

Tobacco Sales Prohibition and Teen Smoking

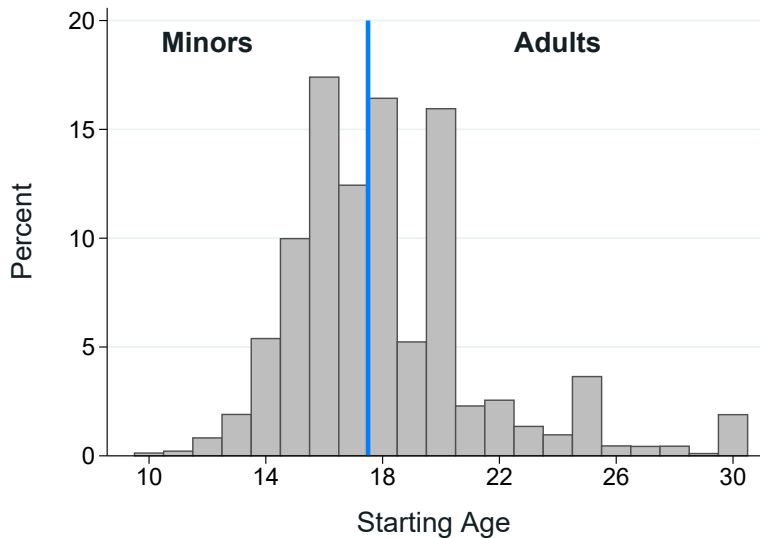
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Alois Stutzer, Basel



Disclosure

- ▶ Funding sources:
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- ▶ No funding at any point from tobacco companies or advocacy organizations
- ▶ Other researchers can apply for access to the data sources and we are happy to share our code

Smokers start as teens

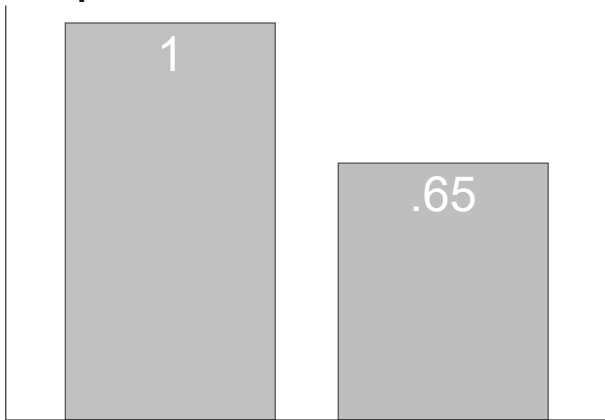


The WHO wants sales bans

Each party shall **prohibit the sales of tobacco products to persons under the age set by national law or eighteen.**

Health officials think sales bans work

Expect Decrease \geq 5 Perc. P.



Framework and Evidence

Should sales bans work?

1. Cost

Should sales bans work?

1. Cost
2. Information

Should sales bans work?

1. Cost
2. Information
3. Forbidden fruit

Should sales bans work?

1. Cost
2. Information
3. Forbidden fruit
4. Circumvention

What we add

- ▶ Test of arguments
- ▶ Policy evaluation

Previous evidence

- ▶ Smoking bans and smoking

(Boes et al., 2015; Mazzonna and Salari, 2018)

Previous evidence

- ▶ Smoking bans and smoking

(Boes et al., 2015; Mazzonna and Salari, 2018)

- ▶ Taxes and teen smoking

Previous evidence

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- ▶ Taxes and teen smoking

- ▶ Sales bans and teen smoking:

 - ▶ Before and after

 - ▶ Policy mix in the US

(Gruber and Zinman, 2000; Cawley et al., 2006; Nesson, 2017)

Previous evidence

- ▶ Smoking bans and smoking

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- ▶ Taxes and teen smoking

- ▶ Sales bans and teen smoking:

- ▶ Before and after

- ▶ Policy mix in the US

(Gruber and Zinman, 2000; Cawley et al., 2006; Nesson, 2017)

- ▶ Drivers?

- ▶ Natural experiment?

Identification

Our setting

- ▶ Well-defined policy change

Our setting

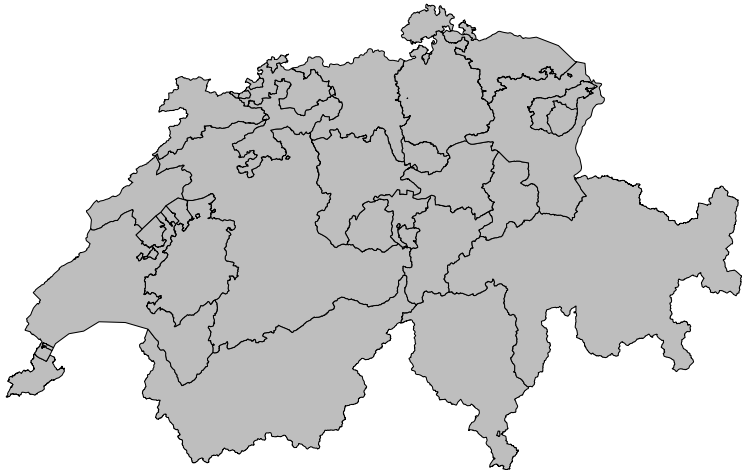
- ▶ Well-defined policy change
- ▶ Staggered introduction

Our setting

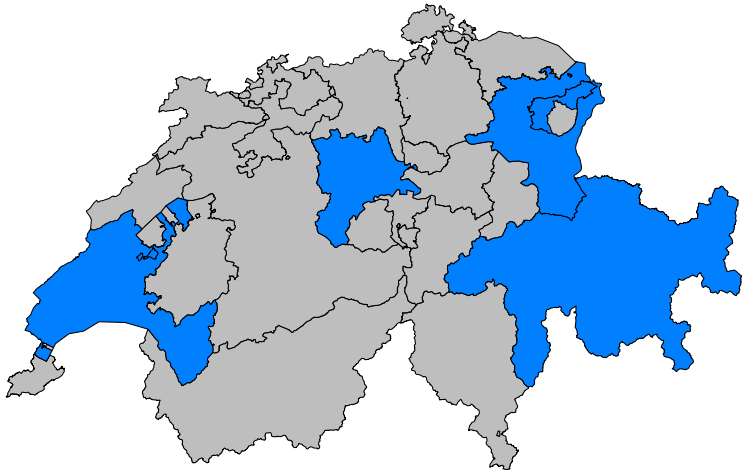
- ▶ Well-defined policy change
- ▶ Staggered introduction
- ▶ Homogeneous taxes

Our setting

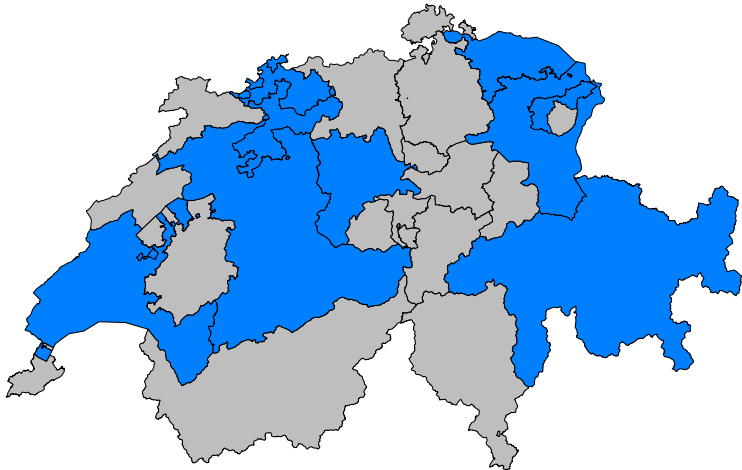
- ▶ Well-defined policy change
- ▶ Staggered introduction
- ▶ Homogeneous taxes
- ▶ High smoking prevalence



