

Pharmacies sell cigarettes cheaper: Results from retail marketing surveillance in state and national samples

Lisa Henriksen, PhD

Nina C. Schleicher, PhD

Dianne Barker, MHS

Yawen Liu, PhD

Frank Chaloupka, PhD

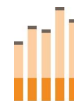


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tobacconomics

Economic Research Informing Tobacco Control Policy

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Objectives

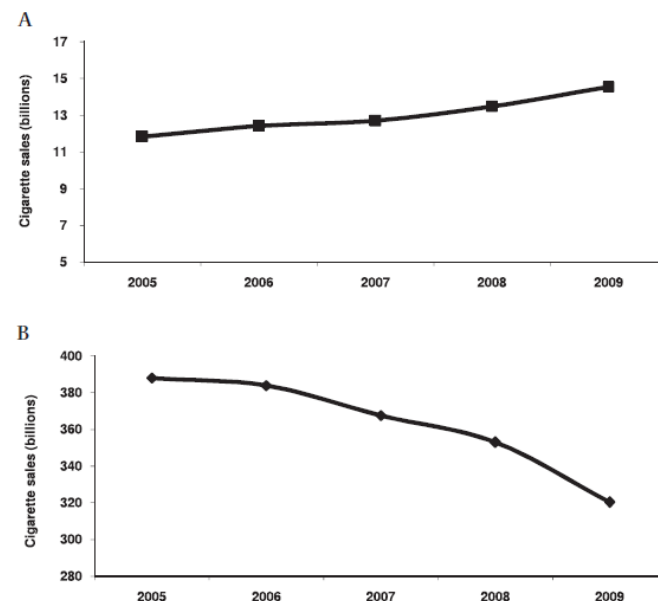
In two large representative samples of tobacco retailers:

- Compare prices for tobacco and non-tobacco products in pharmacies with other types of tobacco retailers
- Examine disparities in cigarette price by neighborhood demography



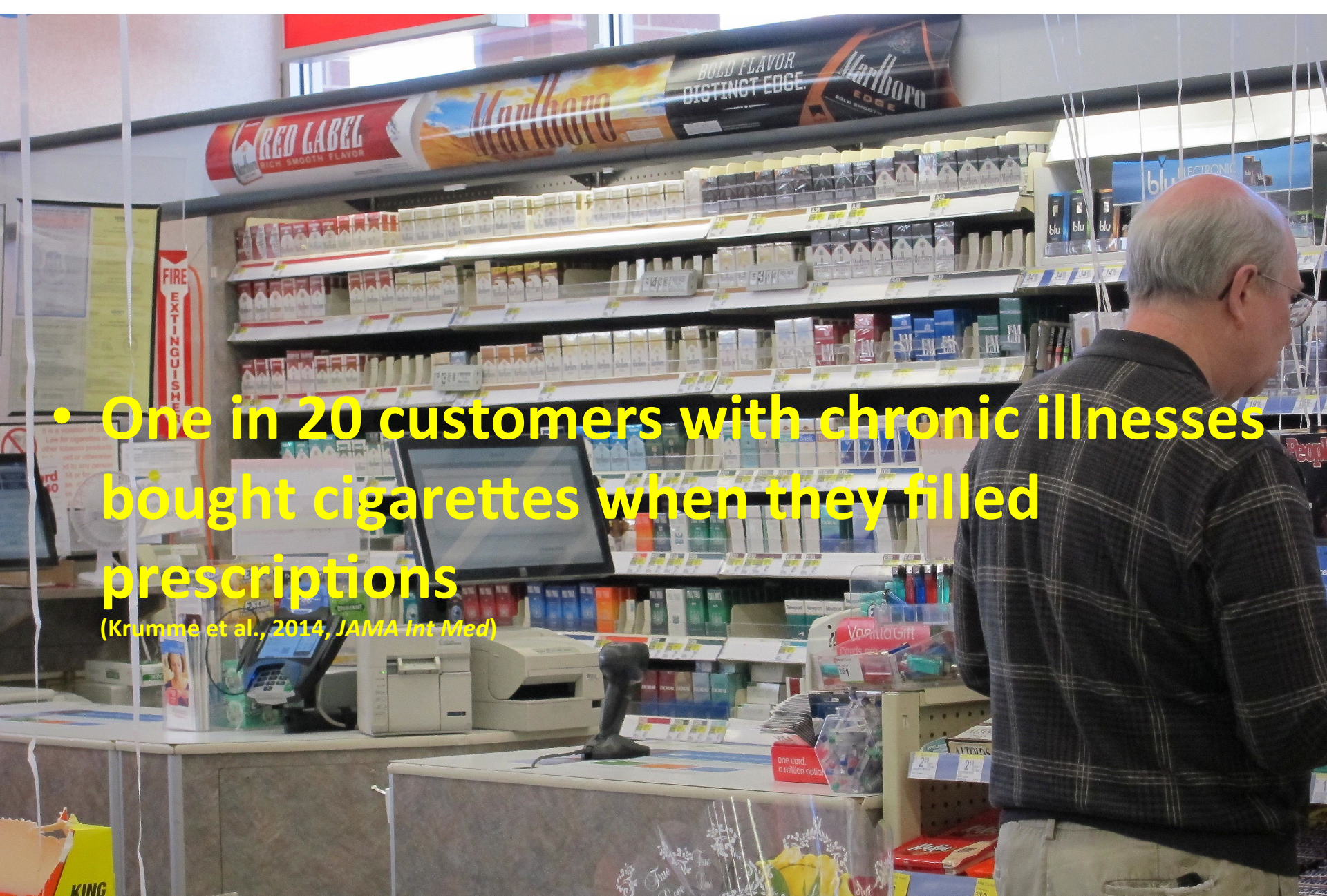
Background

- Pharmacies represent approximately 7% of the 375,000 tobacco retailers in the US (ASPiRE Point-of-Sale Report to the Nation, 2014)
- In 2014, US cigarette market share was 3.3% (9 billion sticks)
- Between 2005 and 2009, cigarette sales increased in pharmacies while decreasing overall
(Seidenberg et al., 2012, Tob Control)



