

Universidad de San Andrés Tesis de Licenciatura en Economía

Drunk gamblers : the impact of legalized gambling on alcohol consumption

Sabbagh, Jonathan Jaime

Mentor: Martín Rossi

Drunk gamblers:

The impact of legalized gambling on alcohol consumption

Jonathan Jaime Sabbagh¹ Universidad de San Andrés

Abstract

This Paper studies the effect of legal gambling on alcohol consumption in the United States. The analysis uses the fact that different states legalized gambling in different periods, while some states have not legalized gambling yet. The paper uses this particular variation across time and space as an instrument to identify the casual effect of legal gambling on alcohol consumption. After controlling for state and year fixed effects, I find the states that legalized gambling experienced a 5 percent increase in alcohol consumption.

Universidad de SanAndrés

¹ Jonathan Jaime Sabbagh, Universidad de San Andrés, Vito Dumas 284, Victoria, Provincia de Buenos Aires, Argentina, jsabbagh@udesa.edu.ar. I would like to thank my mentor, Martín Rosi, for his guidance and comments. I am also grateful to Micaela Sviatshi for her help and discussions.

1. Introduction

Nowadays alcohol consumption and legalized gambling are two major issues in almost every political agenda. In the United States, 19 out of the 51 states have legalized gambling in the past few decades. The trend seems to be increasing as it has spread from two states in 1988 to thirteen in 1996. In 1994, Americans legally wagered \$482 billion,² a sum substantially higher than government spending on Medicare and Medicaid combined. In 2006, the commercial casino industry directly employed about 350,000 people, more than the automotive industry, software engineering or wireless phone carriers.³ And finally, the casino industry paid 6.78 billion in state and local taxes (see Table 1).

The reasons that drove different state governments to legalize gambling are several, but probably the most important is related to tax revenue; gambling is a highlytaxed activity. Another advantage of legalized gambling is that it attracts tourism and provides entertainment to the local population.

The economic success of legal gambling has been reflected in the rapid growth of Nevada, which Eadington (1999) shows was among the three fastest-growing states in United States for each of the past four decades of the 20th century. Furthermore Nevada's major city, Las Vegas, was one of the five fastest-growing metropolitan areas in the country in each of these decades. This expansion of legalized gambling is reflected in Table 2.

As mentioned before, tax revenue is a positive characteristic of legalized gambling, as it has been shown that legalization is connected with economic prosperity due to its labor-intensive nature.

One important point that should be taken into account is that those states where casinos are prohibited lose an important source of income. This has encouraged adjacent states to consider legalization. This competition between states has been one of the main drivers of growth in the legalization of gambling.

Nevertheless there are major arguments against the legalization of gambling. An important one is that the social costs of legalization, such as long term conflicts, are not considered in the equation. For example, Phillips, Welt and Smith (1997) linked legal

 ² See Standard & Poor's Industry Surveys (1996).
³ See the American Gaming Association Annual Report (2007).

gambling with an increase in suicide. These studies show that Las Vegas, the premier U.S. gambling scene, displays the highest levels of suicide in the United States, both for residents and for visitors. This trend is similar in all major gambling places. For example, in Atlantic City, abnormally high suicide rates for visitors and residents appeared only after casinos were opened. Most importantly, the difference between suicide rates in gambling states versus non-gambling states is quite significant: in regions where gambling is permitted, suicide rates are up to five times higher than in those where it is prohibited.

In other studies exploring the consequences of legalized gambling, Ladouceur, Boisvert, Pépin, Loranger and Sylvain (1994) argued that gamblers are prone to whitecollar crimes and substance abuse, while Lesieur and Rothschild (1989) identified child abuse as a possible outcome.

This study analyzes the particular way in which social costs change as a result of alcohol consumption, whether there is a causal effect between legal gambling and alcohol consumption. High alcohol consumption has many proved negative effects on the alcohol-consuming population: Brown, Jewell and Richer (1996) and Winn and Giacopassi (1993) showed that alcohol prohibition decreased alcohol-related motorized vehicle accidents and fatalities. On the other hand, Toonmey and Wagenaar (1999) stated that more violent crimes and more thefts related to alcohol consumption tend to decrease the social welfare of such population.

