteristics			
Alcohol sales per capita	9.050	(2.741)	480
Alcohol-related mortality per 100000 of population	1116.909	(227.310)	480
% Urban	0.707	(0.112)	480
% Unemployed among working age population	0.081	(0.034)	480
% Population with tertiary education	0.485	(0.121)	480
% Population below federal poverty level	0.315	(0.244)	480
% Population below regional poverty level	0.244	(0.106)	480
% Muslim	0.107	(0.236)	480
% Minority status	0.337	(0.229)	480
Municipality characteristics			
Population size(millions)	0.965	(2.316)	570
I(Urban)	0.705	(0.455)	570
Regulations			
I(Hour restriction)	0.259	(0.438)	480
Hours closed	9.762	(2.096)	480
I(Retail locations regulation)	0.063	(0.243)	480
I(Production regulation)	0.129	(0.335)	480
I(Premises production regulation)	0.098	(0.298)	480
I(Excise machine regulation)	0.081	(0.273)	480

Note: The sample is a pooled cross-section of individuals residing in 32 states over a time period from 1994 to 2010. Child characteristics, Household characteristics, Mother characteristics, Father characteristics sections report summary statistics of individual-level data from RLMS. Municipality characteristics are summarized from data on municipality × year cells from RLMS. State characteristics and Regulations are summarized from data on state × year cells. State characteristics data is from Russian official statistical agency Rosstat (2021). Regulations data is from collection of local legal acts Consultant Plus (2021). Regulation variables are set to 0 for states in which no relevant regulations are in place. Means reported in Table represent means of respective variables after imputations for missing values. Alcohol intake variables are measured in pure grams of alcohol consumed on a typical drinking occasion. Mean alcohol intake for household is defined as arithmetic mean of alcohol intake for parents within household. Following CDC (2021) classification, a standard drink contains around 14 grams of pure alcohol. Monetary variables (such as household income, wages and expenditures) are adjusted for inflation and expressed in 2003-year rubles, measured on a monthly basis. I(No health issues) refers to the probability that child did not experience any health issues last month. Potential health issues comprised of any health issues including ones that do not necessarily require medical intervention, ER visit or a pediatrician visit(e.g., headache, sore throat or tooth ache, runny nose or slight indigestion, slight fever or burns, bruises, abrasions, feeling nervous). Health status is normalized for each age category.

Table A2—Heterogeneous effects by gender of a child

	Child outcomes		
	Probability no health issues Ages 0-18 (1)	Normalized self-reported health status Ages 0-18 (2)	Alcohol intake in grams of pure alcohol Ages 14-18 (3)
Panel A: Effects by gender			
Male	0.059**	0.073**	-9.889
	(0.029)	(0.029)	(7.105)
Female	0.053**	0.103***	-2.693
	(0.025)	(0.034)	(2.669)

Note: Each cell in the table presents estimation results based on the Sun & Abraham (2021) approach and conducted for sub-samples of children. Panel A divides the sample by sex. Data for health outcomes (probability of no health issues, normalized self-reported health status) is available for a sample of children aged 0-18, while data for alcohol intake in grams is only available for children aged 14-18. Standard errors are clustered at the state level and presented in parentheses. All regressions include a standard set of controls. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). Parent Controls: age, weight, height, health status, marital status, completed college education, employment status for both parents. Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income. Child Controls: age fixed effects, gender. The alcohol intake is measured in grams of pure alcohol consumed on a typical drinking occasion. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Table A3—Effects of policy on household expenditures

	Alcohol Expenditure (1)	Health Expenditure (2)	Education Expenditure (3)	Clothes Expenditure (4)	Food Expenditure (5)
Panel A: Sun and Abraham					
Indicator(hour restriction)	-69.707*	-449.749	10.567	-12.189	13.692
	(39.656)	(494.380)	(103.427)	(24.657)	(96.612)
Panel B: TWFE					
Indicator(hour restriction)	-62.194**	246.516	43.488	11.088	48.007
	(30.203)	(587.637)	(119.949)	(25.034)	(95.349)
Baseline mean	644.873	1035.121	1190.741	244.9596	10096.193
Observations	44280	44280	44280	44280	44280