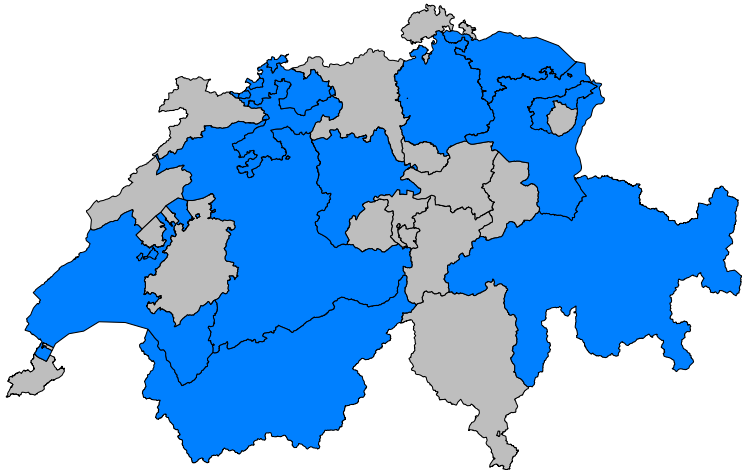
2005



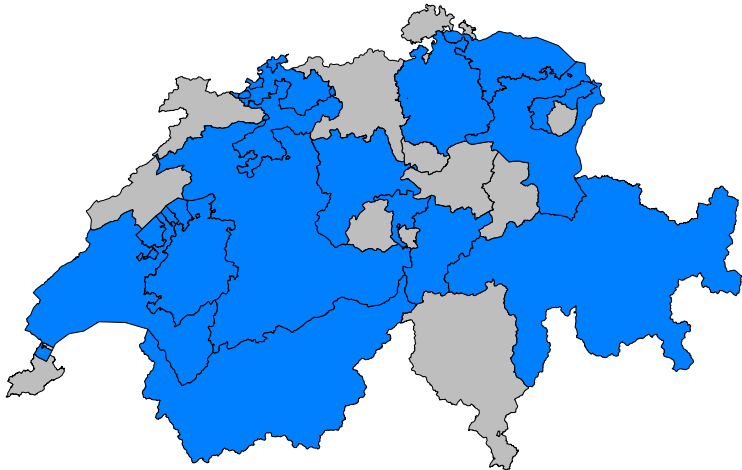
2006



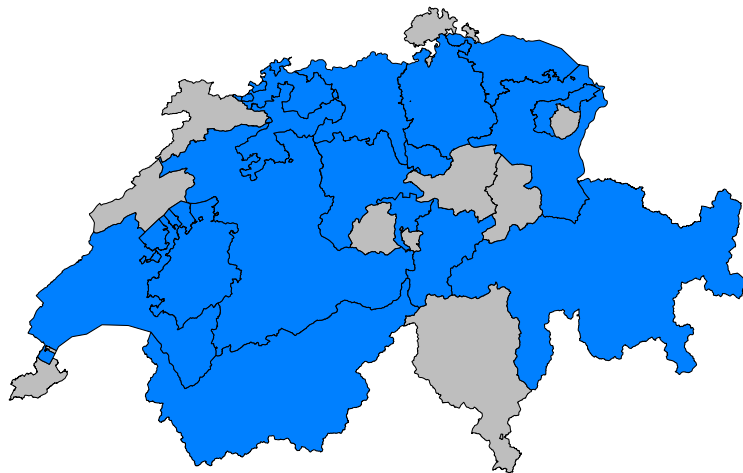
2007



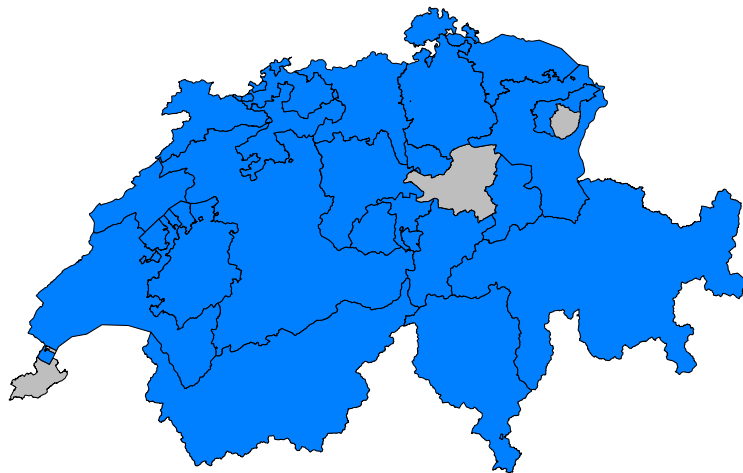
2008



2009



2010



2016

Swiss data

- ▶ Quarterly repeated cross-section of individuals from 14 to 98
- ▶ 2001 to 2016 – N=167,000
 - ▶ Tobacco and Addiction Monitoring

Map Min. Ages

Intro. Dates

Nr. Cantons, Share Under Ban

Descr. Stat.

Trends

Swiss data

- ▶ Quarterly repeated cross-section of individuals from 14 to 98
- ▶ 2001 to 2016 – N=167,000
 - ▶ Tobacco and Addiction Monitoring
- ▶ Smoking status
- ▶ Attitudes toward smoking
- ▶ Purchasing behavior

Map Min. Ages

Intro. Dates

Nr. Cantons, Share Under Ban

Descr. Stat.

Trends

Swiss data on pupils

- ▶ Data on pupils aged 11 to 15 years
- ▶ 2002, 2006, 2010, 2014 – N=56,000
 - ▶ Health Behaviour in School-aged Children
 - ▶ Subset of cantons

Availability

Trend Pupils

Swiss data on pupils

- ▶ Data on pupils aged 11 to 15 years
- ▶ 2002, 2006, 2010, 2014 – N=56,000
 - ▶ Health Behaviour in School-aged Children
 - ▶ Subset of cantons
- ▶ Smoke status
- ▶ Age of first puff

Availability

Trend Pupils

Variation and data: EU

- ▶ Introduction or increase of minimum ages
 - ▶ 17 introductions
 - ▶ 8 increases

Variation and data: EU

- ▶ Introduction or increase of minimum ages
 - ▶ 17 introductions
 - ▶ 8 increases
- ▶ 9 repeated cross-sections of individuals
- ▶ 1990 to 2012, 32 countries – N=138,000
 - ▶ Eurobarometer
- ▶ Smoking status

Empirical strategy

$$Smoker_{ict} = \beta BindingSalesBan_{ict} + \alpha SalesBan_{ct}$$

$Smoker_{ict}$ 1 if an individual smokes

$BindingSalesBan_{ict}$ 1 if the sales ban binds

$SalesBan_{ct}$ 1 if a sales ban exists

Empirical strategy

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Empirical strategy

$$\text{Smoker}_{ict} = \beta \text{BindingSalesBan}_{ict} + \alpha \text{SalesBan}_{ct} \\ + \gamma_a + \eta_{cxteen} + \theta_{yxteen}$$