For 2006, of the top 25 per capita alcohol- consumption states, ten had legalized gambling, while in 2002 only eight of the top 25 had legal gambling (the only state that legalized gambling between 2002 and 2006 was Pennsylvania, which is not in the top 25 list). This means that in a four-year period, alcohol consumption in the top 25 states which had legalized gambling moved from 32 percent to 40 percent (almost a 7 percent annual rate increase). As mentioned earlier, by 1989 only two states had legal gambling: New Jersey and Nevada. By 2006, this number had increased to 19 states. In 17 years the percentage of states which had legalized increased from 3 percent to 37 percent. All this information indicates that legal gambling is a rising phenomenon, and as such, there should be an accurate evaluation of its advantages and disadvantages.

2. <u>Data</u>

The data used is a panel observation of 51 states over the 1970-2006 period. These data include: information on the dates in which the legalization law was passed, state-level alcohol consumption, and descriptive state level data.

It is important to clarify that I will divide legal gambling in three categories: racetrack gambling, commercial gambling,⁴ and both types of gambling. This separation is important because there are several forms of gambling, but for the case study I have considered that these two (racetrack and commercial) are the most aggressive, and therefore more likely, type of gambling that affect the communities in which the gambling takes place.

The alcohol consumption data was located in the "NIAAA" (National Institute of Alcohol Abuse and Alcoholism), where the data on the dates in which gambling became legal in each state was taken from the "AGA" (American Gaming Association). Descriptive state-level information such as unemployment, GDP, taxes, and religion were drawn from the "BEA" (Bureau of Economic Analysis) and the "US census bureau".

In total, 1887 observations are available for estimation and that there is an important variation across states and time. Table 3 shows the variation and the difference in levels of alcohol consumption for each state.

Over the analyzed period, US states legalized gambling during different time periods (most legalization processes were approved around 1992). This variation in time and space identify the causal effects of legalized gambling and alcohol consumption. Figure 1 presents two trends: the average alcohol consumption for the states that eventually legalized gambling, and the alcohol consumption for the states that until 2006 had not legalized gambling. Although initially both trends moved together, they started to move apart over the years.

Information regarding the time when each state legalized gambling was obtained through the "AGA" (American Gambling Association). As mentioned earlier, I have divided gambling into two categories: racetrack gambling and commercial gambling.

⁴ Commercial Gambling does not include Indian Casinos and Charitable Gaming.

The difference between these two types of gambling is very simple. Racetrack gambling is characterized by gamblers that bets on horse races, while commercial gambling is where casinos operate. The treatment variable is a dummy that indicates if gambling became legal. For some regressions this dummy corresponds to either category of gambling, while in others it represents a specific category. Figure 2 and Table 4 shows all the states that legalized gambling (with their respective dates). In figure 2 we can see how all the states that have legalized gambling are close to each other, which could be explained by the mentioned effect that legal-gambling states have on their neighbors.

The last data set contains state level information on the control variables. These variables are, for the difference-in-difference approach, unemployment rate, Gross Domestic Product per Capita, ax Revenue per Capita and church or synagogue attendance.⁵. All this data was obtained from the BEA and the US Census Bureau.

3. Identification strategies

The purpose of this study is to identify the average effect of gambling legalization on alcohol consumption, drawing a comparison between alcohol consumption in the states where gambling is legalized with alcohol consumption in the states where gambling is not legalized. Since this is not an experiment, it is not possible to state that the decision of legalizing gambling was random in each state. Structural differences within each state can explain gambling legalization. For example, in the most liberal states, where alcohol consumption is not negatively regarded, gambling legalization rests on the same cultural codes. If so, identification would be jeopardized and the model would present an important drawback since there would be an endogenous problem. Should it be the case, there would be biased parameters due to the correlation between the variables. Fortunately, we can assume that these factors remain constant in the course of time and thus they can be controlled as fixed effects. Thus, the model compares the results from the treated group (states in which gambling has been legalized) both before and after the legalization occurred with the result from the control group (states in which legalization has still not taken place). That is, the evolution of alcohol consumption in the control group will be used as counter-factual.

