Tobacco Consumption Habits in Argentina

Evidence from a New Regulation

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Motivation

- Modifiable risky behaviors are considered a major determinant of premature death (Cawley and Ruhm, 2011)
- Tobacco use leads the risks factors for mortality in the word (WHO):
  - First risk factor in high income countries $\rightarrow$ 18% deaths
  - Second risk factor middle income countries $\rightarrow$ 11% deaths
- Preventing individuals from smoking is a key public health priority of many governments
  - Literature has mainly focus on effects of cigarette excise taxes
  - Non-price policies have become increasingly popular
  - The effectiveness of TGW have relied on *experimental* evidence

This paper

- Effect of non-price policies on: smoking habits, alcohol abuse and *health outcomes*
  - Clean indoor air policy and the introduction of TGW
  - In Argentina where smoking is responsible for 13.2% of deaths
- Data
  - Individual-level data on smoking and alcohol abuse
  - State-level data on hospitalizations by cause of diagnosis
- Identification strategy
  - Exploit state-level differences in legislation before the national regulation
  - Compare states with "strict" legislation against "lenient" states

Preview of the results

- The anti-tobacco regulation effectively reduced smoking
  - Probability of being a current smoker decreased in 6.2 pp.
  - Probability of being a never smoker increased by 4.4 pp.

- Abusive consumption of alcohol decreased
  - Evidence of complementarity relation in consumption:
    - Wine and beer abusive consumption
    - Binge drinking
  - but **not** for spirits, evidence of substitution with cigarettes

Contribution to the literature

- Effect of clean indoor-air policies:
  Abadie et al. [2010],Bitler et al. [2010],Carpenter et al. [2011],Fleck and Hanssen [2008],Cawley and Ruhm [2011],Chaloupka and Warner [2000b]
- Effect of regulation of tobacco advertising:
  Avery et al. [2007],Blecher [2008],Saffer and Chaloupka [2000],Cawley and Ruhm [2011],Adda and Cornaglia [2010],Kostova and Blecher [2013]
- Effect of graphic warnings labels:
  Hammond [2011], Azagba and Sharaf [2012], Chang et al. [2010]
- Effect of anti-tobacco regulation on alcohol consumption:
  Tauchmann et al. [2013], Decker and Schwartz [2000], Shrestha [2018]

Overview

Overview

Institutional details

National law (2011)

- Bans:
  - Smoking in public or private spaces: bars and restaurants
  - Sales in: schools, hospitals, public buildings, transport means
  - Advertising and promotion on all means of communication

- Incorporates Tobacco Graphic Warnings (TGW) ▸ Example

State laws (before 2011)

- Variation in the level of leniency of each state ▸ Map

- None state has made mandatory the graphic warnings

Institutional details - Legislation index

- Discrete and bounded index on the scale 0 to 7
- Summarizes each of the 47 state-level laws into regulatory categories
  - consumption, sales, and advertising
- Higher values of the legislation index (L_s) indicate stricter regulation:
  - $L_s = 1 \rightarrow$ consumption is banned in public means of transportation
  - $L_s = 5 \rightarrow$ consumption is banned indoors except in restaurants and bars

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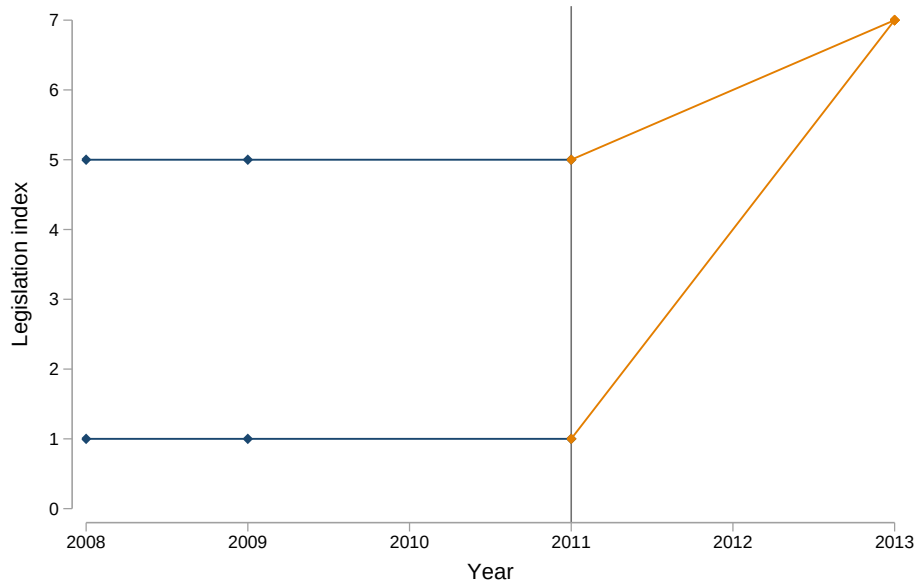
- Example of the change induced by the national law



▸ Map

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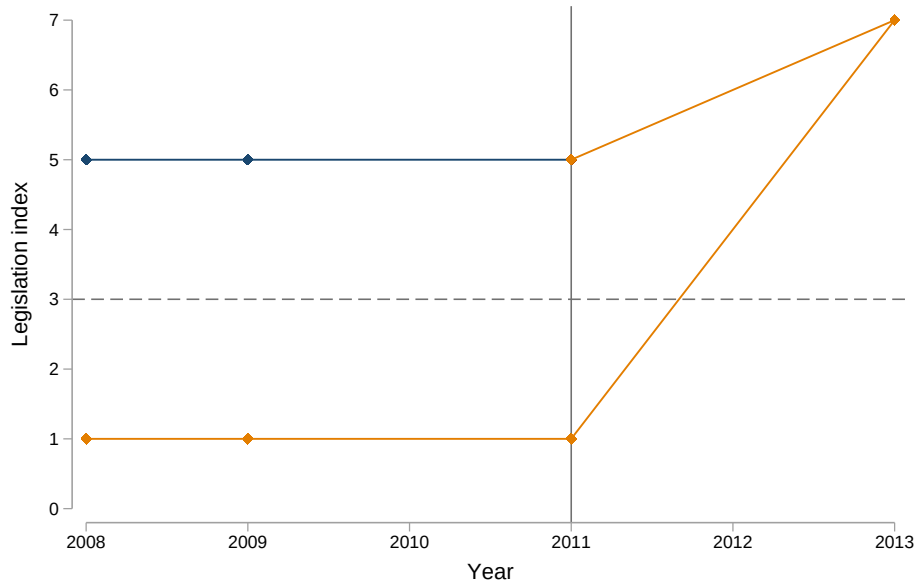

▸ Map

Overview

Data

- Individual level data from: National Survey on Risks Factors(ENFR) and National Survey on Consumption of Psychoactive Substances (EnPreCoSP)
- Cross - section data for: 2008, 2009, 2011, 2013 and *2018*
- Consumption variables: age at first smoke, smoke status, smoke intensity, intention to quit, alcohol consumption ▸ Definition
- Demographics: age, gender, education, marital status, employment, income (hh level)

Summary Statistics by smoker status and year

Survey year	2008	2009	2011	2013
Never smokers	50.75	54.36	54.08	55.34
Current smokers	30.4	29.9	28.2	27.6
Age	37.3	37.9	38.9	37.7
Current smokers - selected sub populations				
Female	25.9	25.2	23.1	23.1
Male	35.3	35.1	33.6	32.3
Young (<25 years old)	31.2	29.9	26.9	27.8
Married or cohabitant	29.4	29.3	27.3	26.5
Single	31.1	30.1	27.7	27.8
Employed	32.6	32.1	30.3	29.7
Unemployed	39.9	33.9	36.9	34.9

Notes: Current smokers are individuals who have smoked more than 100 cigarettes and smoke every day or some days. Never smoker is a dummy variable that indicates that an individual has never smoke in her life. For variables other than age, each value indicates the percentage of current smokers for a particular sub-population and year.