Note: Panel A displays the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021), while Panel B showcases the results derived from Two-way Fixed Effects estimations as detailed in Equation A1. Standard errors are clustered at the state level and presented in parentheses. All regressions include a standard set of controls. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). Parent Controls: age, weight, height, health status, marital status, completed college education, employment status. Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income. Child Controls: age fixed effects, gender. Monthly household expenditures are adjusted for inflation and expressed in 2003-year rubles. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Table A4—Effects of policy on family stability and associated mechanisms

	Family Stability (1)	Parents Divorced (2)	Parents Married (3)	Number of Children (4)	Number of Family Members (5)
Panel A: Sun and Abraham					
Indicator(hour restriction)	0.020*	-0.019***	0.004	-0.011	0.107
	(0.011)	(0.005)	(0.014)	(0.032)	(0.088)
Panel B: TWFE					
Indicator(hour restriction)	0.019**	-0.024***	0.001	-0.046	0.107
	(0.008)	(0.008)	(0.014)	(0.048)	(0.081)
Baseline mean	0.736	0.115	0.746	1.826	4.507
Observations	44280	44280	44280	44280	44280

Note: Panel A displays the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021), while Panel B showcases the results derived from Two-way Fixed Effects estimations as detailed in Equation A1. All regressions include a standard set of controls. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). Parent Controls: age, weight, height, health status, marital status (except columns (1) to (3)), completed college education, employment status. Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator(except columns (1) to (3)), family size(except column (5)), dwelling size, dwelling ownership, the logarithm of real household income. Child Controls: age fixed effects, gender. Family stability is a dummy variable that equals 1 if the child currently lives with both biological parents, whereas 0 indicates living with just 1 or 0 parents and indicates family instability. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Table A5—Effects of policy on parental time use

	Homemaking (1)	Caring for Children (2)	Caring for Other Household Members (3)
Panel A: Sun and Abraham			
Indicator(hour restriction)	0.020***	0.034***	-0.030
	(0.005)	(0.013)	(0.032)
Panel B: TWFE			
Indicator(hour restriction)	0.022***	0.035***	-0.025
	(0.004)	(0.011)	(0.030)
Baseline mean	0.959	0.725	0.225
Observations	16,215	16,215	16,215

Note: Panel A displays the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021), while Panel B showcases the results derived from Two-way Fixed Effects estimations as detailed in Equation A1. The RLMS survey includes questions on time use only for the years 2006-2010. The analysis of time use is limited to states where data on time-use outcomes are available for at least one year before the policy adoption. These outcomes, which include homemaking, taking care of children, and attending to other household members, reflect the likelihood of parents spending time on these activities last month. Homemaking encompasses activities such as purchasing food goods, preparing meals, washing dishes, doing laundry, ironing, cleaning rooms, performing household repairs (including those on a house or dacha), fixing a car, tending to land or garden plots, and driving a car for family purposes. Taking care of children involves playing, spending leisure time with them, supervising them (including tasks like bathing and feeding), accompanying them to lessons, and providing assistance to children who live either with or separately from the adult respondents. Taking care of other household members refers to helping or caring for any other family members, excluding children living with or apart from the adult respondents. Standard errors are clustered at the state level and presented in parentheses. All regressions include a standard set of controls. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). Parent Controls: age, weight, height, health status, marital status, completed college education, employment status. Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income. Child Controls: age fixed effects, gender. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Table A6—Effects of policy on tobacco consumption

	Probability Child Smokes (1)	Probability Parent Smokes (2)
Panel A: Sun and Abraham		
Indicator(hour restriction)	-0.003	-0.025*
	(0.024)	(0.014)
Panel B: TWFE		
Indicator(hour restriction)	-0.005	-0.020
	(0.022)	(0.020)
Baseline mean	0.192	0.394
Observations	12576	44280

