AEA/ASSA 2020 Annual Meetings

Pink Papers: LGBT Economics

VANDERBILT UNIVERSITY

Cigarette Taxes and Smoking Among Sexual Minority Adults

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Cigarette Taxes

- Higher cigarette taxes associated with lower smoking rates (Chaloupka and Wechsler, 1997; Cotti et al., 2016; Pesko et al., 2019)
  - Substantial differences in magnitude (Gallet and List, 2003)

- Effects of cigarette taxes on smoking behaviors for various at-risk **sub-groups**:
  - Older adults (DeCicca and McLeod, 2008; MacLean et al., 2016)
  - Pregnant women (Colman et al., 2003; Simon, 2016)
  - Racial and ethnic minorities (Farrelly et al., 2001)
  - Youth (DeCicca et al., 2002; Carpenter and Cook, 2008)
    - Cigarette taxes **"lost their bite"** (Hansen et al., 2017)

Smoking among sexual minorities

- Large differences in smoking rates (CDC, 2018)
  - **20.3% LGB vs. 13.7% heterosexuals**

- Larger (6.6 p.p.) than the gap between:
  - men and women (3.6 p.p.)
  - younger (18-24) and older (65+) adults (2.2 p.p.)
  - white and black adults (0.3 p.p.)
  - Midwest and West (5.9 p.p.)
  - unmarried and married adults (2 p.p.)

Research question

- Are cigarette taxes **effective** at reducing smoking among sexual minorities?

- Have cigarette taxes reduced the **gap** in smoking rates between heterosexuals and sexual minorities?

Should we see an effect? Maybe Not

- Smoking driven by **minority stress**, not responsive to taxes
- Marketing targeting sexual minorities (Dilley et al., 2008)
- Low rates of **health insurance** coverage and use (Buchmueller and Carpenter, 2010; Gonzales and Blewett, 2014)
  - Lower rates of insurance-related smoking cessation treatment
  - Worse access to information on quitting from health care professionals

Should we see an effect? Maybe Yes

- Income and **earnings differences** for sexual minorities
  (Plug and Berkhout, 2004; Carpenter, 2007; Drydakis, 2009; Tilcsik, 2011; Geijtenbeek and Plug, 2018; Aksoy et al., 2019)
- Differentials in **human capital** accumulation
  (Black et al., 2007; Carpenter, 2009; Carpenter et al., 2019)
  - Lower earnings may make sexual minorities more responsive to cigarette tax hikes
  - Higher education could help sexual minorities better understand adverse health consequences of smoking signaled by higher taxes

Preview findings

- Cigarette taxes significantly related to **lower smoking rates** among individuals in same-sex households (1996-2018)
  - Results for men particularly robust

- Cigarette taxes **less effective in 2011-2018**
  - No relationship between cigarette taxes and smoking among self-identified LGBQ individuals (2014-2018)

- Cigarette taxes **more effective** at reducing smoking among men in SSH vs. men in DSH

Behavioral Risk Factor Surveillance System

- Nationally representative health survey conducted by the CDC over the phone
  - Mobile phones added in 2011
  - SOGI questionnaire in 35 states 2014-2018