▸ Definition ▸ Never smokers - Extended ▸ Current smokers - Extended

Overview

Empirical Strategy

Event study estimation:

$$y_i = \sum_{\tau=-2}^{1} \delta_\tau \left[\text{Treat}_s \cdot (\text{Years after treat} = \tau)\right] + \beta' X_{is} + \Gamma' X_{st} + \alpha_s + \alpha_t + \varepsilon_i$$

δ_τ captures the effect of the national law τ years after the implementation

- y_i outcome of interest, e.g. dummy for current smoker
- $Treat_s$ =1 if legislation index of state $s < 3$
- *Years after treat*: difference between calendar year and 2011
- X_i individual controls: age, sex, employment status, dummy for married or cohabitant, education level and household income.
- X_{st} state $\times$ time controls: population and private employment
- α_s state fixed effects
- α_t time fixed effects

Balancing test

Variable	Comparison *strict legislation*	Treated *lenient legislation*	Difference
Age	37.81	37.56	0.26
	(13.51)	(13.28)	(0.52)
Male	0.49	0.49	0.00
	(0.50)	(0.50)	(0.02)
Employed	0.70	0.70	0.00
	(0.45)	(0.46)	(0.02)
Married	0.57	0.58	-0.01
	(0.49)	(0.49)	(0.02)
Educational level			
Elementary school drop out	0.08	0.08	0.01
	(0.26)	(0.27)	(0.01)
Elementary school	0.20	0.20	0.00
	(0.39)	(0.39)	(0.02)
High school drop out	0.19	0.20	-0.01
	(0.39)	(0.40)	(0.02)
High school	0.23	0.24	-0.01
	(0.42)	(0.42)	(0.02)
College drop out	0.14	0.13	0.01
	(0.35)	(0.33)	(0.01)
College	0.15	0.13	0.02
	(0.35)	(0.34)	(0.01)
Observations	23,830	36,619	60,449
Number of states	11	13	24

Notes: Cols 1 and 2 present mean and standard deviation of individual characteristics. Column 3 presents estimated coefficients and standard errors for the mean difference estimate. Pooled-data for the years 2008 and 2009. *** $p<0.01$, ** $p<0.05$,* $p<0.1$

▸ Household Income

Overview

Comparison and treated states were on the same trend before 2011

Probability of	Never smokers	Current smokers
	(1)	(2)
2008	-0.0054	-0.0056
	[0.0147]	[0.0104]
2009	-0.0155	-0.0076
	[0.0162]	[0.0087]
2013	0.0434	-0.0617
	[0.0175]**	[0.0103]***
Mean dep. var. in 2011	0.4608	0.2825
Observations	153,093	153,093
R-squared	0.0329	0.0259
Correctly predicted	0.5536	0.6881
Individual controls	Yes	Yes
State $\times$ time controls	Yes	Yes
State FE	Yes	Yes
Time FE	Yes	Yes

Notes: The omitted category corresponds to 2011, the year the federal law was passed. $Treat_s = 1$ if the legislation index for state s in moment t is strictly less than 3 before 2011.Individual controls include age, gender, educational attainment, employment status and income category of the household. State $\times$ time controls include total private employment and total population. Standard errors in squared brackets are block-bootstrapped at the state-level with 200 replications. *** p<0.01, ** p<0.05, * p<0.10

Decline in the probability of being a smoker

Probability of	Never smokers (1)	Current smokers (2)
2008	-0.0054	-0.0056
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▸ Graphs

Distribution of daily cigarettes smoked shifts to the right

Cigarettes smoked	(0,5] (1)	(5, 10] (2)	(10, 15] (3)	(15, 20] (4)	(20, 30] (5)	(30 , 40] (6)	(40 , 50] (7)
2008	-0.0161	0.0179	-0.0016	0.0016	0.0016	-0.0036	0.0006
	[0.0293]	[0.0162]	[0.0085]	[0.0143]	[0.0077]	[0.0065]	[0.0099]
2009	-0.0467	0.0336	-0.0017	-0.0372	-0.0082	-0.0090	0.0015
	[0.0276]	[0.0227]	[0.0092]	[0.0201]*	[0.0047]**	[0.0052]*	[0.0018]
2013	-0.2426	-0.0229	-0.0133	0.0145	0.0079	-0.0075	-0.0004
	[0.0295]***	[0.0141]*	[0.0087]*	[0.0151]	[0.0050]	[0.0035]*	[0.0009]
Mean dep. var. in 2011	0.3397	0.2628	0.0937	0.2080	0.0374	0.0265	0.0024
Observations	45,585	45,585	45,585	45,585	45,585	45,585	45,585
R-squared	0.0804	0.0114	0.0069	0.0259	0.0108	0.0170	0.0014
Correctly Predicted	0.8026	0.7775	0.7333	0.7634	0.7211	0.7182	0.7123

Notes: The omitted category corresponds to 2011, the year the federal law was passed. $Treat_s = 1$ if the legislation index for state s in moment t is strictly less than 3 before 2011. Regression results include: Individual controls, state $\times$ time controls, state FE and time FE. Individual controls include age, gender, educational attainment, employment status and income category of the household. State $\times$ time controls include total private employment and total population. Standard errors in squared brackets are block-bootstrapped at the state-level with 200 replications. *** $p<0.01$, ** $p<0.05$, * $p<0.10$

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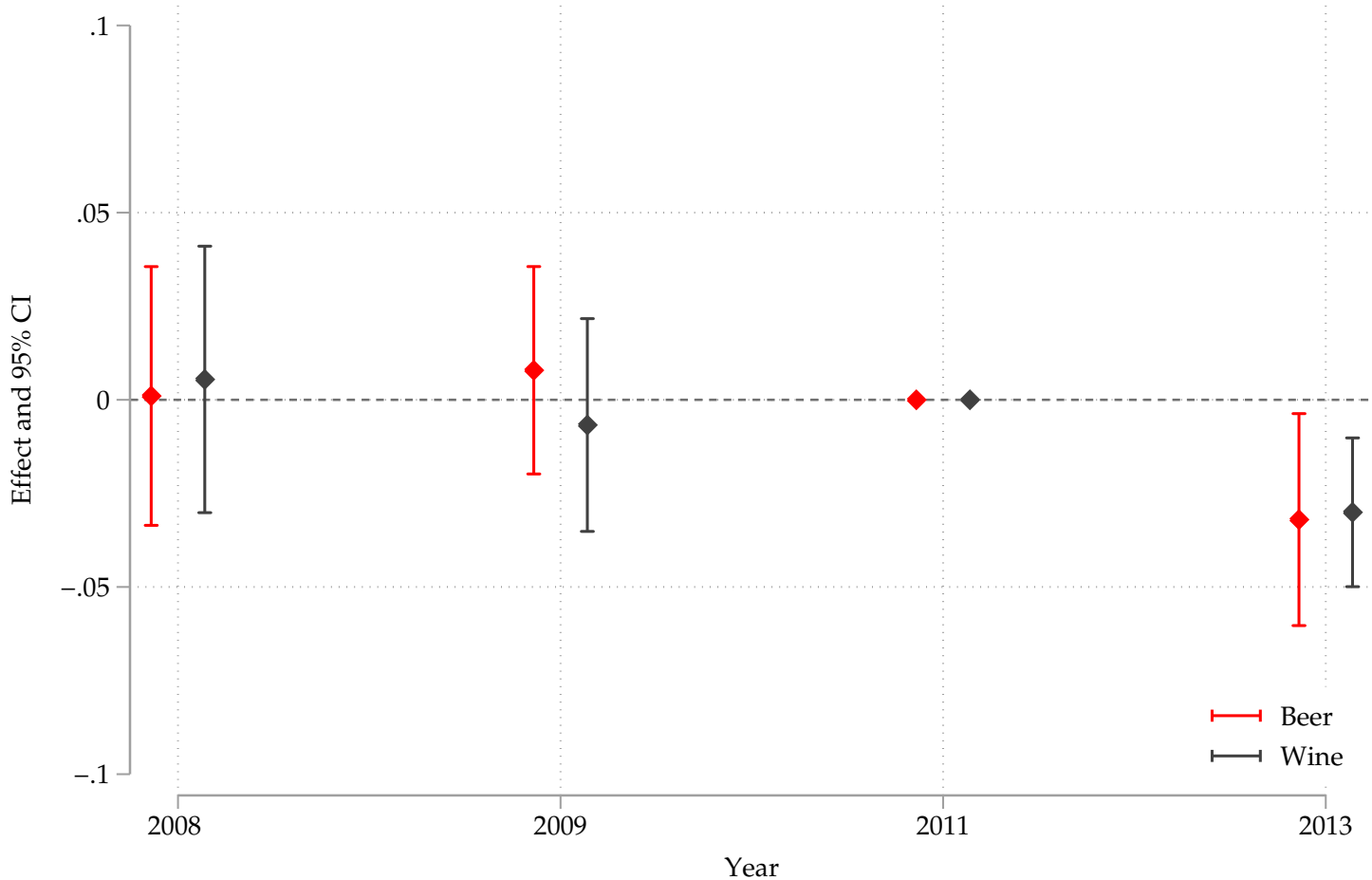
Evidence for a decline in the probability of current smokers...