γ_a Age FE

η_{cxteen} Age group (< 21 vs. ≥ 21) specific
canton FE

θ_{yxteen} Age group specific year FE

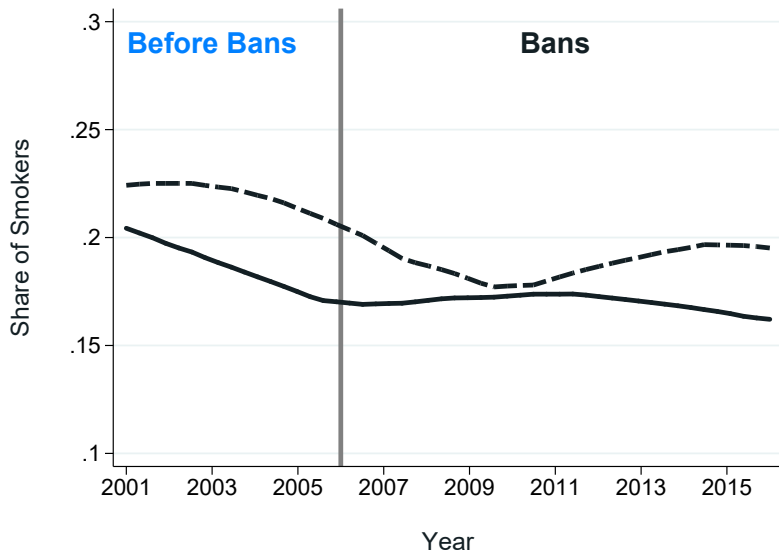
Empirical strategy

$$\text{Smoker}_{ict} = \beta \text{BindingSalesBan}_{ict} + \alpha \text{SalesBan}_{ct} \\ + \gamma_a + \eta_{cxteen} + \theta_{yxteen} + X'_{ict} \delta + \varepsilon_{ict}$$

X'_{ict} Gender, foreigner, household size dummies, physician density, youth and general unempl.

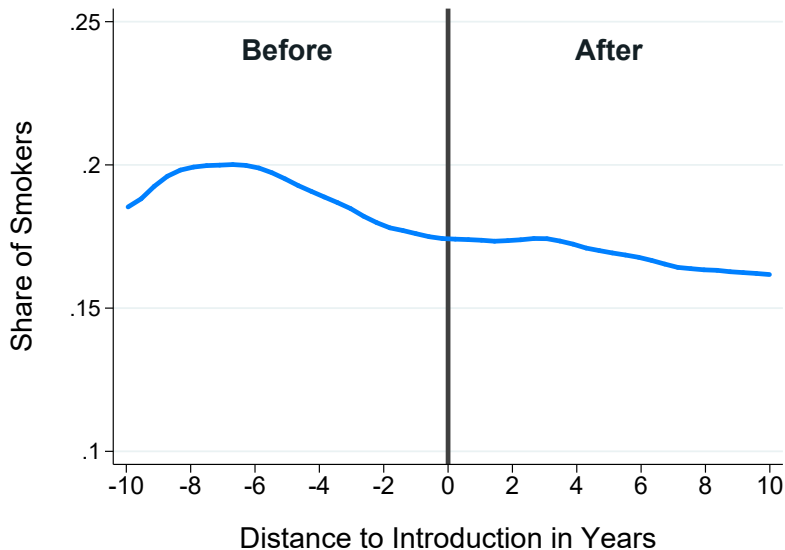
ε_{ict} Clustering on 26 cantons

Cantons have common trends



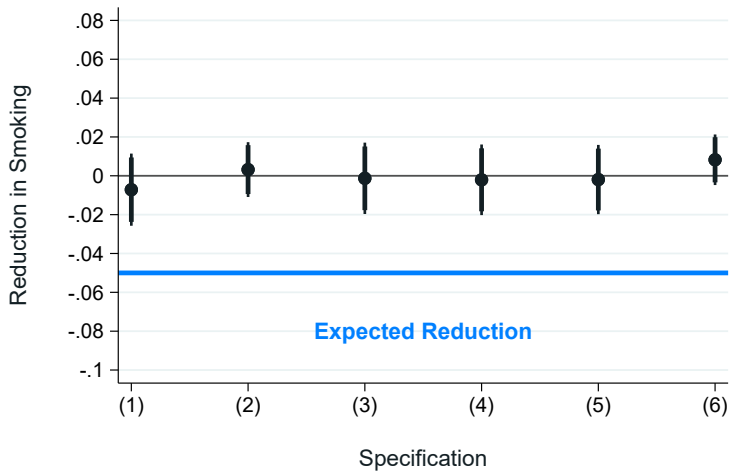
Results

Smoking trend does not change



Dependent Variable Avg. for Minors	All Ages		11–15 Years Old	
	Smoker 0.178 (1)	Packs (Smokers) 0.438 (2)	Smoker 0.104 (3)	Age First Puff 12.5 (4)
Binding Sales Ban	-0.002 (0.009)	-0.009 (0.020)	0.008 (0.007)	0.001 (0.051)
Sales Ban	-0.002 (0.003)	0.005 (0.008)		
Age FE	X	X	X	X
Canton FE	X	X	X	X
Year FE	X	X	X	X
Canton x Teen FE	X	X		
Year x Teen FE	X	X		
Ind. Controls	X	X	X	X
Cant. Controls	X	X		
Observations	167,376	35,120	56,335	13,177
Canton Clusters	26	26	15	15
<i>R</i> -squared	0.05	0.08	0.07	0.25

Effect is smaller than expected



Dependent Variable	Smoker	Packs (Smokers)
Avg. for Minors	0.219	0.547
	(1)	(2)
Binding Sales Ban	-0.006 (0.021)	0.006 (0.030)
Sales Ban	-0.001 (0.013)	-0.009 (0.021)
Age FE	X	X
Country FE	X	X
Year FE	X	X
Country x Teen FE	X	X
Year x Teen FE	X	X
Country Trends	X	X
Ind. Controls	X	X
Country Controls	X	X
Observations	138,311	38,853
Clusters	32	32
<i>R</i> -squared	0.10	0.12

Further results and robustness

- ▶ Common trends Trends Lead Table EU
 - ▶ Trends
 - ▶ Lead
 - ▶ Sample restrictions, balance checks

Further results and robustness

- ▶ Common trends [Table](#) [Table](#) [Table](#)
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- ▶ Advertisement and smoking bans [Table](#)

Further results and robustness

- ▶ Common trends [Figure](#) [Table](#) [Table EU](#)
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- ▶ Sensitivity to cantons [Figure](#)

Further results and robustness

- ▶ Common trends [Table](#) [Table](#) [Table](#)
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 - ▶ Sample restrictions, balance checks
- ▶ Advertisement and smoking bans [Table](#)
- ▶ Sensitivity to cantons [Table](#)
- ▶ Heterogeneities [Table](#)
 - ▶ Low education