Note: Panel A displays the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021), while Panel B showcases the results derived from Two-way Fixed Effects estimations as detailed in Equation A1. "Probability parent smokes" refers to whether either of the parents smoke. Standard errors are clustered at the state level and presented in parentheses. All regressions include a standard set of controls. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). Parent Controls: age, weight, height, health status, marital status, completed college education, employment status. Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income. Child Controls: age fixed effects, gender. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Table A7—Robustness checks, clustering and multiple testing

	Additional Controls							Sample Restriction	Clustering (p-values)		Multiple testing
	State and Time FE (1)	+ Alcohol Polices (2)	+ Parent Controls (3)	+ Location Controls (4)	+ Household Controls (5)	+ Child Controls (6)	+ State Trends (7)	2002-2010 (8)	One-way: state level (9)	Two-way: individual and state-year (10)	Sharpened q-values (11)
Panel A: Child outcomes											
Probability no health issues	0.0744***	0.0737***	0.0763***	0.0673***	0.0630***	0.056***	0.0564***	0.0726***	0.009	0.010	0.026
	(0.0275)	(0.0266)	(0.0236)	(0.0230)	(0.0226)	(0.0220)	(0.0216)	(0.0212)			
Normalized health status	0.1281***	0.1247***	0.0909***	0.0856***	0.0819***	0.0821***	0.0819***	0.0933***	0.000	0.001	0.001
	(0.0234)	(0.0257)	(0.0211)	(0.0205)	(0.0203)	(0.0200)	(0.0203)	(0.0208)			
Probability pregnant	-0.0168***	-0.0168***	-0.0205***	-0.0202***	-0.0216***	-0.023***	-0.0226***	-0.0125*	0.000	0.016	0.001
	(0.0049)	(0.0048)	(0.0047)	(0.0048)	(0.0050)	(0.0050)	(0.0049)	(0.0069)			
Alcohol intake	-7.9947*	-6.9993	-7.6740*	-7.6017*	-7.3503*	-5.9670	-5.9671	-7.2328*	0.137	0.071	0.144
	(4.5210)	(4.3670)	(4.0840)	(4.1445)	(4.1615)	(4.0180)	(4.0170)	(4.1481)			
Normalized life satisfaction	-0.0463	-0.0570	-0.0592	-0.0507	-0.03170	-0.0260	-0.0317	-0.0195	0.721	0.660	0.317
	(0.0865)	(0.0840)	(0.0770)	(0.0793)	(0.0750)	(0.0730)	(0.0750)	(0.0790)			
Below age appropriate grade	0.0128	0.0151	0.0175	0.0161	0.0121	0.0130	0.0131	0.0133	0.603	0.478	0.281
	(0.0244)	(0.0247)	(0.0257)	(0.0263)	(0.0268)	(0.0250)	(0.0246)	(0.0247)			
Panel B: Mechanisms											
Parental alcohol intake	-8.9529***	-9.4970***	-10.3000***	-9.4690***	-9.3611***	-10.9060***	-10.9760***	-10.2290***	0.000	0.002	0.001
	(2.9470)	(3.1560)	(2.9640)	(3.4130)	(2.6630)	(3.4590)	(2.8630)	(2.7870)			
Household income	0.0365*	0.0376*	0.0363*	0.0351*	0.0374*	0.0365*	0.0380*	0.0360*	0.070	0.870	0.095
	(0.0209)	(0.0212)	(0.0210)	(0.0213)	(0.0217)	(0.0212)	(0.0210)	(0.0214)			
Mother employed	0.0247*	0.0244*	0.0248*	0.0243*	0.0234*	0.0231*	0.0251*	0.0254*	0.075	0.081	0.095
	(0.0143)	(0.0142)	(0.0141)	(0.0144)	(0.0140)	(0.0132)	(0.0141)	(0.0138)			
Mother salary	0.0614*	0.0610*	0.0624*	0.0618*	0.0616*	0.0630*	0.0620*	0.0609*	0.077	0.790	0.095
	(0.0349)	(0.0355)	(0.0353)	(0.0350)	(0.0348)	(0.0356)	(0.0351)	(0.0348)			
Father employed	0.0122	0.0126	0.0169	0.0149	0.0157	0.0082	0.0157	0.0158	0.528	0.402	0.268
	(0.0198)	(0.0191)	(0.0172)	(0.0177)	(0.0182)	(0.0130)	(0.0182)	(0.0190)			
Father salary	0.0065	0.0037	0.0037	0.0018	0.0028	0.0022	0.0227	0.0019	0.973	0.974	0.428
	(0.0620)	(0.0590)	(0.0654)	(0.0660)	(0.0660)	(0.0661)	(0.0520)	(0.0570)			
Family stability	0.0200*	0.0199*	0.0196*	0.0212*	0.0197*	0.0201*	0.0203*	0.0195*	0.068	0.074	0.095
	(0.0110)	(0.0107)	(0.0109)	(0.0114)	(0.0107)	(0.0110)	(0.0115)	(0.0100)			