⁵ Church or synagogue attendance once a week was used as a proxy of the degree of religion significance in the population's culture.

The difference-in-differences estimator includes both state and year fixed effects. Formally, the model is as follows:

AlcoholConsumption_{it} = α Legalization_{it} + βX_{it} + γ_i + δ_t + ε_{it} ,

In which *AlcoholConsumption*_{*it*} is the consumption of alcohol in period t for a state; *Legalization*_{*it*} is a dummy variable that takes the value of one when the state has legal gambling; X_{it} is the vector controlling the variables that change one time and states; γ_i controls the fixed effects in time by state; δ_i controls by external shocks that take place in the period t and affect all the states equally.

As it was mentioned before there will be three regressions in the study. The first one will have the variable $Legalization_{it}$ as the legalization of either commercial or racetrack gambling. But the other two regressions will divide gambling into this two categories.

The X_{ii} vector will include different variables that affect each state that vary across time. Examples of these variables are: GDP growth, unemployment rate and taxes collected. These variables will be used as proxies of the macroeconomic conditions.

Taxes, as mentioned before, are a key component in the legalization process. One of the main reasons that drive different states to legalize gambling is to increase tax revenue. Fortunately, there is no visible connection between tax collection and alcohol consumption. As a result we can most certainly state that there is no correlation between these two variables.

The error ε_{ii} is a state time-varying error which is generally assumed to be independent across time and space; however, as the analysis uses panel data, the errors could be correlated across time in the same state. In the case of a positive correlation, the standard errors could be computed smaller and the null hypothesis could be over rejected. To avoid potential biases in their estimation, standard errors are clustered at the state level allowing an arbitrary covariance structure within states over time. It is important to note that if the state errors are highly correlated, clustering standard errors may reduce the statistical power of the estimation.

The coefficient of interest is α which represents the ATE (average treatment effect). The most important identification assumption is that the evolution of alcohol consumption in the control group is an unbiased estimator of how the consumption in

the treatment group would have been if gambling had never been legalized. Logically, this is impossible to test, due to which a comparison of the trends of the different groups before the treatment (legalization) will be drawn. As both trends show the same characteristics before treatment, I can conclude that the trend will not change after treatment, making good counterfactual data.

4. Heterogeneous States

The difference-in-difference estimator does not take into account that some states cannot be considered good control due to possible differences among them, that is to say, the model compares results on bases which are not comparable. A possible solution to this problem is matching estimators.

Matching estimators use the control group just in states that might be similar to those in the treatment group. It is worth pointing out that this is only possible in a purely observable level of variables. If states have similar observable characteristics, we will assume that they will also have similar non-observable characteristics. The common support takes place by building a propensity score, a model that estimates the probability of being treated (that gambling be legalized in t in the state) conditioned to the characteristics of each state. Such characteristics are GDP, Tax revenue, neighboring and lastly religion.

The reason to include the first three characteristics in the propensity score was mentioned previously several times. But in this particular section of the analysis, we believe that it is reasonable to think that the states that have different cultures may have different propensity to legalize gambling. For example, it should be less likely for a state to legalize gambling if the population is highly religious (most religions regard gambling as sinful). For this reason we have included this variable with the purpose of making the comparison more efficient between the control group and the treatment group.

After this step, on the basis of the estimated propensity score, observation found in the common support will be used. Due to this, all the states below the minimum and above the maximum propensity score will be excluded from the sample. In other words, those states in which the probability of legalizing gambling is either very low or very high will not be taken into account; we can see the results of this regression in Table 9. Table 5 and 6 show the main results. In Table 5 the regression is considering both types of legalization (commercial and racetrack). Table 6 presents two regressions the first one only commercial gambling (columns 1 to 4); racetrack gambling (columns 5 to 8).