Debate Over Prohibition

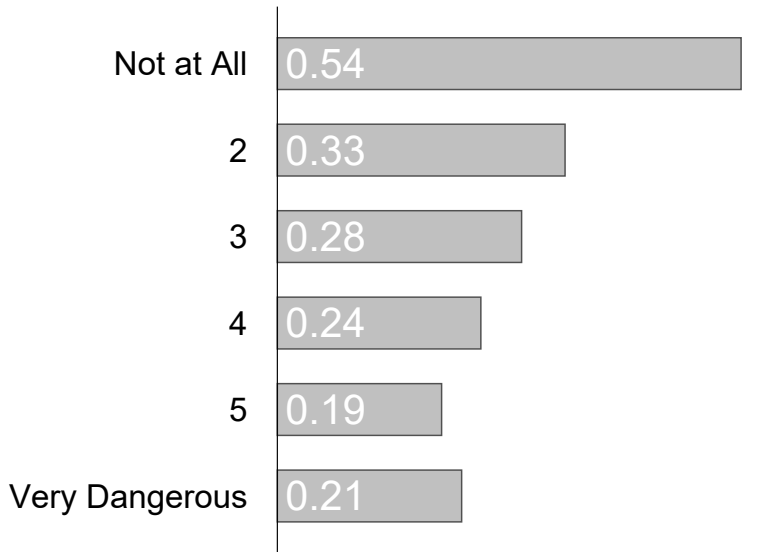
Prohibition could affect:

1. Cost
2. Information
3. Forbidden fruit
4. Circumvention

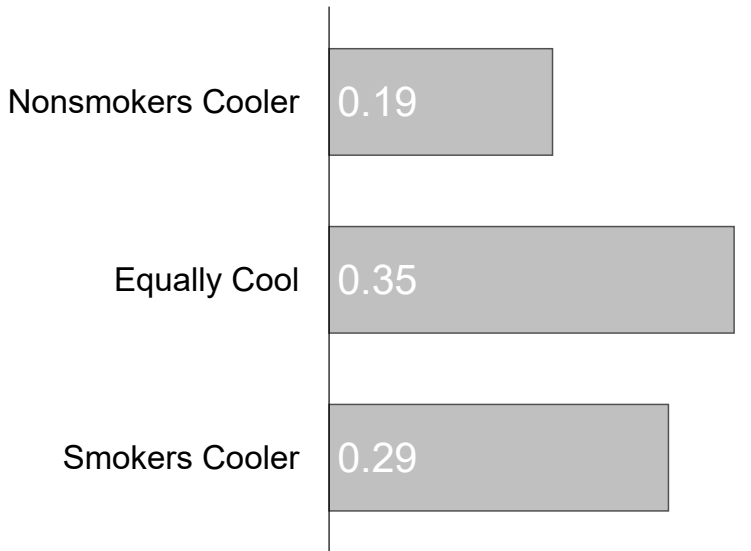
Prohibition could affect:

1. Cost
2. **Information**
3. **Forbidden fruit**
4. Circumvention

Danger and smoking



Coolness and smoking



Dependent Variable	Smokers Are More:			Smoking is Dangerous
	Cool	Avg.	Avg. Smokers	
Avg.	0.307	0.288	0.367	3.70
	(1)	(2)	(3)	(4)
Binding Sales Ban	-0.026*	-0.021	-0.031*	-0.005
	(0.013)	(0.013)	(0.017)	(0.053)
Sales Ban	-0.012	-0.003	0.020	0.043
	(0.018)	(0.008)	(0.023)	(0.055)
Age FE	X	X	X	X
Canton FE	X	X	X	X
Year FE	X	X	X	X
Canton x Teen FE	X	X	X	X
Year x Teen FE	X	X	X	X
Ind. Controls	X	X	X	X
Cant. Controls	X	X	X	X
Observations	6,010	5,662	1,446	7,632
Canton Clusters	26	26	26	26
R-squared	0.03	0.06	0.05	0.06

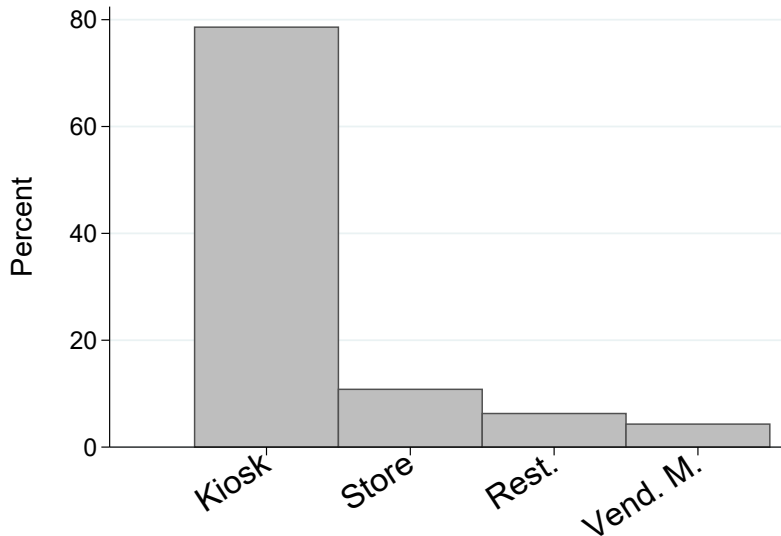
Expand

Parental and peer attitudes

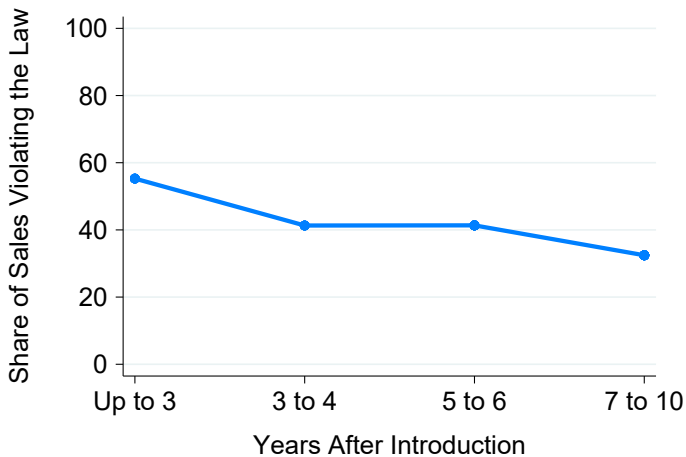
Prohibition could affect:

1. Cost
2. Information
3. Forbidden fruit
4. **Circumvention**

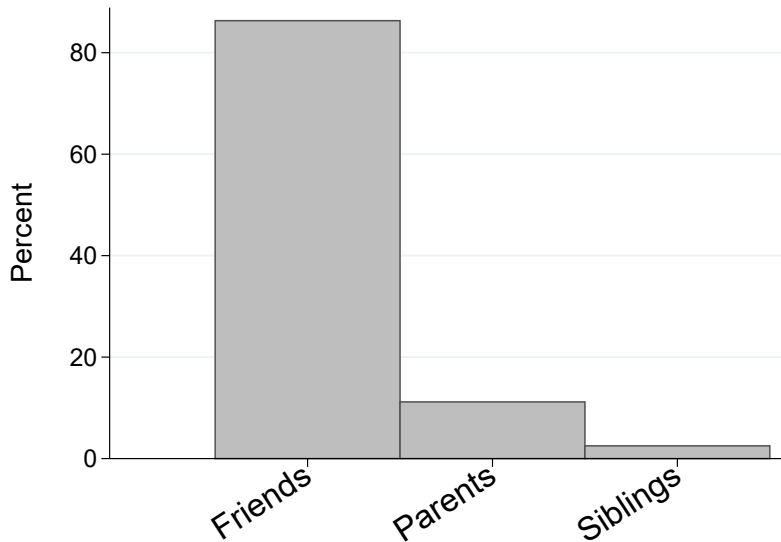
Self purchase



Reduction in sales to minors



Peers as a cigarette source



Tobacco and Addiction Monitoring, Ages 14-20

Dependent Variable	Own Purchase (Smokers)	Smoker			
		Sample			
	Yes = 1	All	All with Info. on Peers	Peers Are: Smokers	Peers Are: Nonsmokers
Avg. for Minors:	0.756	0.257	0.190	0.371	0.071
	(1)	(2)	(3)	(4)	(5)
Binding Sales Ban	-0.088** (0.043)	-0.003 (0.008)	-0.014 (0.025)	0.010 (0.031)	-0.069** (0.026)
Sales Ban	0.007 (0.027)	-0.009 (0.019)	-0.006 (0.027)	0.014 (0.036)	0.007 (0.023)
Age FE	X	X	X	X	X
Canton FE	X	X	X	X	X
Year FE	X	X	X	X	X
Canton x Teen FE	X	X	X	X	X
Year x Teen FE	X	X	X	X	X
Ind. Controls	X	X	X	X	X
Cant. Controls	X	X	X	X	X
Observations	2,245	15,735	5,481	2,507	2,974
Canton Clusters	26	26	26	26	26
R-squared	0.08	0.09	0.10	0.08	0.07

Further results

- ▶ Cantonal heterogeneities
 - ▶ Test purchases [Table](#)
 - ▶ Minimum ages, minimum smoking age [Table](#)
 - ▶ Lag and vending machines [Table](#)

Further results

- ▶ Cantonal heterogeneities
 - ▶ Test purchases
 - ▶ Minimum ages, minimum smoking age
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- ▶ Circumvention by travelling Table

Further results

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 - ▶ Test purchases [Table](#)
 - ▶ Minimum ages, minimum smoking age [Table](#)
 - ▶ Lag and vending machines [Table](#)
- ▶ Circumvention by travelling [Table](#)
- ▶ Experience [Table](#)

The effects of sales prohibition

- ▶ Small if any effect on smoking

The effects of sales prohibition

- ▶ Small if any effect on smoking
- ▶ No information effect

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- ▶ Evidence against forbidden fruit

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- ▶ Teens substitute sources

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- ▶ Reduction only if no peers who smoke

The effects of sales prohibition

- ▶ Small if any effect on smoking
- ▶ No information effect
- ▶ Evidence against forbidden fruit
- ▶ Teens substitute sources
- ▶ Reduction only if no peers who smoke
- ▶ Peers as gatekeepers

**Does tobacco sales prohibition
for teens reduce smoking?**

Not really



Staggered introduction of bans

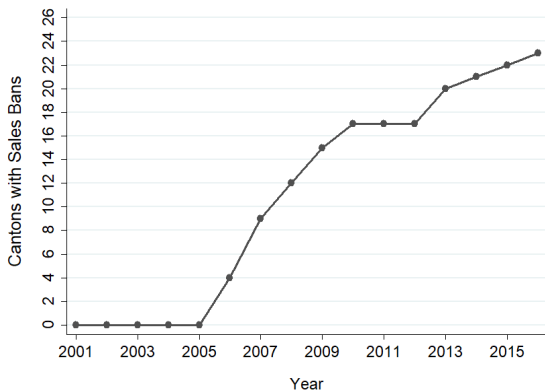


Figure: Cantons with Bans by Year

Staggered introduction of bans

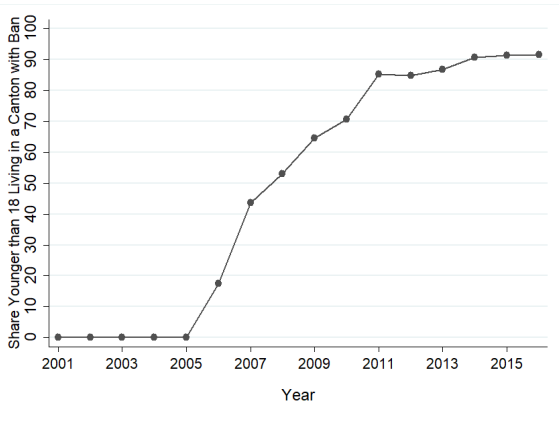


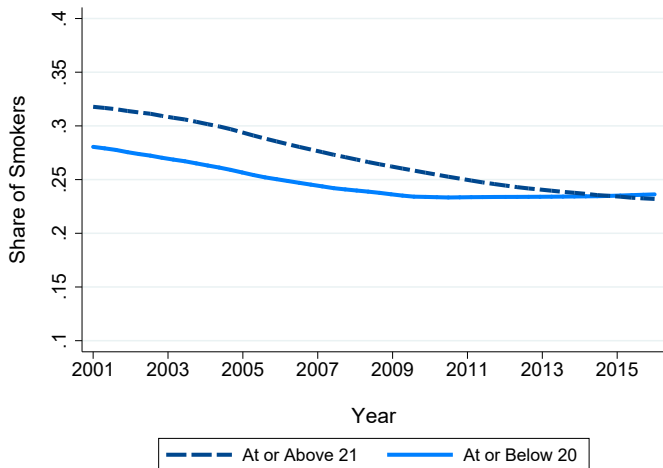
Figure: Share of Minors in Cantons with Bans

Canton	Introduction Date	Minimum Age
VD	01.01.2006	18
LU	01.01.2006	16
GR	01.07.2006	16
SG	01.10.2006	16
SO	01.01.2007	16
BL	01.01.2007	18
TG	01.01.2007	16
BE	01.01.2007	18
BS	01.08.2007	18
AR	01.01.2008	16
VS	01.01.2008	16
ZH	01.07.2008	16
FR	01.01.2009	16
NW	01.03.2009	18
UR	01.09.2009	16
AG	01.01.2010	16
ZG	01.03.2010	18
JU	01.01.2013	18
SH	01.01.2013	18
TI	01.09.2013	18
GL	01.01.2014	16
NE	01.01.2015	18
OW	01.02.2016	18
SZ	–	–
GE	–	–
AI	–	–

Variable	Mean	SD	All Ages		Tobacco Monitoring ¹		Aged 17 or Below			
			Min.	Max.	N	Mean	SD	Min.	Max.	N
<i>Dependent Variables</i>										
Smoker	0.27	0.44	0	1	167,376	0.18	0.38	0	1	16,433
No. of Packs (Smokers)	0.64	0.47	0	10	35,120	0.44	0.35	0	4	1,684
No. of Packs	0.13	0.34	0	10	167,376	0.04	0.17	0	4	16,433
<i>Main Independent Variables</i>										
Sales Ban	0.51	0.50	0	1	167,376	0.51	0.50	0	1	16,433
Binding Sales Ban	0.03	0.17	0	1	167,376	0.31	0.46	0	1	16,433
<i>Individual Level Covariates</i>										
Age	40.77	17.83	14	98	167,376	15.73	1.03	14	17	16,433
Male	0.42	0.49	0	1	167,376	0.51	0.50	0	1	16,433
No. of Persons in Household	2.87	1.39	1	13	167,376	4.14	1.07	1	11	16,433
Foreigner	0.32	0.47	0	1	167,376	0.29	0.45	0	1	16,433
<i>Cantonal Level Covariates</i>										
Youth Unemployment Rate	3.73	1.99	0	9	167,376	3.69	1.94	0	9	16,433
Unemployment Rate	2.84	1.35	0	7	167,376	2.82	1.34	0	7	16,433
No. of Physicians per 10,000	171.42	64.96	86	425	167,376	172.80	67.29	86	425	16,433
Indoor Air Law	0.49	0.50	0	1	167,376	0.50	0.50	0	1	16,433
Advertisement Ban	0.46	0.50	0	1	167,376	0.46	0.50	0	1	16,433