- **Higher** for 18-25 years old and 45 - 55 years old ▸ Details
- **Higher** for more educated individuals ▸ Details
- **Higher** for individuals in richer households ▸ Details

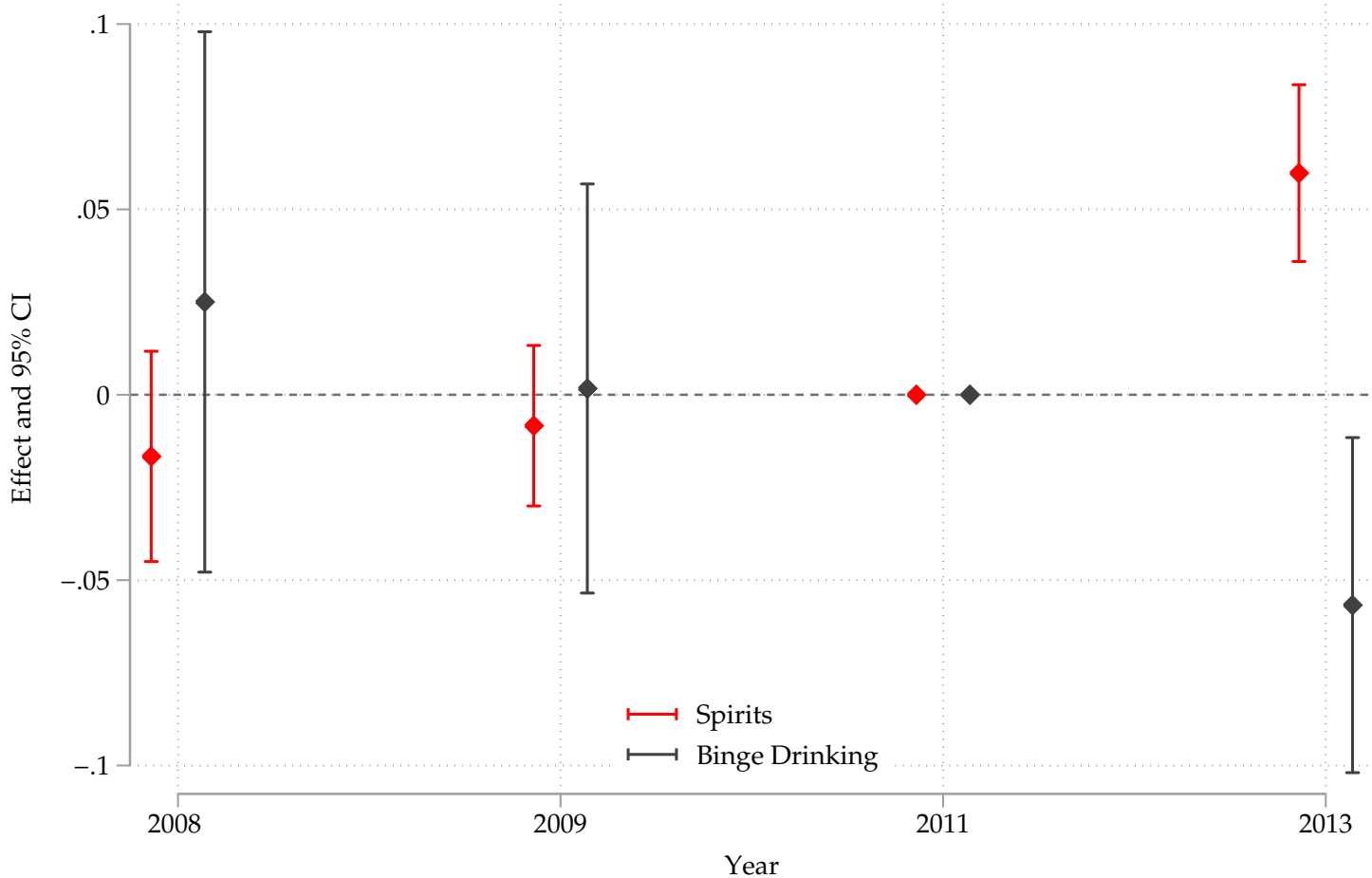
Effects on risky consumption of alcoholic beverages - Beer and Wine



Notes: This figure presents estimates of the marginal effect and confidence intervals of the national regulation on the probability of abusive consumption of beer and wine. Estimates are constructed using a probit model, standard errors are clustered at the state level. Heavy drinking or alcohol abuse is defined as consuming 8 or more drinks of beer and 5 or more drinks of wine.

▸ Table

Effects on risky consumption of alcoholic beverages - Spirits and Binge



Notes: This figure presents estimates of the marginal effect and confidence intervals of the national regulation on the probability of abusive consumption of spirits and on binge drinking. Estimates are constructed using a probit model, standard errors are clustered at the state level. Heavy drinking or alcohol abuse is defined as consuming three or more drinks of spirits (e.g. vodka, gin, tequila, rum, and whisky). Binge drinking is defined as consuming 5 or more drinks during a single occasion in the last 30 days, either during the weekend or during a week day.

▸ Table

Overview

Conclusions and future research

- The anti-tobacco regulation effectively reduced smoking: prob of current smoker decreased by 6.2 pp.
- Law is more effective for more educated people, and for people aged 18-25 years old and 45 - 55 years old
- Decrease in abusive consumption of beer (3 pp.), wine (2.7 pp.) and binge drinking (5.4 pp.).
- Tobacco and spirits drinks have a substitution relationship on consumption

Is the stricter regulation associated with better health outcomes?

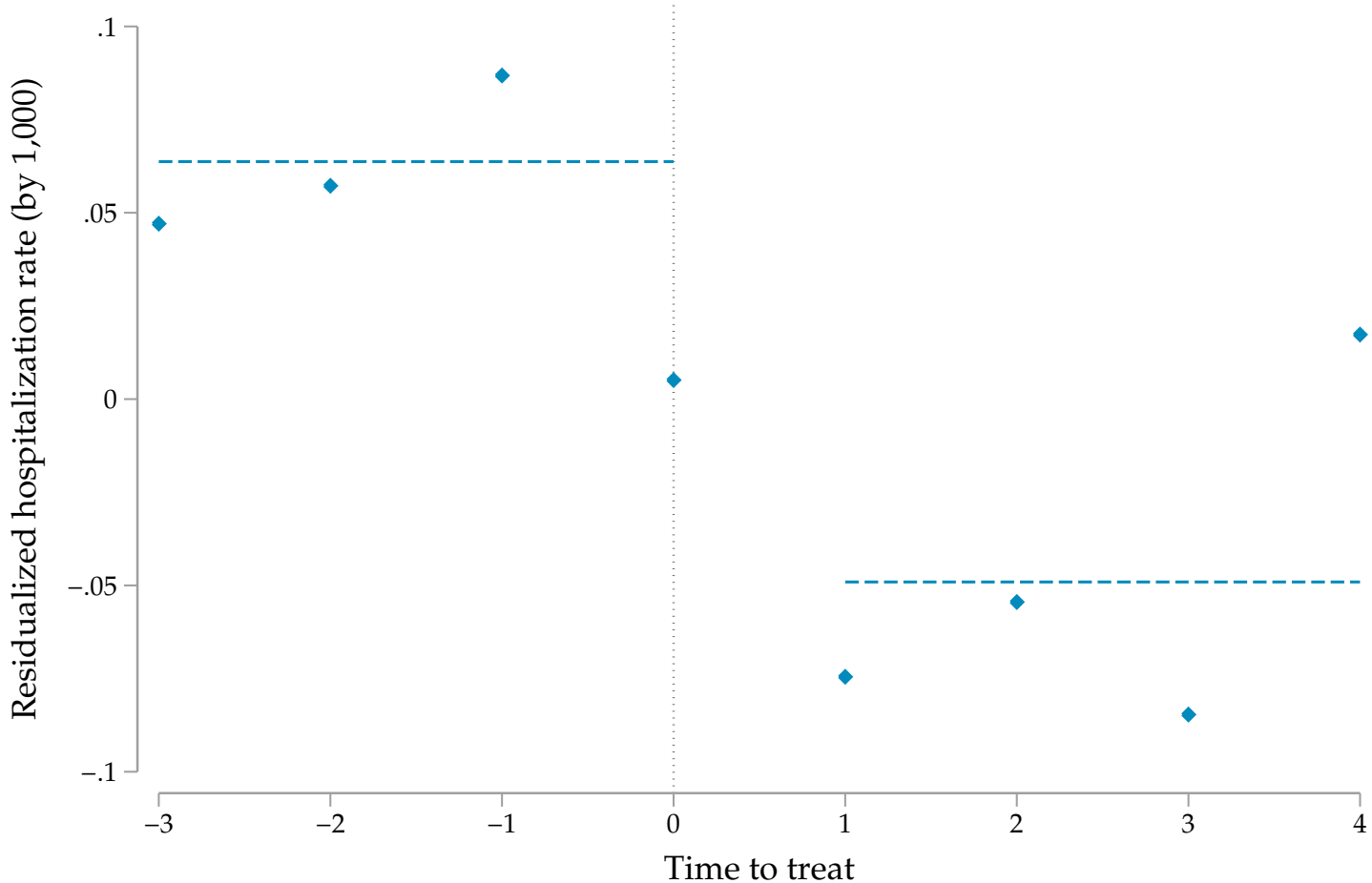
- In Argentina, cigarette smoking is the cause of: (Alcaraz et al., 2016)
  - 75% of COPD deaths
  - 82% of lung cancer deaths

- Data: hospital discharges reported by cause of diagnose, at the age, gender and state level (2008 - 2015)

- Event study design to estimate the dynamic response of hospitalization rates to the law change