Note: Panels A and Panel B show the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021) for child outcomes and mechanisms associated with parental drinking, respectively. Only the coefficient on the effect of policy is reported for each of the dependent variables. Column (1) reports estimates with State and Time fixed effects. Column (2) adds Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). Column (3) adds Parent Controls: age, weight, height, health status, marital status (except Row (13)), completed college education, employment status (except Rows (9)-(12)). Column (4) adds Municipality Location Controls: population size, urban location status. Column (5) adds Household Controls: one-parent family indicator(except Row (13)), family size, dwelling size, dwelling ownership, the logarithm of real household income(except Row (8)). Column (6) further adds Child Controls: age fixed effects, gender. Column (6) represents my preferred specification. Column (7) adds state linear trends to preferred specification. Column (8) reports estimates from restricted sample years 2002-2010. Column (9) reports p-values based on the preferred specification in Column (6) and one-way clustering of standard errors at the state level. Column (10) reports p-values based on the preferred specification in Column (6) and two-way clustering of standard errors at the state-year and individual level. Column (11) adjusts estimates of preferred specification in Column (6) for multiple testing by computing sharpened q-values (Anderson, 2008). Rows (1) to (2) estimated on a sample of children aged 0-18. Row (3) is estimated on a sample of females aged 14-18. Rows (4) to (6) estimated on a sample of children aged 14-18. Rows (9) and (11) report estimates unconditional on working. Household income and salaries are presented in logarithmic terms. The alcohol consumption is measured in grams of pure alcohol consumed on a typical drinking occasion. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Table A8—Effects of policy on child outcomes: Alternative treatment specification

	Child outcomes					
	Probability no health issues Ages 0-18 (1)	Normalized self-reported health status Ages 0-18 (2)	Probability pregnant teenage girls Ages 14-18 (3)	Alcohol intake in grams of pure alcohol Ages 14-18 (4)	Normalized life satisfaction Ages 14-18 (5)	Below age appropriate grade Ages 14-18 (6)
Panel A: Sun and Abraham						
Indicator(hour restriction)	0.056***	0.082***	-0.023***	-5.967	-0.026	0.013
	(0.022)	(0.020)	(0.005)	(4.018)	(0.073)	(0.025)
Panel B: Sun and Abraham						
Restriction 6-8 hours	0.045***	0.076***	-0.011**	-3.229	-0.022	0.011
	(0.015)	(0.022)	(0.005)	(2.947)	(0.096)	(0.035)
Restriction 9-11 hours	0.055**	0.066***	-0.021***	-3.106	-0.012	-0.003
	(0.027)	(0.024)	(0.006)	(4.769)	(0.087)	(0.020)
Restriction 12-14 hours	0.079***	0.101**	-0.026***	-10.004**	-0.066	0.026
	(0.027)	(0.048)	(0.007)	(5.040)	(0.111)	(0.024)
Baseline mean	0.627	0.070	0.026	18.827	0.205	0.058
Observations	44280	44280	6260	12574	12574	12574