Variable	Health Behaviour in School-aged Children				
	Mean	SD	Min.	Max.	N
<i>Dependent Variables</i>					
Current Smoker	0.10	0.30	0	1	56,335
Age of First Puff	12.50	1.22	11	15	13,177
Ever Smoked Tobacco	0.29	0.45	0	1	56,207
Smoke Frequency	1.94	0.86	1	3	5,832
Cigarettes per Day	0.32	1.63	0	20	35,242
<i>Main Independent Variables</i>					
Binding Sales Ban	0.58	0.49	0	1	56,893
Age in Years	13.02	1.35	11	15	56,893
Gender	1.50	0.50	1	2	56,893
<i>Cantonal Level Covariates</i>					
Youth Unemployment Rate	3.90	1.46	2	8	56,893
Unemployment Rate	3.10	1.06	1	7	56,893
No. of Physicians per 10,000	192.82	50.92	131	371	56,893

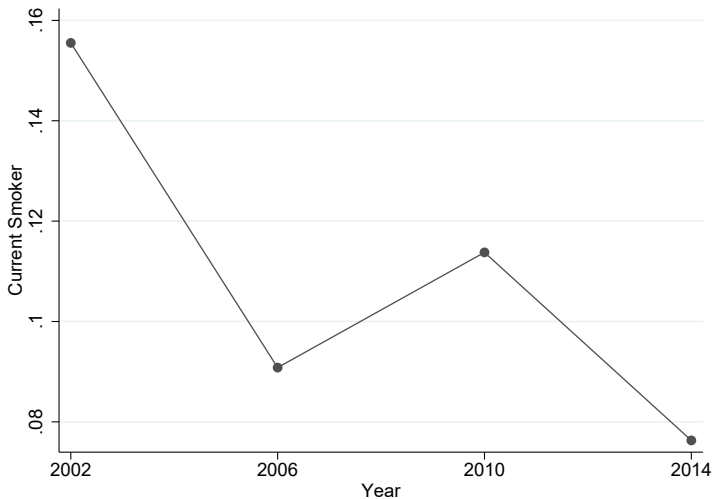
Trends in smoking prevalence: teens



[Back](#)

Canton	2002	2006	2010	2014	Intro. Date
AG	X	X	X	X	1/1/2010
BE	X	X	X	X	1/1/2007
BL		X	X		1/1/2007
FR	X	X	X	X	1/1/2009
GE	X		X	X	-
GR	X		X	X	7/1/2006
JU	X	X			1/1/2013
LU		X	X	X	1/1/2006
SG		X	X	X	10/1/2006
TG			X	X	1/1/2007
TI	X	X	X	X	9/1/2013
VD			X	X	1/1/2006
VS	X	X	X	X	1/1/2008
ZG		X	X	X	3/1/2010
ZH	X	X	X	X	7/1/2008

Trend pupils, 11–15



Country	Sales Ban 16 (Min. Smoking Age 16)	Sales Ban 18 (Min. Smoking Age 18)
Belgium	01.12.2004 (0)	
Cyprus (Republic of)		01.01.1980 (0)
Denmark	01.07.2004 (0)	01.09.2008 (0)
Estonia		01.01.1988 (1)
Finland	01.03.1977 (0)	01.03.1995 (0)
France	03.08.2003 (0)	23.07.2009 (0)
Germany	01.04.2003 (1)	01.09.2007 (1)
Ireland	12.07.1988 (0)	27.03.2002 (0)
Italy	24.12.1934 (1)	01.01.2013 (1)
Latvia		21.01.1997 (0)
Lithuania		07.02.1996 (0)
Luxembourg	05.09.2006 (0)	
Malta	12.12.1986 (0)	12.09.2003 (0)
Netherlands	01.01.2003 (0)	01.01.2014 (0)
Portugal	04.04.2005 (0)	01.01.2008 (0)
Slovakia		26.05.2004 (0)
Slovenia		19.10.1996 (0)
Spain		01.01.2006 (0)
Sweden		01.01.1997 (0)
<u>Regions of Austria:</u>		
Burgenland	06.06.2002 (1)	
Kärnten	03.01.1998 (1)	
Niederösterreich	01.10.2007 (1)	
Salzburg	01.10.2006 (1)	
Steiermark	01.10.2013 (1)	
Tirol	01.01.1988 (1)	
Oberösterreich	01.10.2001 (1)	
Wien	22.02.2007 (1)	
Vorarlberg	09.04.1999 (1)	
<u>Regions of UK:</u>		
England	1933 (0)	01.10.2007 (0)
Northern Ireland	21.01.1979 (0)	01.09.2008 (0)
Scotland	1937 (0)	01.10.2007 (0)
Wales		01.10.2007 (0)

Dependent Variable	Tobacco and Addiction Monitoring					Health Behaviour in School-aged Children 11–15 Years Old		
	All Ages					Smoker	Smoked Ever	Age First Puff
	Smoker		Packs (Smokers)					
Avg. for Minors	0.178		0.438			0.104	0.287	12.503
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Binding Sales Ban	-0.007 (0.010)	0.003 (0.007)	-0.001 (0.009)	-0.002 (0.009)	-0.009 (0.020)	0.008 (0.007)	0.012 (0.014)	0.001 (0.051)
Sales Ban	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	0.005 (0.008)			
Age FE	X	X	X	X	X	X	X	X
Canton FE	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X
Canton x Teen FE			X	X	X			
Year x Teen FE		X	X	X	X			
Ind. Controls				X	X	X	X	X
Cant. Controls				X	X			
Observations	167,376	167,376	167,376	167,376	35,120	56,335	56,207	13,177
Canton Clusters	26	26	26	26	26	15	15	15
R-squared	0.03	0.03	0.03	0.05	0.08	0.07	0.14	0.25

Back

Dependent Variable Avg.	Tobacco and Addiction Monitoring			Health Behaviour in School-aged Children 11–15 Years Old	
	All Ages			Smoke Freq. 1.939	Cigarettes per Week 0.318
	Daily Smoker 0.130	In(Nicotine) Smokers 1.741	>=100 Cigar. 0.187		
(1)	(2)	(3)	(4)	(5)	
Binding Sales Ban	-0.001 (0.013)	-0.138 (0.119)	0.011 (0.014)	-0.057 (0.060)	0.008 (0.023)
Sales Ban	0.004 (0.004)	0.035 (0.048)	0.004 (0.006)		
Age FE	X	X	X	X	X
Canton FE	X	X	X	X	X
Year FE	X	X	X	X	X
Canton x Teen FE	X	X	X		
Year x Teen FE	X	X	X		
Ind. Controls	X	X	X	X	X
Cant. Controls	X	X	X		
Observations	116,145	11,867	66,378	5,832	35,242
Canton Clusters	26	26	26	15	15
R-squared	0.16	0.09	0.14	0.09	0.03

Back

Dependent Variable	Smoker			Packs (Smokers)
	(1)	(2)	(3)	(4)
Avg. for Minors		0.219		0.547
Binding Sales Ban	-0.016 (0.022)	-0.007 (0.021)	-0.006 (0.021)	0.006 (0.030)
Sales Ban	-0.019 (0.015)	-0.019 (0.013)	-0.001 (0.013)	-0.009 (0.021)
Age FE	X	X	X	X
Country FE	X	X	X	X
Year FE	X	X	X	X
Country x Teen FE	X	X	X	X
Year x Teen FE	X	X	X	X
Country Trends			X	X
Ind. Controls		X	X	X
Country Controls		X	X	X
Observations	138,311	138,311	138,311	38,853
Clusters	32	32	32	32
R-squared	0.06	0.10	0.10	0.12