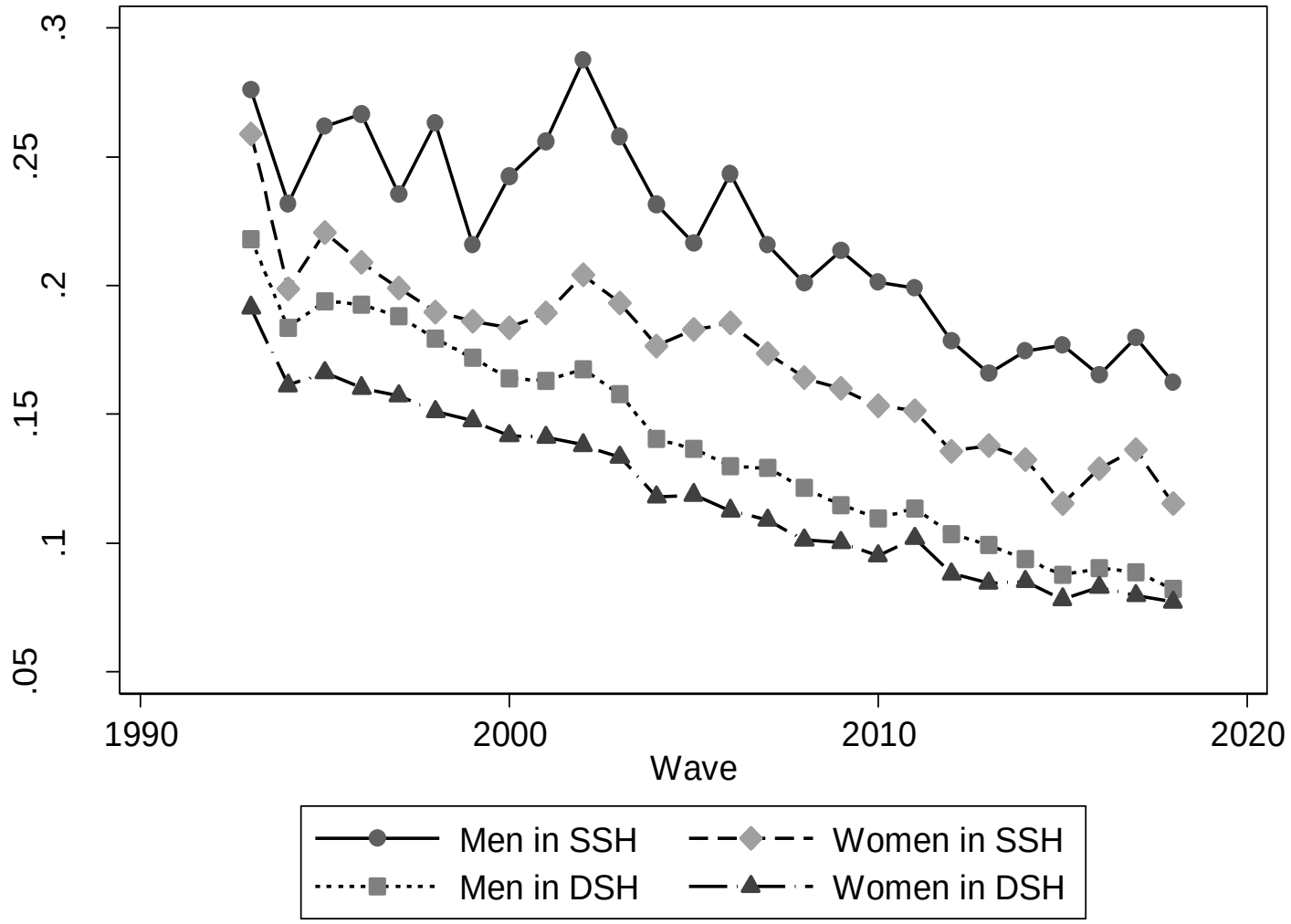
- Identify (in landlines interviews) households containing exactly two adult men and no adult women (**men in SSH**)
  - Two adult women and no adult men (**women in SSH**)
  - One man and one woman (**DSH**)
- Data available since 1993

Same-sex households

- Sexual minorities more likely to live in a household composed of exactly two same-sex adults
- Restrict analysis age 25+ (no college roommates)
- Advantage: minorities do not have to explicitly self-identify

- Used before by Carpenter (2004) and Carpenter et al. (2018)
  - 1% of individuals in DSH non-heterosexual
  - **11% of women, 28% of men in SSH non-heterosexual**
  - Men in SSH more likely to test for HIV
  - Different sexual practices