Note: Panel A displays the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021). Panel B showcases the results derived by splitting the sample into three groups (states affected by 6-8, 9-11, and 12-14 hours of restriction) and conducting the Sun & Abraham (2021) estimation for each group separately. Never treated states are used as clean controls for each subgroup. Standard errors are clustered at the state level and presented in parentheses. All regressions include a standard set of controls. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). Parent Controls: age, weight, height, health status, marital status, completed college education, employment status for both parents. Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income. Child Controls: age fixed effects, gender. Columns (1) to (2) estimated on a sample of children aged 0-18. Column (3) estimated on a sample of females aged 14-18. Columns (4) to (6) estimated on a sample of children aged 14-18. The alcohol intake is measured in grams of pure alcohol consumed on a typical drinking occasion. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Appendix B. Robustness to alternative estimators

In this paper, I demonstrate the robustness of the main estimates to two alternative strategies: TWFE with binary treatment and TWFE with continuous treatment. This Section explains each approach in more detail and provides the estimating equation as well as discusses required assumptions.

1. TWFE with binary treatment

The source of plausibly exogenous variation for this study comes from the staggered adoption of policy restricting hours of alcohol sales. This generates geographic and temporal variations in alcohol availability and, consequently, child outcomes. The standard estimation approach for such a scenario commonly employs the Two-Way Fixed Effects (TWFE) estimator. First, I estimate the effect of the policy on child outcomes by comparing child outcomes in treatment and control states before and after the policy was introduced. I specify it as the following reduced-form model with binary treatment:

$$Y_{imst} = \alpha_0 + \beta_0 I(Restriction)_{st} + X_{imst} + \lambda_s + \theta_t + \epsilon_{imst}, \tag{A1}$$

where $\mathrm{Y}_{\mathrm{imst}}$ represents an educational, well-being, risky behaviour or physical health outcome of a child i in municipality m of state s in year t. $I(Restriction)_{st}$ is a dummy variable that equals unity if state s has alcohol sales hour restriction in year t. X_{imst} is a vector of controls for parent, child, household, municipality and state characteristics. State level controls include indicators of presence of other state alcohol market policies. Unobservable determinants of child outcomes that are fixed at the state level are controlled for through the state indicators λ_s, as well as common time shocks are absorbed by the year indicators θ_t. Throughout this paper, all standard errors are robust to heteroskedasticity and clustered at the state level to make statistical inference robust to serial correlation within states over time (Bertrand et al., 2004).[71] Household weights are used to account for the survey sampling scheme.

I estimate the model in Equation A1 by OLS. The primary parameter of interest is β_0. The central identifying assumption is that there can be no change in unobserved factors coinciding with the timing of the policy that only affects the child outcomes in households living in treated states (no other shock assumption). The second assumption is that the underlying trends of the two groups being considered are similar. In particular, we need to assume that the trends in child outcomes between the treatment and control states would have been the same in the absence of a policy.

2. TWFE with continuous treatment

I also estimate an alternative version of Equation A1 that uses a continuous treatment measure for exposure to the policy:

$$Y_{imst} = \alpha_1 + \beta_1 Hours\_Closed_{st} + X_{imst} + \lambda_s + \theta_t + \nu_{imst}, \tag{A2}$$

[71] Note that in this context, one-way clustering on the state level is equivalent to the two-way clustering on the state and individual level since individuals are nested within states. Thus state-level clustering is enough to account for the correlation between individual outcomes from one year to the next (Cameron & Miller, 2015).

where $\mathrm{Y}_{\mathrm{imst}}$ represents an educational, well-being, risky behaviour or physical health outcome of a child i in municipality m of state s in year t. $Hours\_Closed_{st}$ is a state-specific number of hours per day when alcohol sales are not allowed. X_{imst} is a vector of controls for parent, child, household, municipality and state characteristics. State level controls include indicators of presence of other state alcohol market policies. Unobservable determinants of child outcomes that are fixed at the state level are controlled for through the state indicators λ_s, as well as common time shocks are absorbed by the year indicators θ_t. Standard errors are robust to heteroskedasticity and clustered at the state level to make statistical inference robust to serial correlation within states over time (Bertrand et al., 2004).[72] Household weights are used to account for the survey sampling scheme.