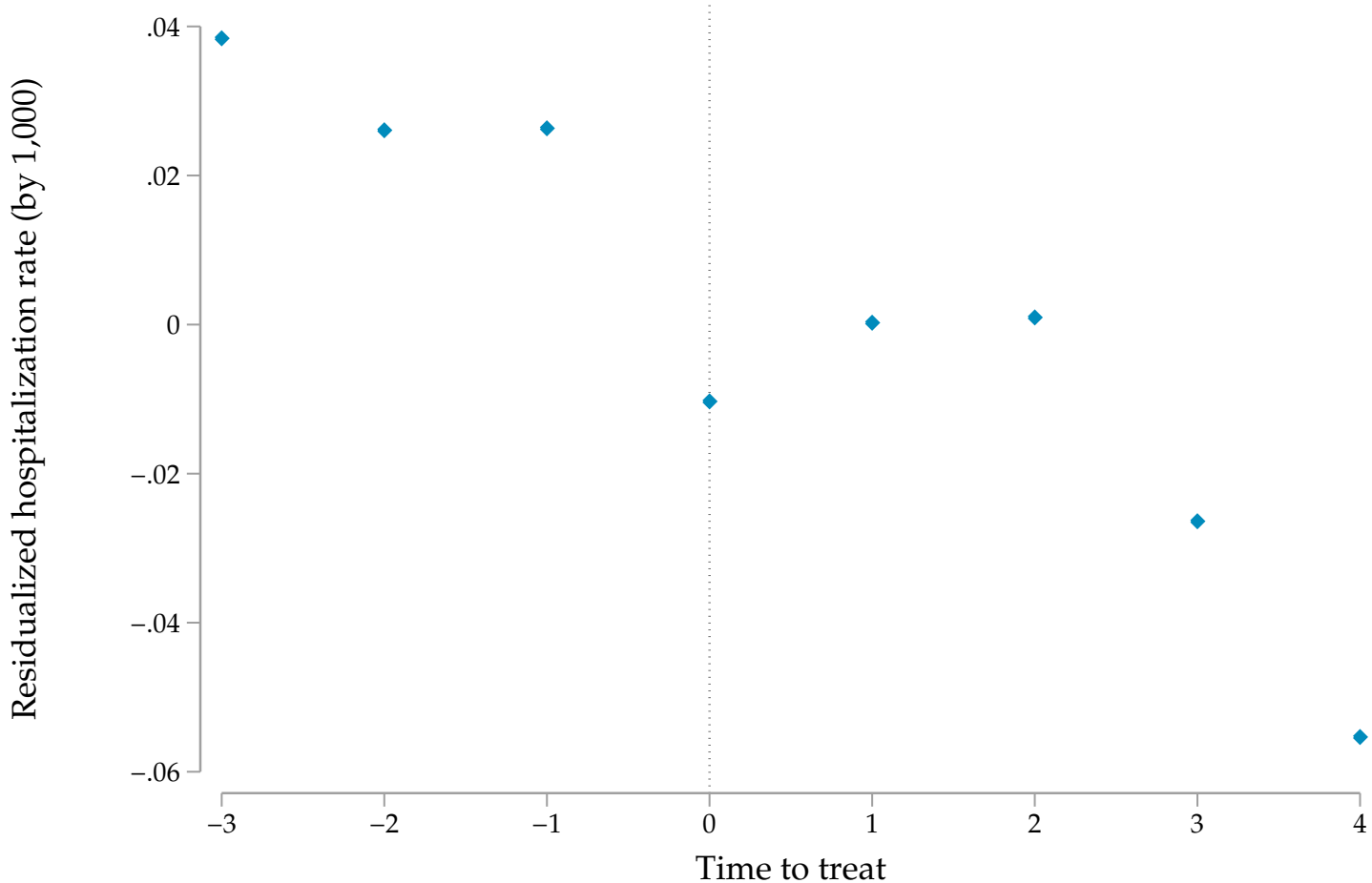
$$y_{st} = \sum_{\tau=-3}^{4} \delta_\tau \left[\text{Treat}_s \cdot (\text{Years after treat} = \tau)\right] + \Gamma' X_{st} + \alpha_s + \varepsilon_{st}$$

Hospitalization rates for Chronic Obstructive Pulmonary Disease



Notes: This figure presents trends in the trends on hospitalization rate for individuals aged 20 - 65 years. Time to treat counts time before and after the national law was passed. Year 0 corresponds to 2011, year 4 corresponds to 2015 and so on. Hospitalization rate is constructed as the ratio of hospitalization discharges cases and population for the age group

Hospitalization rates for Lung Cancer



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Appendix

Institutional details

Examples of law-regulated packaging

Notes: This figure provides an example of the Tobacco Graphic Warnings printed on cigarette boxes. Big font messages: (i) smoking reduces years of life, (ii) smoking causes cancer, (iii) smoking might cause leg amputation, (iv) pregnant women who smoke harm her child (v) smoking causes death by suffocation. Small font messages: (i) tobacco drives half of smoker's deaths, (ii) every cigarette poisons you, (iii) smoking causes gangrene, (iv) every cigarette damages your respiratory capacity.

- Images are designed by the National Department of Health and are updated every less than two years and more than one year.
- Producers have up to six months to incorporate the designs once they are released.

▸ Back

Definitions for smoker status

- Never smoker: *i* answers no to the question "*Have you ever smoke?* " or *i* answers 'yes' to this question and then answers the she has smoked less than 100 cigarettes in her life.
- Former smoker: *i* has smoked at least 100 cigarettes but the last time she smoked is more than 1 month ago
- Current smoker: *i* have smoked more than 100 cigarettes and smokes every day or some days

Back

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Back

Descriptive statistics - Never smokers

	2008	2009	2011	2013
Percentage	50.75	54.36	54.08	55.34
Average age	37	38	37	37
Female	58.31	60.12	61.29	62.51
Male	42.7	47.91	46.05	47.98
Young (<25 years old)	56.14	60.13	62.95	62.72
Less than High School	51.68	50.67	52.22	52.23
Married of cohabitant	49.05	52.65	51.53	53.51
Single	55.94	59.47	61.25	60.66
Employed	46.62	51.52	51.04	52.73
Unemployed	55.13	47.06	53.84	49.82
Income category				
Lowest quintile	51.49	55.71	52.75	55.52
Second quintile	53.25	56.01	53.42	56.39
Third quintile	49.77	54.07	56.17	53.59
Forth quintile	48.39	54.16	53.83	53.87
Highest quintile	50.65	48.86	50.18	54.45

Notes: Never smokers are individuals who have never smoked or have smoked less than 100 cigarettes. For variables other than age, each value indicates the percentage of never smokers for a particular sub-population and year.

▸ Back

Descriptive statistics - Current smokers

	2008	2009	2011	2013
Percentage	30.37	29.92	28.25	27.58
Average age	37	38	38	38
Female	25.96	25.24	23.06	23.07
Male	35.31	35.12	33.59	32.34
Young (<25 years old)	31.2	29.25	26.95	27.77
Less than High School	33.22	33.19	31.92	32.42
Married of cohabitant	29.43	29.26	27.29	26.46
Single	31.15	30.01	27.7	27.82
Employed	32.63	32.07	30.26	29.74
Unemployed	39.88	33.92	36.97	34.91
Age at first smoke	17	17	17	17
Income category				
Lowest quintile	31.29	34.04	28.66	29.42
Second quintile	30.8	32.08	28.72	29.64
Third quintile	31.7	28.81	30.72	28.58
Forth quintile	30.21	29.15	28.13	26.78
Highest quintile	30.73	28.65	24.97	22.65

Notes: Current smokers are individuals who have smoked 100+ cigarettes and smoke every/some days. For variables other than age, each value indicates the percentage of current smokers for a particular sub-population and year.