Column 1 from Table 5 presents the model results including only the legalization of gambling, fixed effects for each state and year dummies. In this case, the states that have legalized gambling experienced a 0.178 increase in the gallons of alcohol consumption per capita, which accounts for a 7.038 percent increase over the baseline average.

An important limitation that arises form this simple approach is that there might be other factors that can vary across time and space, which may have a significant correlation with either alcohol consumption or gambling legalization. To deal with this issue, I have added to the model in column 2 a set of macroeconomic and socioeconomic variables. These are unemployment rate, Gross Domestic Product per capita, and taxes paid per capita. Due to the fact that the research on the reasons that drive different states to legalize gambling mentioned before, establish that these three variables result key in the decision. I believe that the inclusion of these variables can overcome the mentioned correlation problem. It is important to note that the population is not being considered in this equation, and that the reason for excluding this control variable is that all the other variables are calculated on a per-capita basis. It is also important to note that all the control variables are significant at a 0.05 level. In this second regression the legal gambling effect decreases to a 5.38 percent increase in alcohol consumption.

Finally columns 3 and 4 use common support to test the hypothesis. In this case, the end result does not change significantly (the effects accounts for a 4.594 percent increase in the case that accounts for all the control variables). In these cases the regression loses power (from 51 states only 41 are being compared) due to the fact that we are only comparing states in which the propensity score found is comparable. This is not surprising but it can account for a significance loss. For example, in this case the Gambling variable is only significant at a 0.1 level, as opposed to a 0.01 level from the first two regressions.

Table 6 reflects the same as Table 5 with the difference being that the latter divides legal gambling into two categories. Columns 1 to 4 are for commercial gambling and column 5 to 8 are for racetrack gambling. This separation is important because at the beginning of the study I established that more aggressive types of gambling should account for more aggressive impacts. These regressions prove that I was right to assume that due to the fact that commercial gambling is more aggressive than racetrack gambling, it has a bigger effect on alcohol consumption. In fact if I compare column 4 with column 8 (both regressions use common support and all the control variables) the alcohol consumption is almost double in the case of commercial gambling, 6.232 percent against 2.702 percent. Moreover, in the case of commercial gambling the results are more significant as well.

6. Conclusions

This paper includes state-level US data to show that gambling legalization increases alcohol consumption. When gambling is legalized, alcohol consumption increases between 5 to 7 percent.

Factors that account for the causal effect between alcohol consumption and legalized gambling are various. On the one hand, the control group and the treatment group showed same level and trends in alcohol consumption in the period before intervention - this validates the use of difference-in-difference as the identification strategy

The study result can provide a tool to policy makers in the process of legalizing gambling. Most studies in favor of legalized gambling are highly quantitative while usually studies against are qualitative. The value of this study lies on the fact that is a quantitative against legalization.

Legalized gambling is a reality that is increasing every day. More states are allowing gambling, and even more are considering its legalization. This study shows a new negative effect that can shift the balance in favor of not legalizing gambling. This does not mean that legalizing gambling is bad, or that the positive effects that gambling legalization have are not important. The intention is just to establish that if a state legalizes gambling, it should expect a 5 percent average increase in alcohol consumption. Bertrand, M., Duflo, E. and Mullainathan, S., (2004)."How Much Should We Trust Differences-in-Differences Estimates?" *National Bureau of Economic Research*, 119 (1), 249-275.

Wynne H. and Shaffer, H., "The Socioeconomic Impact of Gambling: The Whistler Symposium", *Journal of Gambling Studies*, 19 (2), 111-121.

Perdue, R., Long, P. and Soon Kang, Y., (1995). "Resident Support for Gambling as a Tourism Development Strategy" *Journal of Travel Research*, 34(2), 3-11.

Govoni, R., Frisch, R., Rupcich, N. and Getty, H., "First Year Impacts of Casino Gambling in a Community". *Journal of Gambling Studies*, 14 (4), 347-358.