This specification enables me to incorporate additional variation stemming from differences in the degree of restriction and potentially receive more precise estimates. At the same time, the implicit assumption underlying this specification is the linearity of effects that an additional hour of restriction has on child outcomes.

I present the estimation results of Equation A2 for child and parental outcomes (parental alcohol consumption, household income, employment and wages of parents, family stability) in Tables B1 and B2, respectively.

3. Event-study framework

As discussed above, the empirical strategy relies upon the assumption that if the policy were not to be implemented, the outcomes of interest for the treatment and control groups would follow similar trends. Hence, the pre-treatment trends in the outcomes I examine should be parallel across treatment and control groups. Before presenting my results, I use an event-study specification to rule out differential pre-trends. The event-study specification provides a natural test for the identification assumption of the model as differences in pre-trends can be examined visually. The specification is based on the distance to the introduction date in each state, and I estimate:

$$\text{(A3)} \qquad Y_{imst} = \alpha + \sum_{\tau=-6}^{5} \phi_\tau I(Distance_{ist} = \tau, \tau \neq -1) + X_{imst} + \lambda_s + \theta_t + \upsilon_{imst},$$

where $I(Distance_{ist} = \tau)$ are dummy variables indicating the number of years ($\tau = -6, \ldots, 5$) for individual i in state s relative to year of implementation of the policy. I plot the point estimates from the event-study regression in Panels of Appendix Figure A6 and Appendix Figure A7 for child and parent outcomes respectively. The omitted category is $\tau = -1$ and corresponds to one year prior to policy implementation. Pre-treatment years before the $\tau = -6$ are also allocated to the category -6. The plotted pattern shows no evidence of clear pre-trends. Conditional on year and state fixed effects, as well as child, parent, household, and location controls the estimates of the pre-treatment dummies are all close to zero and insignificant.

[72]Note that in this context, one-way clustering on the state level is equivalent to the two-way clustering on the state and individual level since individuals are nested within states. Thus state-level clustering is enough to account for the correlation between individual outcomes from one year to the next (Cameron & Miller, 2015).

Table B1—Effects of policy on child outcomes: Robustness to alternative estimators

	Child outcomes					
	Probability no health issues Ages 0-18 (1)	Normalized self-reported health status Ages 0-18 (2)	Probability pregnant teenage girls Ages 14-18 (3)	Alcohol intake in grams of pure alcohol Ages 14-18 (4)	Normalized life satisfaction Ages 14-18 (5)	Below age appropriate grade Ages 14-18 (6)
Panel A: Sun and Abraham						
Indicator(hour restriction)	0.056***	0.082***	-0.023***	-5.967	-0.026	0.013
	(0.022)	(0.020)	(0.005)	(4.018)	(0.073)	(0.025)
Panel B: TWFE						
Indicator(hour restriction)	0.041**	0.087***	-0.018***	-5.954*	0.038	0.004
	(0.020)	(0.029)	(0.005)	(3.643)	(0.103)	(0.014)
Panel C: TWFE						
Hours closed	0.003**	0.006**	-0.002***	-0.589*	-0.003	-0.002
	(0.001)	(0.002)	(0.000)	(0.353)	(0.012)	(0.001)
Baseline mean	0.627	0.070	0.026	18.827	0.205	0.058
Observations	44280	44280	6260	12574	12574	12574