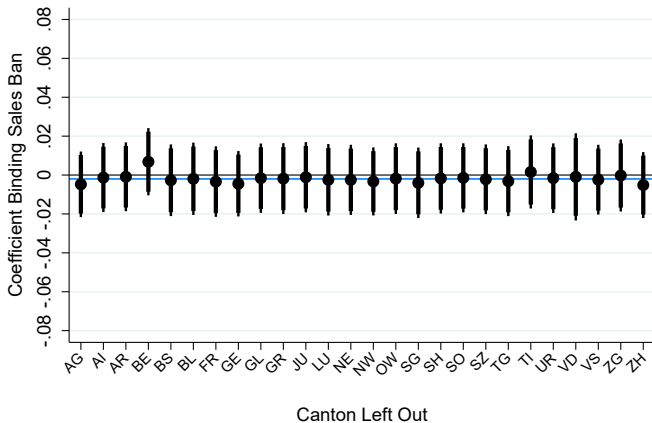
Dependent Variable	Tobacco and Addiction Monitoring					
	Smoker, Avg. for Minors: 0.178					
	Before 2006		Before 2006		Before 2006	
	(1)	(2)	(3)	(4)	(5)	(6)
Binding Sales Ban	-0.000 (0.010)		0.001 (0.009)		0.004 (0.012)	
Sales Ban	-0.002 (0.003)		-0.003 (0.003)		-0.002 (0.003)	
Ever Introd. Trend x Minor	-0.001 (0.001)	-0.013 (0.009)				
Ever Introd. Trend	0.000 (0.001)	-0.004 (0.004)				
Early Introd. Trend x Minor			-0.001 (0.001)	-0.013 (0.009)		
Early Introd. Trend			0.000 (0.001)	-0.005 (0.004)		
Late Introd. Trend x Minor			-0.000 (0.001)	-0.012 (0.009)		
Late Introd. Trend			-0.000 (0.001)	-0.002 (0.006)		
Min. Age 18 Ever Introd. Trend					0.001 (0.001)	-0.004 (0.003)
Min. Age 18 Ever Introd. Trend x Minor					-0.001 (0.001)	-0.009 (0.006)
Age FE	X	X	X	X	X	X
Canton FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Canton x Teen FE	X	X	X	X	X	X
Year x Teen FE	X	X	X	X	X	X
Ind. Controls	X	X	X	X	X	X
Cant. Controls	X	X	X	X	X	X
Observations	167,376	49,854	167,376	49,854	167,376	49,854
Canton Clusters	26	26	26	26	26	26
R-squared	0.05	0.04	0.05	0.04	0.05	0.04

Dependent Variable	Tobacco and Addiction Monitoring				
	Smoker, Avg. for Minors: 0.178				
			After 2002 Intro. < 2013		
	(1)	(2)	(3)	(4)	(5)
Binding Sales Ban	0.003 (0.007)	0.008 (0.012)	-0.005 (0.013)	-0.001 (0.009)	-0.002 (0.010)
Sales Ban	0.002 (0.004)	0.001 (0.004)	0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)
Binding Sales Ban Lead 1			0.006 (0.013)		
Sales Ban Lead 1			-0.005 (0.004)		
Binding Sales Ban After or in 2013					0.002 (0.018)
Sales Ban After or in 2013					-0.003 (0.006)
Age FE	X	X	X	X	X
Canton FE	X	X	X	X	X
Year FE	X	X	X	X	X
Canton x Teen FE	X	X	X	X	X
Year x Teen FE	X	X	X	X	X
Ind. Controls	X	X	X	X	X
Cant. Controls	X	X	X	X	X
Cant. Trends	X	X			
Cant. Trends x Teen		X			
Observations	167,376	167,376	167,376	147,367	167,376
Canton Clusters	26	26	26	26	26
R-squared	0.05	0.30	0.05	0.05	0.05

Dependent Variable Avg. for Minors	Smoker 0.219				
	(1)	(2)	(3)	(4)	(5)
Binding Sales Ban	-0.007 (0.021)	-0.005 (0.020)	-0.006 (0.020)	-0.012 (0.018)	-0.012 (0.018)
Sales Ban	-0.001 (0.013)	0.001 (0.015)	-0.001 (0.013)	-0.001 (0.013)	-0.001 (0.013)
1y Lead Binding Sales Ban		0.064 (0.082)			
1y Lead Sales Ban		0.002 (0.009)			
ln(Real Cigarette Price)			0.012 (0.017)		0.013 (0.016)
ln(Real Cigarette Price) x Minor			0.004 (0.021)		0.000 (0.019)
Indoor Air Law				0.001 (0.010)	0.002 (0.010)
Indoor Air Law x Minor				0.023 (0.034)	0.023 (0.033)
Age FE	X	X	X	X	X
Country FE	X	X	X	X	X
Year FE	X	X	X	X	X
Country x Teen FE	X	X	X	X	X
Year x Teen FE	X	X	X	X	X
Country Trends	X	X	X	X	X
Country Trends x Teen	X				
Ind. Controls	X	X	X	X	X
Country Controls	X	X	X	X	X
Observations	138,311	138,311	138,311	138,311	138,311
Clusters	32	32	32	32	32
R-squared	0.10	0.10	0.10	0.10	0.10

Dependent Variable	Tobacco and Addiction Monitoring				
	Smoker, Avg. for Minors: 0.178				
	(1)	(2)	(3)	(4)	(5)
Binding Sales Ban			-0.005 (0.011)	-0.006 (0.009)	-0.007 (0.011)
Sales Ban			-0.005 (0.003)	-0.001 (0.003)	-0.004 (0.003)
Advertisement Ban	0.006 (0.005)		0.008 (0.005)		0.009 (0.005)
Advertisement Ban x Minor	0.005 (0.010)		0.007 (0.011)		0.002 (0.010)
Indoor Air Law		0.006 (0.007)		0.006 (0.007)	0.006 (0.007)
Indoor Air Law x Minor		0.014 (0.010)		0.016 (0.010)	0.015* (0.009)
Age FE	X	X	X	X	X
Canton FE	X	X	X	X	X
Year FE	X	X	X	X	X
Canton x Teen FE	X	X	X	X	X
Year x Teen FE	X	X	X	X	X
Ind. Controls	X	X	X	X	X
Cant. Controls	X	X	X	X	X
Observations	167,376	167,376	167,376	167,376	167,376
Canton Clusters	26	26	26	26	26
R-squared	0.05	0.05	0.05	0.05	0.05