Back

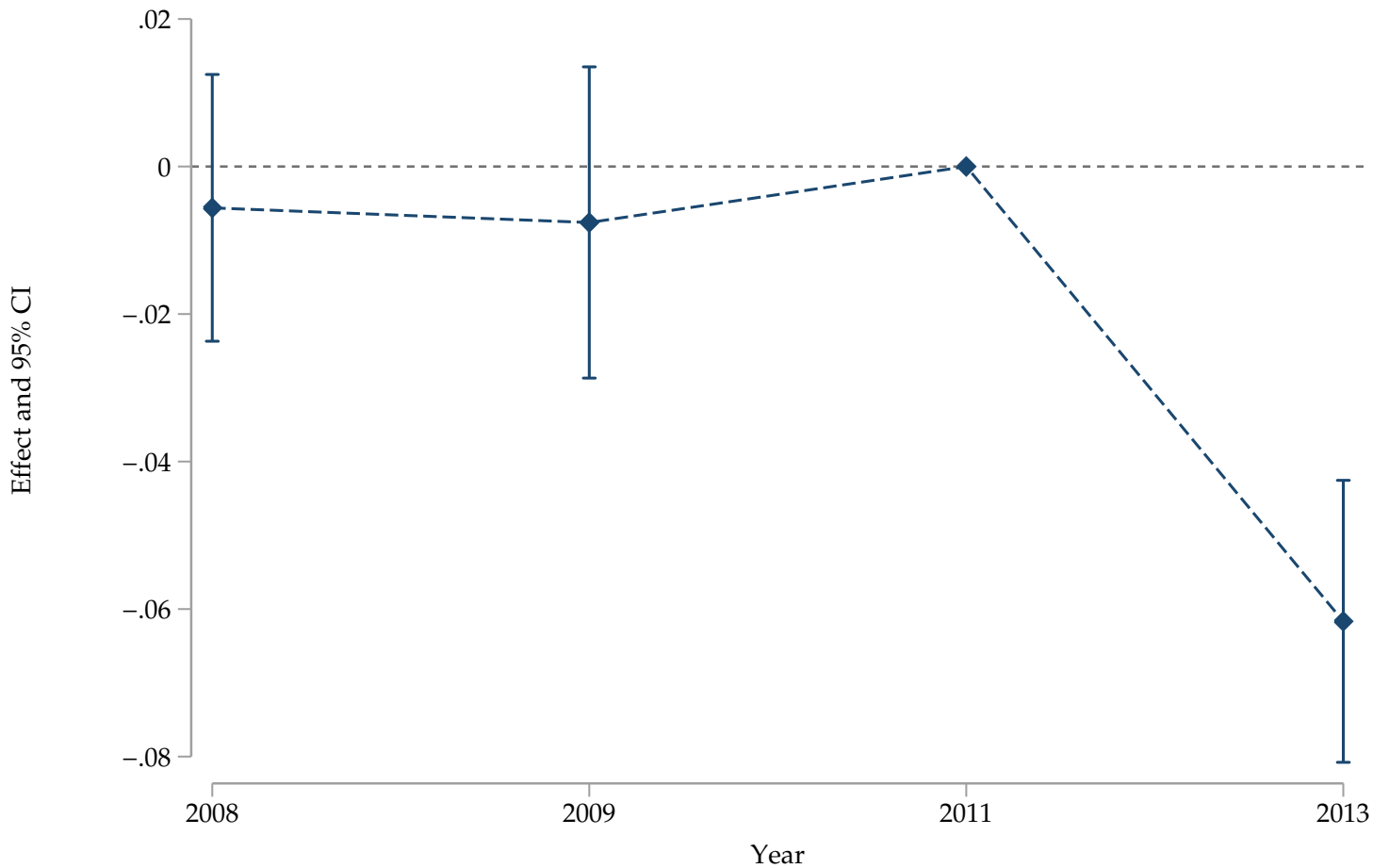
Balancing test - household income

Variable	Comparison *strict legislation*	Treated *lenient legislation*	Difference
Income category			
Lowest quintile	0.13	0.14	-0.01
	(0.32)	(0.32)	(0.01)
Second quintile	0.35	0.24	0.11***
	(0.47)	(0.42)	(0.01)
Third quintile	0.20	0.23	-0.03***
	(0.40)	(0.42)	(0.01)
Forth quintile	0.18	0.26	-0.08***
	(0.38)	(0.43)	(0.02)
Highest quintile	0.14	0.14	0.00
	(0.32)	(0.31)	(0.01)
Observations	23,830	36,619	60,449
Number of states	11	13	24

Notes: Cols 1 and 2 present mean and standard deviation of individual characteristics. Column 3 presents estimated coefficients and standard errors for the mean difference estimate. Pooled-data for the years 2008 and 2009. *** $p<0.01$, ** $p<0.05$,* $p<0.1$

▸ Back

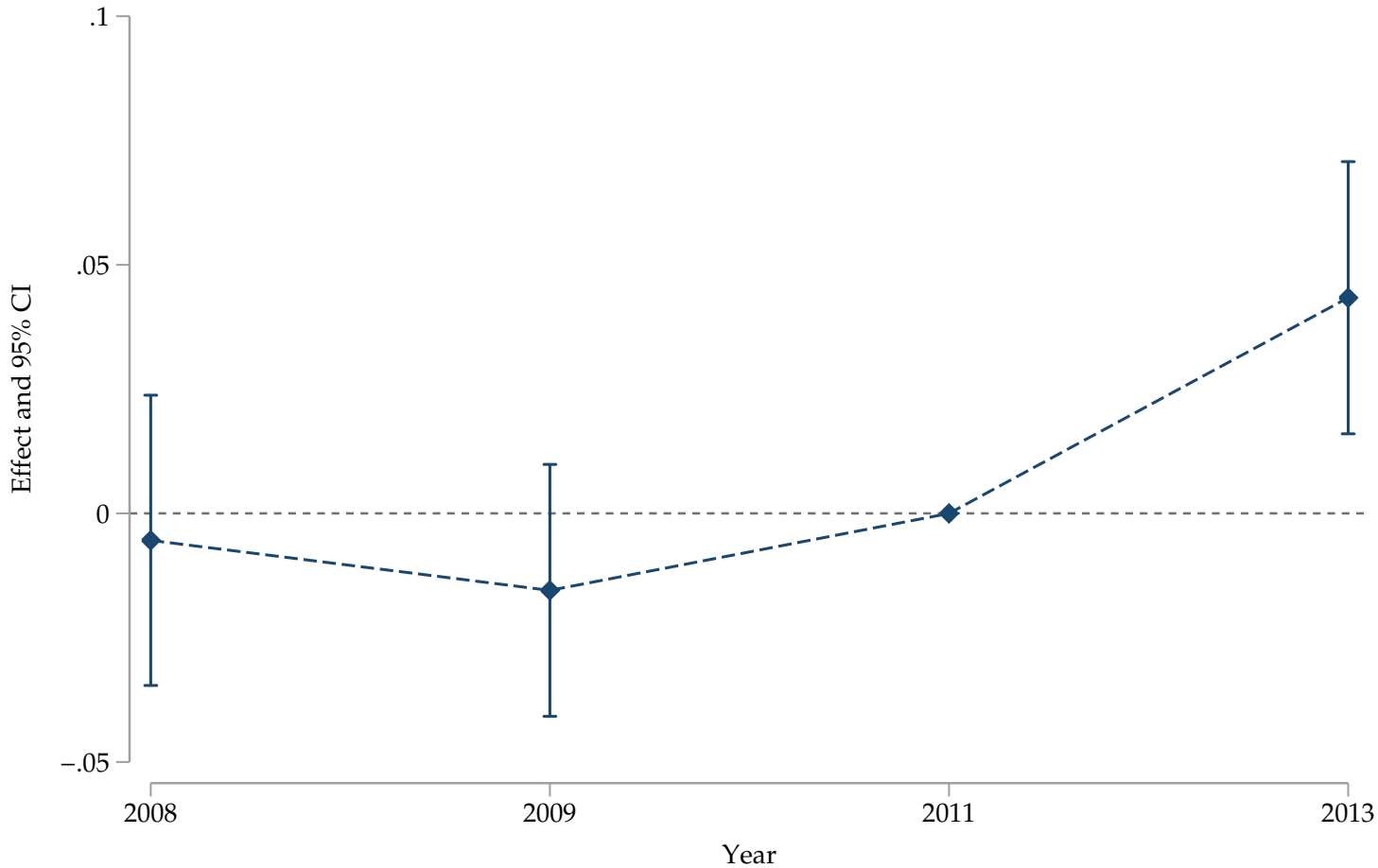
Decline in the probability of being a current smoker



Notes: This figure presents point estimates and symmetric percentile-t confidence intervals of the causal effect of the national regulation on the probability of being a smoker in 2013 by subgroups. Standard errors are block-bootstrapped at the state-level with 200 replications. Omitted year corresponds to 2011, the year the law was passed. Mean of dependent variable in 2011 is 0.28

▸ Back

Increase in the probability of being a never smoker



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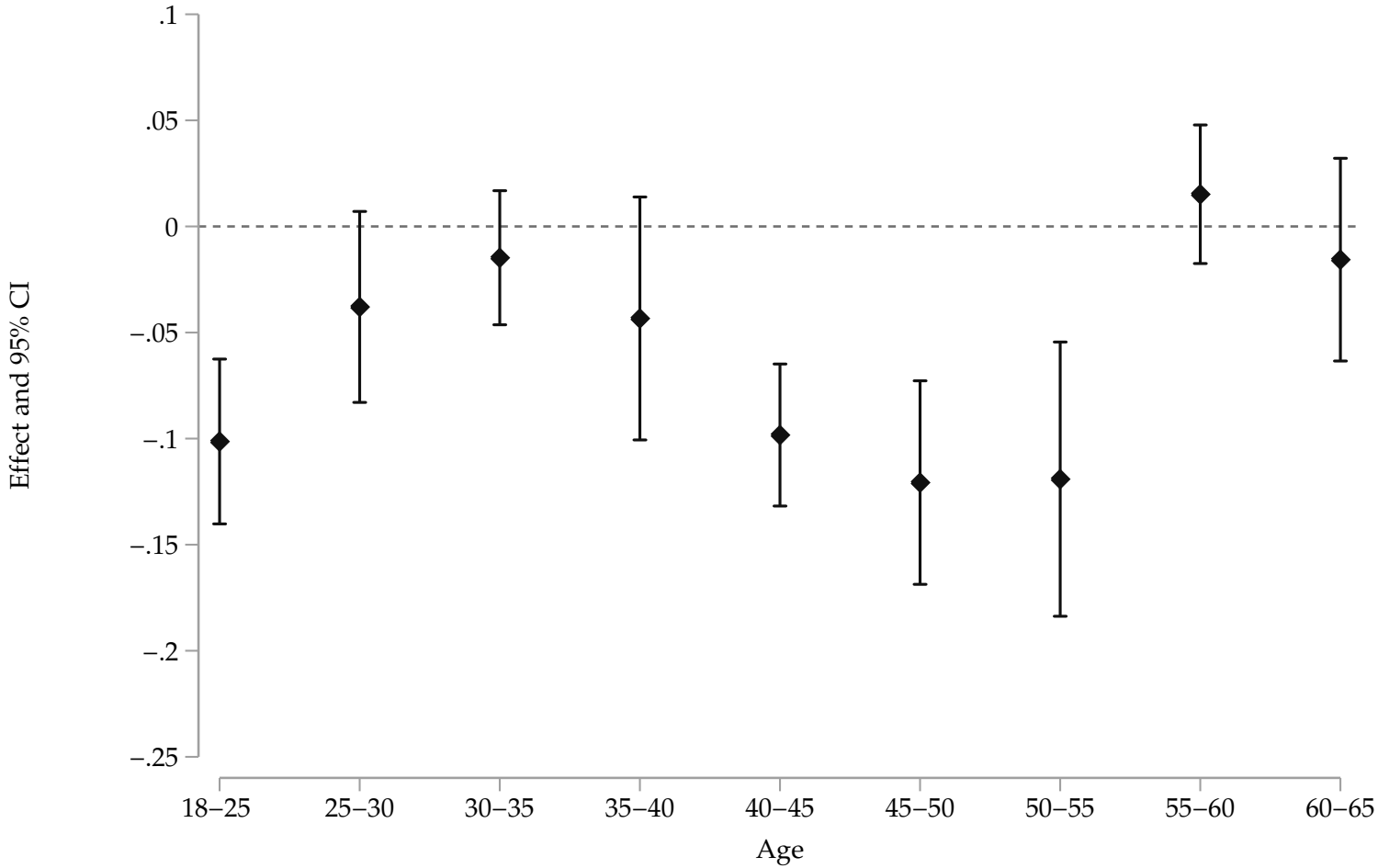
▸ Back