Note: Panel A displays the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021). Panel B and C showcases the results derived from Two-way Fixed Effects estimations as detailed in Equation A1 and Equation A2, respectively. Standard errors are clustered at the state level and presented in parentheses. All regressions include a standard set of controls. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). Parent Controls: age, weight, height, health status, marital status, completed college education, employment status for both parents. Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income. Child Controls: age fixed effects, gender. Columns (1) to (2) estimated on a sample of children aged 0-18. Column (3) estimated on a sample of females aged 14-18. Columns (4) to (6) estimated on a sample of children aged 14-18. The alcohol intake is measured in grams of pure alcohol consumed on a typical drinking occasion. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Table B2—Effects of policy on parental outcomes: Robustness to alternative estimators

	Parental Alcohol Intake (1)	Household Income (2)	Mother Employed (3)	Mother Salary (4)	Father Employed (5)	Father Salary (6)	Family Stability (7)
Panel A: Sun and Abraham							
Indicator(hour restriction)	-10.976***	0.0380*	0.0251*	0.0620*	0.0082	0.0022	0.0201*
	(2.853)	(0.0210)	(0.0141)	(0.0351)	(0.0130)	(0.0661)	(0.0110)
Panel B: TWFE							
Indicator(hour restriction)	-14.6910***	0.0320**	0.0154*	0.0540**	0.0077	0.0186	0.0199**
	(3.9940)	(0.0160)	(0.0088)	(0.0271)	(0.0058)	(0.0271)	(0.0078)
Panel C: TWFE							
Hours closed	-1.4340***	0.0034**	0.0019*	0.0058**	0.0008	0.0020	0.0021***
	(0.3361)	(0.0014)	(0.0011)	(0.0028)	(0.0008)	(0.0028)	(0.0008)
Baseline mean	77.267	9.376	0.853	7.818	0.945	8.076	0.736
Observations	77412	44280	43267	43267	34145	34145	44280

Note: Panel A displays the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021). Panel B and C showcases the results derived from Two-way Fixed Effects estimations as detailed in Equation A1 and Equation A2, respectively. Standard errors are clustered at the state level and presented in parentheses. All regressions include a standard set of controls. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). Parent Controls: age, weight, height, health status, marital status (except column (7)), completed college education, employment status(except columns (3) to (6)). Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income (except columns (2), (4), and (6)). Child Controls: age fixed effects, gender. Columns (4) and (6) report estimates unconditional on whether the parent works or not. Household income and salaries are presented in logarithmic terms. Family stability is a dummy variable that equals 1 if the child currently lives with both biological parents, whereas 0 indicates living with just 1 or 0 parents and indicates family instability. The alcohol consumption is measured in grams of pure alcohol consumed on a typical drinking occasion. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Table B3—Parental alcohol consumption: Robustness to alternative estimators

	Alcohol intake (grams pure alcohol)						
	Parental	Mother			Father		
	alcohol intake	Alcohol intake	Heavy drinker		Alcohol intake	Heavy drinker	
			≥60 grams	≥120 grams		≥60 grams	≥120 grams
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Sun and Abraham							
Indicator(hour restriction)	-10.976***	-7.545**	-0.048***	-0.023**	-17.223***	-0.005	-0.088*
	(2.853)	(3.000)	(0.014)	(0.009)	(6.566)	(0.047)	(0.044)
Panel B: TWFE							
Indicator(hour restriction)	-14.691***	-7.487***	-0.062***	-0.025***	-20.551***	-0.013	-0.074*
	(3.994)	(2.033)	(0.013)	(0.008)	(6.808)	(0.030)	(0.043)
Panel C: TWFE							
Hours closed	-1.434***	-0.687***	-0.006***	-0.003***	-1.944***	-0.003	-0.006*
	(0.336)	(0.181)	(0.001)	(0.001)	(0.553)	(0.003)	(0.004)
Panel D: TWFE							
Hours closed	-1.454***	-0.687***	-0.006***	-0.003**	-1.973***	-0.004	-0.006*
	(0.323)	(0.194)	(0.002)	(0.001)	(0.529)	(0.003)	(0.004)
Closing hour	0.851**	0.264	0.002	0.001*	1.139*	0.004	0.004
	(0.360)	(0.196)	(0.002)	(0.001)	(0.607)	(0.003)	(0.003)
Baseline mean	77.267	38.533	0.253	0.058	125.405	0.632	0.342
Observations	77412	43267	43267	43267	34145	34145	34145