Walker, D. and Barnett, A., "The Social Costs of gambling: An Economic Perspective" *Journal of gambling Studies*, 15 (3), 181-212.

Miller, W. and Schwartz, M., (1998). "Casino Gambling and Street Crime". Annuals of the American Academy of Political and Social Science, (556), 124-1373.

McCleary R., Chew, K., Merrill, V. and Napolitano, C., (2002). "Does Legalized Gambling Elevate the Risk of Suicide? An Analysis of U.S. Counties and Metropolitan Areas". *Suicide & life-threatening behavior*, 32 (2), 209-221.

Kindt, J., (1994). "Increased Crime and Legalizing Gambling Operations: The Impact on the Socio-Economics of Business and Government". *Criminal Law Bulletin*, 30 (6), 538-555.

Kearney, M., (2005) The Economic Winners and Losers of Legalized Gambling *NBER Working Paper Series*, 11234, 100-132.

American Gaming Association, (2010), "2010 State of the States".

Eadington, W., (1999). "The Economics of Casino Gambling". *Journal Of Economic Perspectives*, 13 (3), 173-192.

Phillips, D., Welt, W. and Smith, M., (1997). "Elevated Suicide Levels Associated with Legalized Gambling". *University of California at San Diego*.

Ladouceur, R., Boisvert, J., Pépin, M., Loranger, M. and Sylvain, C.,(1994).

"Social cost of pathological gambling" Journal of Gambling Studies, 10 (4), 399-409.

Lesieur, H. and Rothschild, J., (1989). "Children of Gamblers Anonymous members" *Journal of Gambling Behavior*, 5 (4), 269-281.

Toomey, T. and Wagenaar, a., (1999). "Policy Options for Prevention: The Case of Alcohol". *Journal of Public Health Policy*, 20 (2), 192-213.



Universidad de SanAndrés

State	Number of locations	State and local tax contributions	Jobs
Colorado	40	\$88.43 million	9,073
Delaware	3	\$210.55 million	2,582
Florida	3	\$114.43 million	2,201
Illinois	9	\$566.84 million	7,711
Indiana	13	\$838.19 million	16,040
Iowa	17	\$323.96 million	9,946
Louisiana	18	\$626.25 million	1,727
Maine	1	\$25.04 million	324
Michigan	3	\$321.63 million	8,568
Mississippi	29	\$326.89 million	28,740
Missouri	12	\$442.79 million	11,658
Nevada	266	\$924.49 million	20,222
New Jersey	11	\$426.82 million	38,585
New Mexico	5	\$67.10 million	1,605
New York	8	\$446.28 million	3,413
Oklahoma	3	\$13.33 million	1,050
Pennsylvania	7	\$766.58 million	5,869
Rhode Island	2	\$302.70 million	1,310
South Dakota	35	\$15.37 million	1,640
Total	485	\$6.780 billion	3,698

Table 1. Casino Industry Contributions

Source: American Gaming Association.

Universidad de SanAndrés

Sector	1982	1997	Average Growth Rate
Parimutuel	\$4,644	\$3,811	-1,31%
Lotteries	\$3,609	\$16,567	10,59%
Casinos	\$6,985	\$20,528	7,45%
Bookmaking	\$43	\$96	5,46%
Card Rooms	\$83	\$700	15,26%
Bingo, Charitable	\$1,956	\$2,430	1,46%
Indian Gaming	0	\$6,678	_
Total	\$17,321	\$50,899	7,45%

Table 2. Gross Revenues by Sector, U.S. Commercial Gaming Industries, 1982 and 1997 (millions of 1997 dollars)

Source: Christiansen (1998).