Effect on the probability of current smokers

By age



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▸ Table ▸ By gender ▸ Back

Effect on the probability of current smokers

By age

Age:	18-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2008	0.0009	-0.0252	-0.0363	-0.0212	0.0125	-0.0253	0.0074	0.0177	0.0365
	[0.0293]	[0.0267]	[0.0235]	[0.0319]	[0.0303]	[0.0267]	[0.0257]	[0.0179]	[0.0201]
2009	0.0038	0.0089	-0.0209	-0.0363	-0.0216	0.0163	-0.0227	-0.0038	-0.0088
	[0.0157]	[0.0225]	[0.0212]	[0.0224]	[0.0166]	[0.0249]	[0.0302]	[0.0201]	[0.0158]
2013	-0.1014	-0.0379	-0.0148	-0.0434	-0.0983	-0.1207	-0.1191	0.0152	-0.0156
	[0.0307]***	[0.0251]	[0.0200]	[0.0217]	[0.0163]***	[0.0250]****	[0.0275]***	[0.212]	[0.0187]
$\bar{y}_{2011}$	0.27	0.31	0.29	0.29	0.26	0.30	0.32	0.27	0.23
Observations	24,822	19,409	20,329	18,804	16,121	14,205	13,576	11,992	13,835
R-squared	0.0497	0.0278	0.0377	0.0341	0.0348	0.0247	0.0253	0.0232	0.0240
Correctly Predicted	0.6899	0.6604	0.6564	0.7059	0.5085	0.6758	0.6591	0.7331	0.8005
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$s \times t$ controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The omitted category corresponds to 2011, the year the federal law was passed. $Treat_s = 1$ if the legislation index for state s in moment t is strictly less than 3 before 2011.Individual controls include age, gender, educational attainment, employment status and income category of the household. State $\times$ time controls include total private employment and total population. Standard errors in squared brackets are block-bootstrapped at the state-level with 200 replications. *** p<0.01, ** p<0.05, * p<0.10

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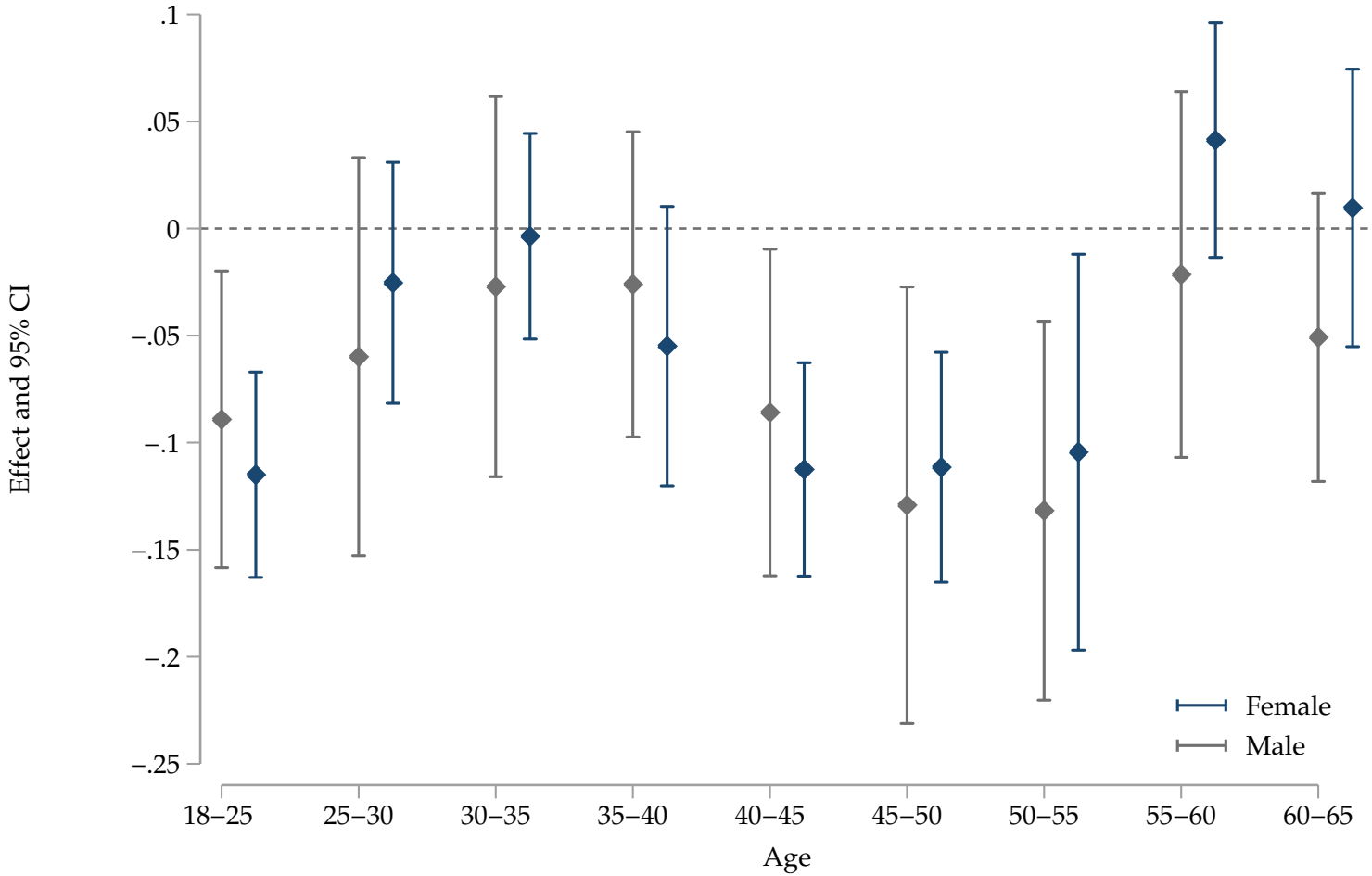
Effect on the probability of current smokers

By age and gender



Notes: This figure presents point estimates and symmetric percentile-t confidence intervals of the causal effect of the national regulation on the probability of being a smoker in 2013 by subgroups. Standard errors are block-bootstrapped at the state-level with 200 replications.