Sensitivity to cantons



Dependent Variable Sample Avg. for Minors	Tobacco and Addiction Monitoring All Ages						HBSC Ages 11–15	
	Male	Female	Foreign B.	Smoker			Male	Female
				Swiss B.	High Edu.	Low Edu.		
	0.184	0.171	0.168	0.182	0.175	0.192	0.109	0.098
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Binding Sales Ban	-0.002 (0.013)	-0.000 (0.012)	-0.000 (0.012)	0.002 (0.011)	0.018 (0.022)	-0.035** (0.013)	0.000 (0.010)	0.016 (0.011)
Sales Ban	0.000 (0.005)	-0.003 (0.003)	-0.014 (0.010)	-0.000 (0.004)	0.020 (0.032)	-0.009 (0.028)		
Age FE	X	X	X	X	X	X	X	X
Canton FE	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X
Canton x Teen FE	X	X	X	X	X	X		
Year x Teen FE	X	X	X	X	X	X		
Ind. Controls	X	X	X	X	X	X		
Cant. Controls	X	X	X	X	X	X		
Observations	70,927	96,449	53,695	113,681	4,648	6,970	27,958	28,377
Canton Clusters	26	26	26	26	26	26	15	15
R-squared	0.05	0.04	0.06	0.05	0.09	0.09	0.07	0.08

Attitudes 1

Sample	Tobacco and Addiction Monitoring Ages 14–20							
	All						Smokers	
	Smokers Are More:							
Dependent Variable Avg.	Cool 0.307	Attractive 0.230	Appreciative 0.320	Happy 0.263	Successful 0.312	Avg. 0.288	Successful 0.368	Avg. 0.367
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Binding Sales Ban	-0.026* (0.013)	0.008 (0.018)	-0.041** (0.018)	-0.020 (0.021)	-0.017 (0.021)	-0.021 (0.013)	-0.077* (0.037)	-0.031* (0.017)
Sales Ban	-0.012 (0.018)	-0.005 (0.014)	-0.018 (0.023)	0.011 (0.017)	-0.005 (0.015)	-0.003 (0.008)	0.050 (0.045)	0.020 (0.023)
Age FE	X	X	X	X	X	X	X	X
Canton FE	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X
Canton x Teen FE	X	X	X	X	X	X	X	X
Year x Teen FE	X	X	X	X	X	X	X	X
Ind. Controls	X	X	X	X	X	X	X	X
Cant. Controls	X	X	X	X	X	X	X	X
Observations	6,010	5,983	5,988	5,950	5,939	5,662	1,532	1,446
Canton Clusters	26	26	26	26	26	26	26	26
R-squared	0.03	0.07	0.08	0.02	0.07	0.06	0.06	0.05

Attitudes 2

Sample	Tobacco and Addiction Monitoring				All Smoking is Dangerous
	Ages 14–20		Ages 14–25		
	Smokers		Nonsmokers		
Dependent Variable	Peers for Stopping	Parents Ok w. Smoking	Peers for Starting	Parents Ok w. Smoking	
Avg.	2.595	0.502	1.397	0.244	3.719
	(1)	(2)	(3)	(4)	(5)
Binding Sales Ban	0.121* (0.063)	0.051 (0.033)	-0.006 (0.028)	-0.004 (0.023)	-0.005 (0.053)
Sales Ban	-0.032 (0.047)	-0.002 (0.039)	-0.042 (0.030)	-0.013 (0.027)	0.043 (0.055)
Age FE	X	X	X	X	X
Canton FE	X	X	X	X	X
Year FE	X	X	X	X	X
Canton x Teen FE	X	X	X	X	X
Year x Teen FE	X	X	X	X	X
Ind. Controls	X	X	X	X	X
Cant. Controls	X	X	X	X	X
Observations	1,572	1,552	4,466	4,378	7,632
Canton Clusters	26	26	26	26	26
R-squared	0.09	0.12	0.04	0.09	0.06

Dependent Variable Avg. for Minors	Tobacco and Addiction Monitoring			
	Smoker 0.178			
	(1)	(2)	(3)	(4)
Binding Sales Ban	0.006 (0.028)	-0.019 (0.014)	0.007 (0.011)	0.017 (0.010)
Sales Ban	-0.000 (0.013)	0.001 (0.006)	-0.004 (0.004)	-0.005 (0.004)
Binding Sales Ban x Share Sold in Test Purch.	-0.009 (0.039)			
Sales Ban x Share Sold in Test Purch.	0.005 (0.017)			
Binding Sales Ban x Test Purchase		0.020 (0.018)		
Sales Ban x Test Purchase		-0.003 (0.006)		
Binding Sales Ban x Early Test Purchase			-0.014 (0.014)	
Sales Ban x Early Test Purchase			0.004 (0.006)	
Binding Sales Ban – Age 18				-0.031*** (0.011)
Sales Ban – Age 18				0.007 (0.005)
Age FE	X	X	X	X
Canton FE	X	X	X	X
Year FE	X	X	X	X
Canton x Teen FE	X	X	X	X
Year x Teen FE	X	X	X	X
Ind. Controls	X	X	X	X
Cant. Controls	X	X	X	X
Observations	117,752	167,376	167,376	167,376
Canton Clusters	14	26	26	26
R-squared	0.05	0.05	0.05	0.05

Dependent Variable	Tobacco and Addiction Monitoring All Ages				
	Smoker				
	0.178		No Circumv.	0.178	
	(1)	(2)	(3)	(4)	(5)
Avg. for Minors					
Binding Sales Ban	-0.006 (0.018)	-0.009 (0.015)	0.002 (0.014)	-0.008 (0.012)	-0.001 (0.011)
Sales Ban	-0.002 (0.003)	-0.002 (0.003)	0.000 (0.004)	-0.005 (0.005)	-0.005 (0.004)
Binding Sales Ban x Distance to Nonb. in 10k km	0.001 (0.007)				
Binding Sales Ban x Distance > 75 perc.		0.013 (0.013)			
Binding Sales Ban Lag 1				0.007 (0.012)	
Sales Ban Lag 1				0.005 (0.005)	
Binding Sales Ban x Vending Machine Contr.					-0.001 (0.013)
Sales Ban x Vending Machine Contr.					0.006 (0.006)
Age FE	X	X	X	X	X
Canton FE	X	X	X	X	X
Year FE	X	X	X	X	X
Canton x Teen FE	X	X	X	X	X
Year x Teen FE	X	X	X	X	X
Ind. Controls	X	X	X	X	X
Cant. Controls	X	X	X	X	X
Observations	164,533	164,533	121,613	167,376	167,376
Canton Clusters	26	26	22	26	26
R-squared	0.05	0.05	0.05	0.05	0.05

Dependent Variable Avg. for Minors	Tobacco and Addiction Monitoring			
	Smoker 0.178			
	(1)	(2)	(3)	(4)
Binding Sales Ban	-0.007 (0.014)	0.002 (0.013)	0.011 (0.013)	0.015 (0.013)
Sales Ban	-0.001 (0.003)	-0.002 (0.003)	-0.004 (0.003)	-0.004 (0.003)
Binding Sales Ban – Age 18			-0.031* (0.014)	-0.026 (0.014)
Sales Ban – Age 18			0.007 (0.006)	0.006 (0.005)
Experienced a Binding Sales Ban	-0.007 (0.009)		-0.010 (0.010)	
Years of Experience with a Binding Sales Ban		0.001 (0.002)		-0.001 (0.001)
Experienced a Binding Sales Ban x Min. Age 18			0.004 (0.017)	
Years of Experience with a Binding Sales Ban x Min. Age 18				0.003 (0.004)
Age FE	X	X	X	X
Canton FE	X	X	X	X
Year FE	X	X	X	X
Canton x Teen FE	X	X	X	X
Year x Teen FE	X	X	X	X
Ind. Controls	X	X	X	X
Cant. Controls	X	X	X	X
Observations	167,376	167,376	167,376	167,376
Canton Clusters	26	26	26	26
R-squared	0.05	0.05	0.05	0.05