Table 3. Alcohol Consumption per Capita

State	Mean	Std. Dev.	Min	Max
Alabama	1.85	0.12	1.38	1.97
Alaska	3.29	0.53	2.43	4.13
Arizona	2.82	0.30	2.43	3.42
Arkansas	1.72	0.11	1.43	1.90
California	2.78	0.49	2.17	3.40
Colorado	2.86	0.33	2.39	3.54
Connecticut	2.50	0.26	2.13	2.84
Delaware	3.00	0.18	2.62	3.30
District of Columbia	4.72	1.03	3.45	6.74
Florida	2.90	0.28	2.47	3.34
Georgia	2.26	0.17	1.95	2.59
Hawaii	2.74	0.38	2.22	3.43
Idaho	2.34	0.19	1.98	2.70
Illinois	2.60	0.28	2.21	3.00
Indiana	2.01	0.13	1.80	2.25
Iowa	2.03	0.13	1.80	2.27
Kansas	1.85	0.11	1.59	2.05
Kentucky	1.83	0.10	1.63	2.03
Louisiana	2.50	0.13	2.27	2.78
Maine	2.45	0.18	2.16	2.74
Maryland	2.58	0.42	2.07	3.14
Massachusetts	2.74	0.29	2.35	3.19
Michigan	2.42	0.27	2.06	2.79
Minnesota	2.53	0.17	2.27	2.85
Mississippi	2.05	0.12	1.61	2.25
Missouri	2.28	0.09	2.09	2.45
Montana	2.77	Alirere 0.26	2.40	3.29
Nebraska	2.33	0.17	2.09	2.66
Nevada	4.90	1.12	3.56	6.92
New Hampshire	4.62	0.56	3.98	5.76
New Jersev	2.56	0.28	2.17	2.94
New Mexico	2.62	0.25	2.25	3.02
New York	2.39	0.43	1.84	3.01
North Carolina	2.01	0.11	1.79	2.18
North Dakota	2.53	0.17	2.28	2.85
Ohio	2.09	0.13	1.85	2.33
Oklahoma	1.80	0.16	1.50	2.17
Oregon	2.51	0.20	2.21	2.82
Pennsylvania	2.14	0.18	1.84	2.39
Rhode Island	2.67	0.32	2.17	3.14
South Carolina	2.40	0.12	2.04	2.61
South Dakota	2.30	0.14	1.97	2.56
Tennessee	1.88	0.10	1.52	1.99
Texas	2.45	0.22	2.19	2.93
Utah	1.45	0.18	1.20	1.75
Vermont	2.98	0.52	2.32	3.84
Virginia	2.21	0.21	1.90	2.59
Washington	2.53	0.31	2.13	3.12
West Virginia	1.71	0.08	1.60	1.85
Wisconsin	3.04	0.28	2.65	3.47
Wyoming	2.77	0.37	2.29	3.42

Note: Each mean was calculated taking into account the whole period (1970-2006). Bold states are the ones that legalized some types of gambling (commercial or racetrack).

Tabl	e 4. Gambling	g Legalization Year	
Commercial		Racetrack	
Nevada	1931	Rhode Island	1992
New Jersey	1976	Delaware	1994
South Dakota	1978	Iowa	1994
Iowa	1989	Louisiana	1994
Colorado	1990	West Virginia	1994
Illinois	1990	New Mexico	1997
Mississippi	1990	New York	2001
Louisiana	1991	Maine	2004
Indiana	1993	Oklahoma	2004
Missouri	1993	Pennsylvania	2004
Michigan	1996	Florida	2006
Pennsylvania	2004	Indiana	2007

Note: Bold states are the ones that legalized both types of gambling (commercial and racetrack).



	FULL SAMPLE			USING COMMON SUPPORT		
	(1)	(2)		(3)	(4)	
VARIABLES	All beverages	All beverages		All beverages	All beverages	
Legal Gambling (=1)	0.17877	0.13666		0.12812	0.11670	
	(0.026)***	(0.022)***		(0.019)***	(0.018)***	
	[0.084]**	[0.070]*		[0.072]	[0.063]*	
Δ % in alcohol consumption	7.038%	5.380%		0.050440945	4.594%	
Unemployment rate		-0.02655			-0.02603	
		(0.005)***			(0.004)***	
		[0.009]***			[0.008]***	
GDP per capita		-9.66058			-5.20893	
		(2.364)***			(1.93)***	
		[9.39]			[8.39]	
Taxes per capita		0.0001			0.00008	
		(0.000)***			(0.000)***	
		[0.000]***			[0.000]	
State fixed effects	Yes	Yes		Yes	Yes	
Year fixed effects	Yes	Yes		Yes	Yes	
Constant	2.57100	2.97075		2.47024	2.89066	
	(0.035)***	(0.044)***		(0.028)***	(0.038)***	
	[0.05]**	[0.121]**		[0.04]***	[0.103]***	
Observations	1887	1550		1517	1271	
R-squared	0.472	ERE 0.582		0.575	0.672	
State	51	50		41	41	