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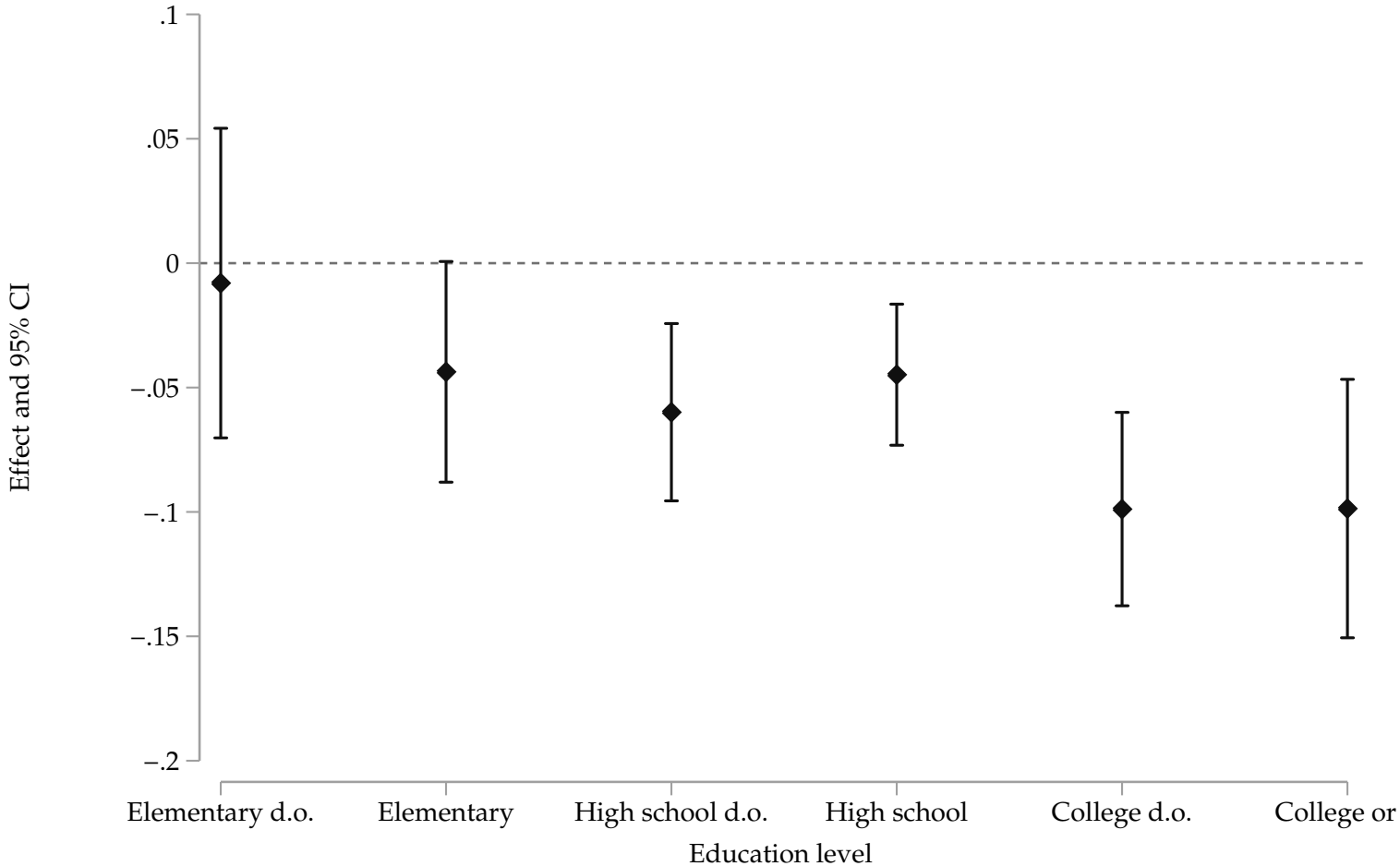
Effect on the probability of current smokers

By educational level



Notes: This figure presents point estimates and symmetric percentile-t confidence intervals of the causal effect of the national regulation on the probability of being a smoker in 2013 by subgroups. Standard errors are block-bootstrapped at the state-level with 200 replications.

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Effect on the probability of current smokers

By educational level

Educational level:	Elementary d/o (1)	Elementary (2)	HS d/o (3)	HS (4)	College d/o (5)	College + (6)
2008	-0.0312	-0.0310	0.0030	0.0336	0.0036	-0.0093
	[0.4700]	[0.0175]	[0.0272]	[0.0212]	[0.0260]	[0.0238]
2009	-0.0630	0.0093	-0.0177	-0.0141	0.0049	0.0167
	[0.0210]***	[0.0170]	[0.0139]	[0.0179]	[0.0220]	[0.0223]
2013	-0.0080	-0.0437	-0.0599	-0.0448	-0.0989	-0.0986
	[0.0361]	[0.0185]*	[0.0216]***	[0.0303]***	[0.0296]***	[0.0193]***
$\bar{y}_{2011}$	0.31	0.30	0.35	0.28	0.24	0.228
Observations	12,261	30,388	27,877	35,538	21,195	23,811
R-squared	0.0713	0.0434	0.0258	0.0217	0.0199	0.0134
Correctly Predicted	0.5073	0.6906	0.6370	0.6173	0.7181	0.7607
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
$s \times t$	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The omitted category corresponds to 2011, the year the federal law was passed. $Treat_s = 1$ if the legislation index for state s in moment t is strictly less than 3 before 2011.Individual controls include age, gender, educational attainment, employment status and income category of the household. State $\times$ time controls include total private employment and total population. Standard errors in squared brackets are block-bootstrapped at the state-level with 200 replications. *** p<0.01, ** p<0.05, * p<0.10

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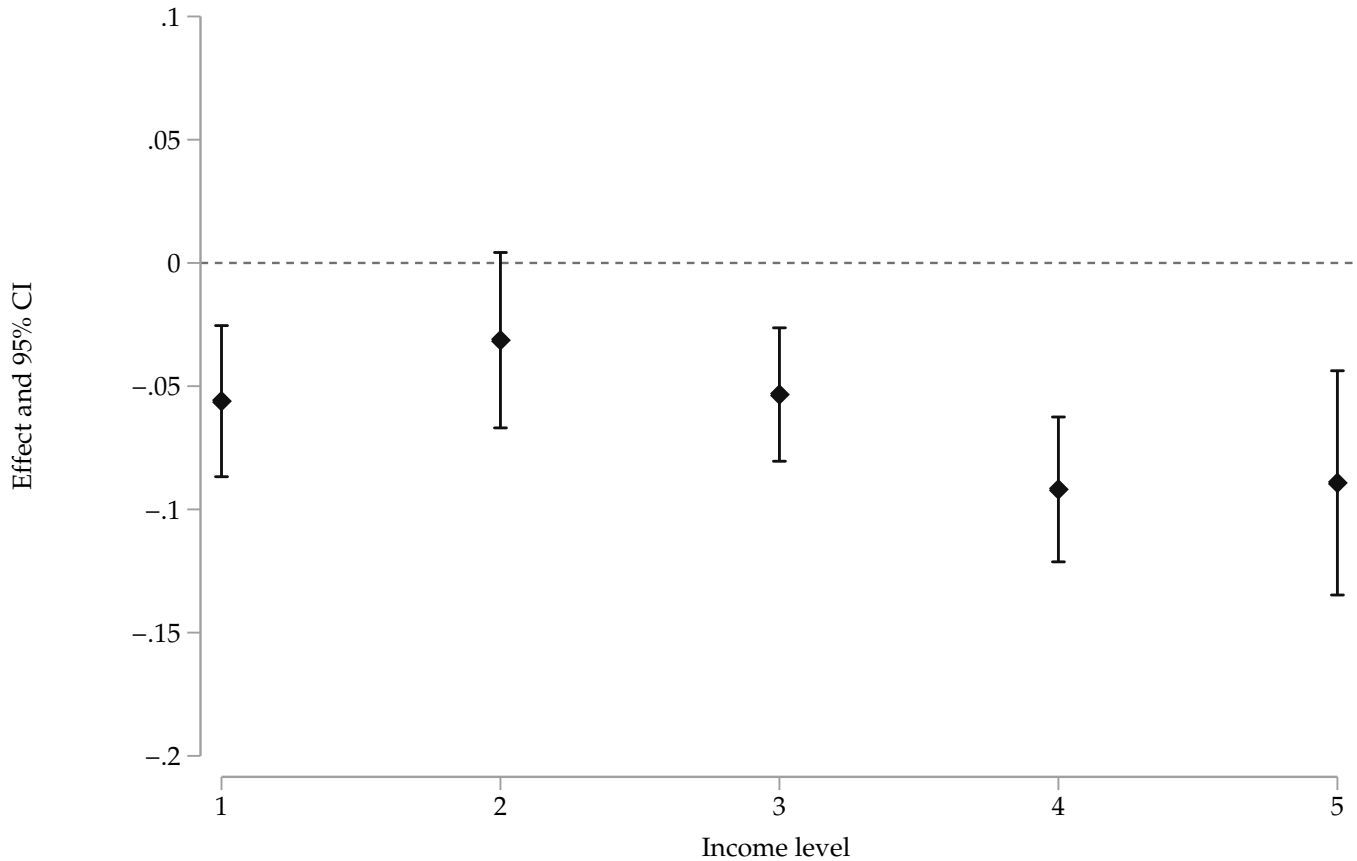
Effect on the probability of current smokers

By income level



Notes: This figure presents point estimates and symmetric percentile-t confidence intervals of the causal effect of the national regulation on the probability of being a smoker in 2013 by subgroups. The 1st quintile corresponds to the lowest 20 percent households in the income distribution. The 5th quitile corresponds to the highest 20 percent households in the income distribution. Standard errors are block-bootstrapped at the state-level with 200 replications.