Note: Panel A displays the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021). Panel B and C showcases the results derived from Two-way Fixed Effects estimations as detailed in Equation A1 and Equation A2, respectively. Panel D provides the regression analyzing whether evening policy hours can curb drinking more effectively than morning policy hours. Specifically, the regression model is as described in Equation A2, but in addition to the variable number of *Hours closed*, it includes the *Closing hour*(e.g., 8 pm, 9 pm, etc.). Following Carpenter et al. (2016), I use two cutoffs of alcohol consumption to define binge drinking: "heavy drinking" or consuming above 60 grams(World Health Organization, 2018*b*) and "extreme drinking" or consuming above 120 grams of pure alcohol per typical drinking occasion. Standard errors are clustered at the state level and presented in parentheses. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). All regressions include a standard set of controls. Parent Controls: age, weight, height, health status, marital status, completed education group, employment status for both parents. Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income. Child Controls: age fixed effects, gender. The alcohol consumption is measured in grams of pure alcohol consumed on a typical drinking occasion. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.

Table B4—Parental alcohol consumption: Heterogeneous effects by gender and past health issues

	Alcohol intake (grams pure alcohol)				
	Parental alcohol intake	Mother Alcohol intake		Father Alcohol intake	
	(1)	(2)	(3)	(4)	(5)
Panel A: Sun and Abraham					
Indicator(hour restriction)	-10.976***	-7.545**	-7.605**	-17.223***	-18.659**
	(2.853)	(3.000)	(3.045)	(6.566)	(8.744)
Indicator(hour restriction)×Indicator(past alcohol health problems)			0.561		12.536**
			(1.926)		(5.961)
Panel B: TWFE					
Indicator(hour restriction)	-14.691***	-7.487***	-7.557***	-20.551***	-22.015***
	(3.994)	(2.033)	(2.086)	(6.808)	(6.792)
Indicator(hour restriction)×Indicator(past alcohol health problems)			0.617		12.271**
			(1.954)		(6.032)
Panel C: TWFE					
Hours closed	-1.434***	-0.687***	-0.694***	-1.944***	-2.097***
	(0.336)	(0.181)	(0.189)	(0.553)	(0.551)
Hours closed×Indicator(past alcohol health problems)			0.058		1.358*
			(0.207)		(0.680)
Baseline mean	77.267	38.533	38.533	125.405	125.405
Observations	77412	43267	43267	34145	34145

Note: Panel A displays the results of the regressions conducted according to the methodology outlined in Sun & Abraham (2021). Panel B and C showcases the results derived from Two-way Fixed Effects estimations as detailed in Equation A1 and Equation A2, respectively. Further, Panels A, B and C interact the treatment with an indicator for having past alcohol-related health issues. Past alcohol-related health issues include ever having liver disease, alcoholic hepatitis(they serve as proxies for having drinking issues in the past). Standard errors are clustered at the state level and presented in parentheses. Alcohol Policies Controls: state level regulations (Production regulation, Premises production regulation, Excise machine regulation, Retail locations regulation). All regressions include a standard set of controls. Parent Controls: age, weight, height, health status, marital status, completed education group, employment status for both parents. Municipality Location Controls: population size, location type. Household Controls: one-parent family indicator, family size, dwelling size, dwelling ownership, the logarithm of real household income. Child Controls: age fixed effects, gender. The alcohol consumption is measured in grams of pure alcohol consumed on a typical drinking occasion. ***, **, and * indicate significance at the 1, 5, and 10 percent significance level.