Table 5. Impact of Gambling Legalization on Alcohol Consumption

Note: Each column reports the estimated coefficients of a regression model in which the dependent variable is Alcohol consumption. Standard errors are in parentheses. Standar errors clustered at the state level are in brackets. All the regressions include year and state fixed effects. *Statistically different from zero at the .1 level of significance; **Statistically different from zero at the .05 level of significance; ***Statistically different from zero at the .01 level of significance.

	COMMERCIAL GAMBLING				RACETRACK GAMBLING			
	FULL SAMPLE		USING COMMON SUPPORT		FULL SAMPLE		USING COMMON SUPPORT	
VARIABLES	(1) All beverages	(2) All beverages	(3) All beverages	(4) All beverages	(5) All beverages	(6) All beverages	(7) All beverages	(8) All beverages
Legal Gambling (=1)	0.21767 (0.029)*** [0.094]**	0.17269 (0.025)*** [0.079]**	0.16744 (0.021)*** [0.084]*	0.15829 (0.02)*** [0.077]*	0.12643 (0.037)*** [0.087]	0.09264 (0.031)*** [0.077]	0.08161 (0.027)*** [0.079]	0.06864 (0.024)*** [0.068]
Δ % in alcohol consumption	8.570%	6.799%	6.592%	6.232%	4.978%	3.647%	3.213%	2.702%
Unemployment rate		-0.02568 (0.005)***		-0.02493 (0.004)***		-0.02955 (0.005)***		-0.02905 (0.004)**
GDP per capita		(2.349)***	QUAF	-3.9114 (1.909)**		-9.08927 (2.391)***		-4.67545 (1.961)**
Taxes per capita		[10.353] 0.00011 (0.000)***		[9.38] 0.00009 (0.000)***		[9.445] 0.00009 (0.000)***		[8.52] 0.00007 (0.000)***
State fixed effects	Yes	[0.000] Yes	Yes Cl	S [0.000] Yes	C Yes	[0.000] Yes	Yes	[0.000] Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	2.57024 (0.035)*** [0.052]***	2.94942 (0.044)*** [0.119]***	2.47024 (0.028)*** [0.04]***	2.86908 (0.038)*** [0.107]***	2.57451 (0.035)*** [0.053]***	2.99212 0.045)*** [0.118]***	2.47024 (0.028)*** [0.04]***	2.91032 (0.038)*** [0.104]***
Observations	1887	1550	1517	1271	1887	1550	1517	1271
R-squared	0.474	0.585	0.58	0.676	0.461	0.574	0.565	0.662
State	51	50	41	41	51	50	41	41

Table 6. Impact of Commercia	l and Racetrack Gambling	Legalization on A	lcohol Consumption
racie of impact of commercia	i una itaeen aen oumonig	Legandation on i	conor consumption

Note: Each column reports the estimated coefficients of a regression model in which the dependent variable is Alcohol Consumption. Standard errors are in parentheses. Standar errors clustered at the state level are in brackets. All the regressions include year and state fixed effects. *Statistically different from zero at the .1 level of significance; **Statistically different from zero at the .05 level of significance; **Statistically different from zero at the .05 level of significance; **Statistically different from zero at the .05 level of significance; **Statistically different from zero at the .05 level of significance; **Statistically different from zero at the .01 level of significance.





Legalized states = = • Non-Legalized states



Figure 2. US Map with Legalized Gambling States