Rates of daily smoking



Household structure

		Women		Men	
Sample	Subgroup	Heterosexual	Non-heterosexual	Heterosexual	Non-heterosexual
All landline respondents	All	97.3%	2.7%	96.7%	3.3%
		295,254	7,066	174,150	6,190
DSH	All	98.5%	1.5%	98.0%	2.0%
		125,360	1,558	95,747	1,098
		Of which lesbian: 0.1%		*Of which gay:* 0.9%	
SSH	All	86.3%	13.7%	75.5%	24.5%
		9,772	1,508	3,020	1,294
	Married	41.4%	58.6%	50.8%	49.2%
		436	633	401	556
	Unmarried	10.4%	89.6%	32.0%	68.0%
	couple	73	295	34	327
	Never	84.4%	15.6%	70.9%	29.1%
	Married	2,412	299	875	299

Econometric framework

- **Difference-in-difference** model

$$y_{ist} = \alpha + \beta\, tax_{st} + \delta_s + \mu_t + \tau_{ts} + x'_{st}\gamma_1 + x'_{ist}\gamma_2 + \varepsilon_{ist}$$

y_{ist}	Smoking behavior for individual *i* in state *s* at time *t*
β	Coefficient of interest
SSM_{st}	Cigarette tax
δ_s	State fixed effects (51 states with DC)
α_t	Year and month fixed effects
τ_{ts}	State-specific linear trends
x'_{st}	Time-varying state-level controls
x'_{ist}	Individual-level controls

Weighted regression with SE clustered at state level

Cigarette taxes reduce smoking in SSH

	Daily smoker			Current smoker		
	(1)	(2)	(3)	(4)	(5)	(6)
Women in SSH						
Cigarette tax	-0.004	-0.004	-0.006**	-0.002	-0.002	-0.004
	(0.003)	(0.002)	(0.003)	(0.004)	(0.003)	(0.004)
N	141,517	141,517	141,517	141,517	141,517	141,517
Mean dep var	0.165	0.165	0.165	0.218	0.218	0.218
Men in SSH						
Cigarette tax	-0.014***	-0.012**	-0.018***	-0.016***	-0.014***	-0.019***
	(0.004)	(0.004)	(0.006)	(0.004)	(0.004)	(0.005)
N	56,807	56,807	56,807	56,807	56,807	56,807
Mean dep var	0.208	0.208	0.208	0.274	0.274	0.274
State and time FE	X	X	X	X	X	X
Individual controls		X	X		X	X
State controls			X			X

Also daily or occasional smoking

	Daily smoker			Current smoker		
	(1)	(2)	(3)	(4)	(5)	(6)
Women in SSH						
Cigarette tax	-0.004	-0.004	-0.006**	-0.002	-0.002	-0.004
	(0.003)	(0.002)	(0.003)	(0.004)	(0.003)	(0.004)
N	141,517	141,517	141,517	141,517	141,517	141,517
Mean dep var	0.165	0.165	0.165	0.218	0.218	0.218
Men in SSH						
Cigarette tax	-0.014***	-0.012**	-0.018***	-0.016***	-0.014***	-0.019***
	(0.004)	(0.004)	(0.006)	(0.004)	(0.004)	(0.005)
N	56,807	56,807	56,807	56,807	56,807	56,807
Mean dep var	0.208	0.208	0.208	0.274	0.274	0.274
State and time FE	X	X	X	X	X	X
Individual controls		X	X		X	X
State controls			X			X

Robustness checks

	Main estimates	Linear state time trends	1993-2018	No states with high local taxes
	(1)	(2)	(3)	(4)
Women in SSH				
Cigarette tax	-0.006**	-0.004	-0.005	-0.010***
	(0.003)	(0.005)	(0.003)	(0.004)
N	141,517	141,517	147,414	128,322
Mean dep var	0.165	0.165	0.168	0.165
Men in SSH				
Cigarette tax	-0.018***	-0.021***	-0.017***	-0.020***
	(0.006)	(0.007)	(0.006)	(0.007)
N	56,807	56,807	59,924	51,183
Mean dep var	0.208	0.208	0.211	0.208
State and time FE	X	X	X	X
Individual controls	X	X	X	X
State controls	X	X	X	X

Cigarette taxes have "lost their bite"