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Effect on the probability of current smokers

By income level

Income category	1st quintile (1)	2nd quintile (2)	3rd quintile (3)	4th quintile (4)	5th quintile (5)
2008	-0.0239	-0.0288	-0.0080	0.0282	-0.0028
	[0.0246]	[0.0241]	[0.0201]	[0.0195]	[0.0318]
2009	-0.0433	-0.0513	0.0297	0.0093	-0.0213
	[0.0211]	[0.0216]**	[0.0200]	[0.0146]	[0.0404]
2013	-0.0561	-0.0313	-0.0534	-0.0919	-0.0892
	[0.0135]***	[0.0187]*	[0.0137]***	[0.0183]***	[0.0207]***
Mean dep. var. in 2011	0.29	0.29	0.31	0.28	0.25
Observations	23,427	33,418	32,291	37,006	16,507
R-squared	0.0530	0.0291	0.0248	0.0231	0.0217
Correctly Predicted	0.6846	0.7049	0.7032	0.7057	0.7023
Individual controls	Yes	Yes	Yes	Yes	Yes
State $\times$ time controls	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes

Notes: The omitted category corresponds to 2011, the year the federal law was passed. $Treat_s = 1$ if the legislation index for state s in moment t is strictly less than 3 before 2011.Individual controls include age, gender, educational attainment, employment status and income category of the household. State $\times$ time controls include total private employment and total population. Standard errors in squared brackets are block-bootstrapped at the state-level with 200 replications. *** $p<0.01$, ** $p<0.05$, * $p<0.10$

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Effect on risky consumption of alcoholinc beverages - Beer and Wine

Dependent variable	Alcohol consumption	Beer abuse	Wine abuse	Spirits	Binge drinking
	(1)	(2)	(3)	(4)	(5)
2008	-0.0845	-0.0085	0.0132	-0.2020	0.0534
	(0.0591)	(0.1297)	(0.1108)	(0.1645)	(0.1109)
2009	0.0091	0.0342	-0.0807	-0.1013	-0.0277
	(0.0741)	(0.0985)	(0.0901)	(0.1329)	(0.0816)
2013	0.0288	-0.2256**	-0.1527**	0.6968***	-0.1526**
	(0.0355)	(0.1079)	(0.0556)	(0.1553)	(0.0730)
Marginal Effects (at means)					
2008	-0.0268	-0.0011	0.0021	-0.0171	0.0179
	0.0187	0.0162	0.0174	0.0139	0.0373
2009	0.0029	0.0043	-0.0127	-0.0086	-0.0093
	0.0235	0.0123	0.0142	0.0111	0.0274
2013	0.0091	-0.0282**	-0.0241**	0.0589***	-0.0512**
	0.0113	(0.0133)	0.0089	0.0117	0.0246
Mean dep. var. in 2011	0.7232	0.1095	0.1291	0.0318	0.3605
Observations	29,391	21,561	21,561	21,561	21,561
Pseudo R-squared	0.0534	0.1768	0.1035	0.1613	0.1054
Correctly predicted	0.9816	0.8605	0.8663	0.9258	0.6909

Notes: The omitted category corresponds to 2011, the year the federal law was passed. Treatment is defined as a dichotomous variable, $Treat_s$, that equals one if the legislation index for state s in moment t is strictly less than 3 before 2011. After 2011, all states *are treated* thus $Treat_s$ equals one for all states s after 2011. The sample is restricted to current smokers who have reported drinking alcohol in the last month. Regression results include: Individual controls, state $\times$ time controls, state FE and time FE. Individual controls include age, gender, educational attainment, employment status and income category of the household. State $\times$ time controls include total private employment and total population. Standard errors in parentheses are clustered at the state-level and the number of states is 24. *** $p<0.01$, ** $p<0.05$, * $p<0.10$

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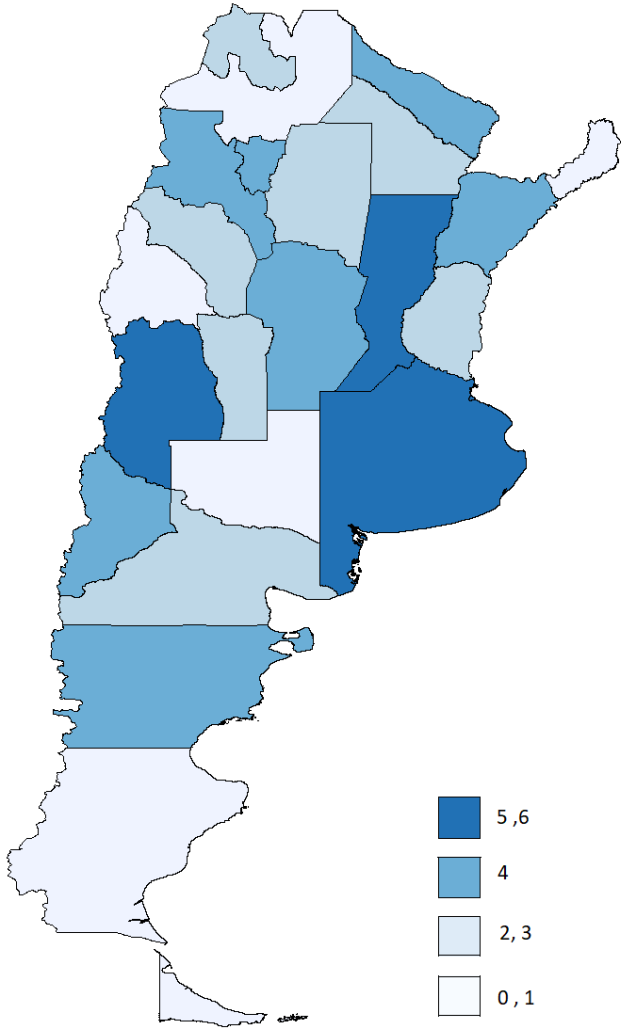
Legislation index in 2009



Notes: Darker shades indicate stricter laws. Lighter shades indicate more lenient laws.

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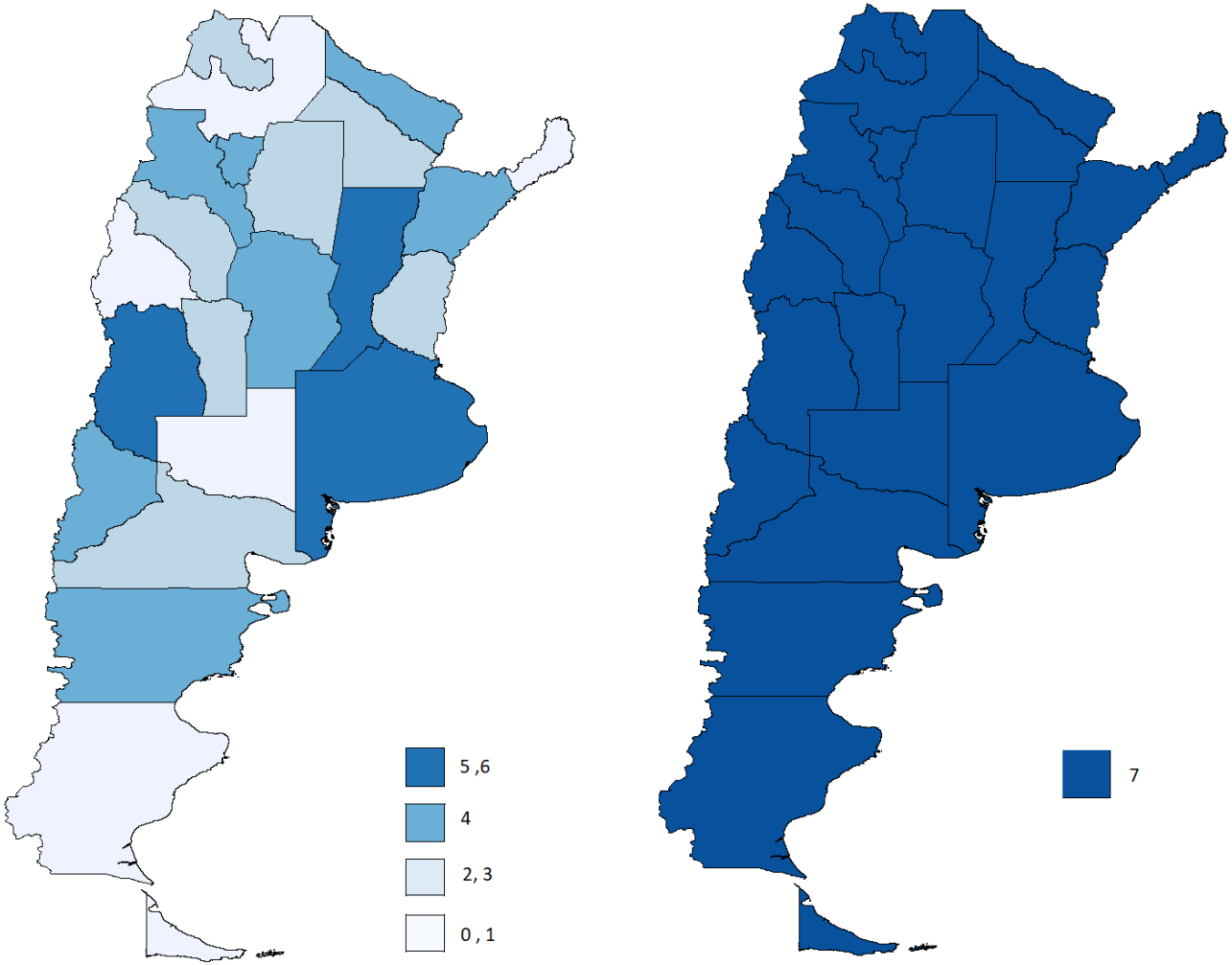
Legislation index in 2009 vs 2013



Notes: Left map: 2009. Right map: 2013. Darker shades indicate stricter laws. Lighter shades indicate more lenient laws. Every state is treated after the national law was passed in 2011. Control states are those with a legislation index greater than or equal to 3 in the period before the law was passed (darker shades in the left-hand-side map).

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