	Main estimates	1996-2010	2011-2018	30 to 64-year-old	Never married or unmarried couple, 1996-2010
	(1)	(2)	(3)	(4)	(5)
Women in SSH					
Cigarette tax	-0.006**	-0.007	0.007	-0.005	-0.009
	(0.003)	(0.006)	(0.006)	(0.004)	(0.012)
N	141,517	88,988	52,529	92,881	29,765
Mean dep var	0.165	0.185	0.132	0.197	0.169
Men in SSH					
Cigarette tax	-0.018***	-0.023***	-0.013	-0.028***	-0.044***
	(0.006)	(0.009)	(0.022)	(0.007)	(0.015)
N	56,807	37,779	19,028	38,933	17,926
Mean dep var	0.208	0.226	0.170	0.236	0.215
State and time FE	X	X	X	X	X
Individual controls	X	X	X	X	X
State controls	X	X	X	X	X

Restrict sample of SSH

	Main estimates	1996-2010	2011-2018	30 to 64-year-old	Never married or unmarried couple, 1996-2010
	(1)	(2)	(3)	(4)	(5)
Women in SSH					
Cigarette tax	-0.006**	-0.007	0.007	-0.005	-0.009
	(0.003)	(0.006)	(0.006)	(0.004)	(0.012)
N	141,517	88,988	52,529	92,881	29,765
Mean dep var	0.165	0.185	0.132	0.197	0.169
Men in SSH					
Cigarette tax	-0.018***	-0.023***	-0.013	-0.028***	-0.044***
	(0.006)	(0.009)	(0.022)	(0.007)	(0.015)
N	56,807	37,779	19,028	38,933	17,926
Mean dep var	0.208	0.226	0.170	0.236	0.215
State and time FE	X	X	X	X	X
Individual controls	X	X	X	X	X
State controls	X	X	X	X	X

Reduced health disparities

$$y_{igst} = \alpha + \beta tax_{st} * SSH_{ist} + \mu_{st} + \pi_{gt} + \rho_{gs} + x'_{igst}\gamma + \varepsilon_{ist}$$

	Daily smoker				
Sample is ➔	SSH	DSH	SSH vs. DSH	All	SSH vs. All
Women					
Cigarette tax	-0.006**	-0.006***	--	-0.006***	--
	(0.003)	(0.001)		(0.001)	
Cigarette tax * SSH	--	--	0.001	--	-0.0001
			(0.003)		(0.0026)
N	141,517	1,732,820	1,874,337	3,776,544	3,776,544
Mean dep var	0.165	0.108	0.112	0.123	0.123
Men					
Cigarette tax	-0.018***	-0.004**	--	-0.004***	--
	(0.006)	(0.001)		(0.001)	
Cigarette tax * SSH	--	--	-0.009**	--	-0.008**
			(0.004)		(0.004)
N	56,807	1,321,561	1,378,368	2,320,809	2,320,809
Mean dep var	0.208	0.117	0.121	0.142	0.142

SOGI sample (2014-2018)

- No significant effect ("lost their bite")

	Daily smoker		Current smoker	
Sample is ➔	Non-heterosexual	Heterosexual	Non-heterosexual	Heterosexual
Women				
Cigarette tax	-0.059	0.001	-0.081**	-0.008*
	(0.043)	(0.005)	(0.037)	(0.005)
N	6,979	292,715	6,979	292,715
Mean dep var	0.136	0.088	0.184	0.121
Men				
Cigarette tax	0.00008	0.007	-0.011	0.007
	(0.01967)	(0.005)	(0.027)	(0.006)
N	6,129	172,679	6,129	172,679
Mean dep var	0.139	0.098	0.190	0.131
State and time FE	X	X	X	X
Individual controls	X	X	X	X
State controls	X	X	X	X

Conclusions

- Cigarette taxes **effective** at reducing smoking in SSH
- Cigarette taxes more effective at reducing smoking among men in **SSH vs. DSH**
  - The substantial disparity in smoking would have been even larger in absence of stricter tobacco controls
- **Recent years**: cigarette taxes are no longer an effective health policy tool

- **Population-targeted health policies** can have differential effects on sexual minorities compared to heterosexuals

Thank you!

Review LGBT literature on my website

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