- One in 20 customers with chronic illnesses bought cigarettes when they filled prescriptions

(Krumme et al., 2014, JAMA Int Med)



What is known about cigarette prices in pharmacies

Cigarettes cost less in pharmacies than in:

- supermarkets in a St. Louis study

(Barnoya et al., 2014, *J Am Pharm Assoc*)

- conveniences stores in a Washington, DC study

(Cantrell et al., 2014, *Health & Place*)

- small markets in a study of 50 midsize California cities

(Lipperman-Kreda et al., 2014, *Tob Control*)



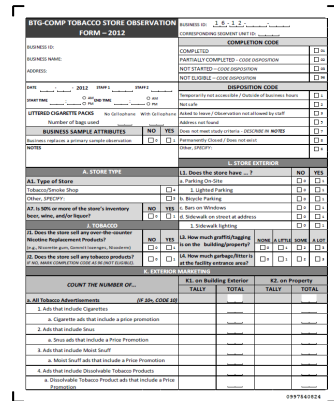
Gaps in the literature

Current study fills these important gaps:

- pharmacy as the referent category
- assessed both premium brands and cheapest pack
- included non-tobacco price for comparison
- conducted marketing surveillance in large, representative samples



Methods

	California study (n=579)	US study (n=2,603)																																
Sample	Statewide random sample of licensed tobacco retailers	Two-stage sampling of likely tobacco retailers in school enrollment zones in 160 communities across 38 states																																
Professional data collectors	Worked alone	Worked in pairs																																
Survey device	Electronic  <table><thead><tr><th></th><th>Special price on 1</th><th>Multi-buy price promo</th><th>None</th></tr></thead><tbody><tr><td>Cigarettes, unflavored</td><td>☐</td><td>☐</td><td>☐</td></tr><tr><td>Cigarettes, menthol</td><td>☐</td><td>☐</td><td>☐</td></tr><tr><td>Chew/snus, unflavored</td><td>☐</td><td>☐</td><td>☐</td></tr><tr><td>Chew/snus, flavored</td><td>☐</td><td>☐</td><td>☐</td></tr><tr><td>Little cigarillos/cigars, unflavored</td><td>☐</td><td>☐</td><td>☐</td></tr><tr><td>Little cigarillos/cigars, flavored</td><td>☐</td><td>☐</td><td>☐</td></tr><tr><td>Any ENDS</td><td>☐</td><td>☐</td><td>☐</td></tr></tbody></table>		Special price on 1	Multi-buy price promo	None	Cigarettes, unflavored	☐	☐	☐	Cigarettes, menthol	☐	☐	☐	Chew/snus, unflavored	☐	☐	☐	Chew/snus, flavored	☐	☐	☐	Little cigarillos/cigars, unflavored	☐	☐	☐	Little cigarillos/cigars, flavored	☐	☐	☐	Any ENDS	☐	☐	☐	Paper-and-pencil 
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Completion	94.9%	96.8%																																
Data collection	August – September, 2014	May – July, 2012																																

Outcomes: Advertised price of tobacco and non-tobacco products



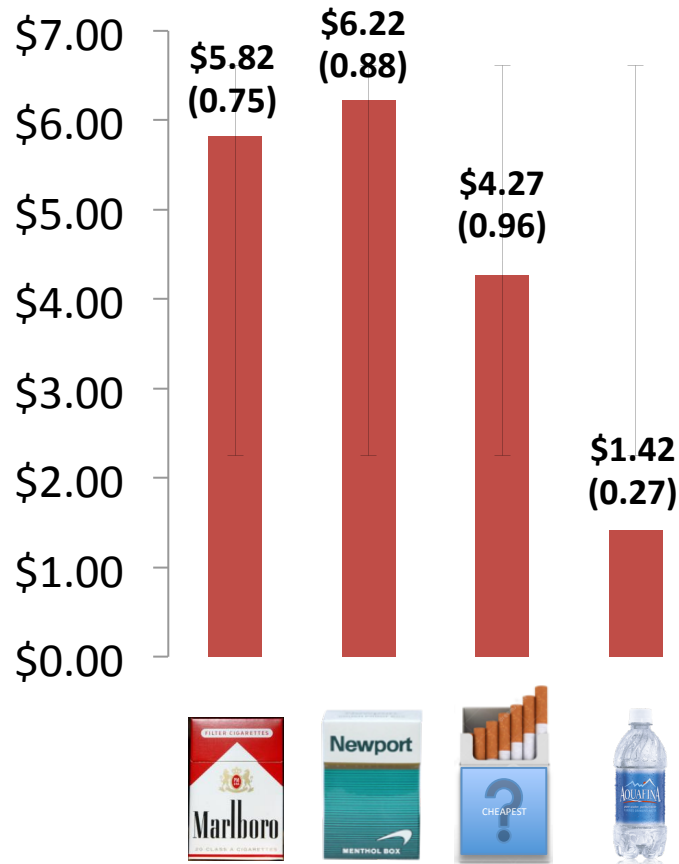
California study excluded sales tax

US study excluded sales tax and state excise tax

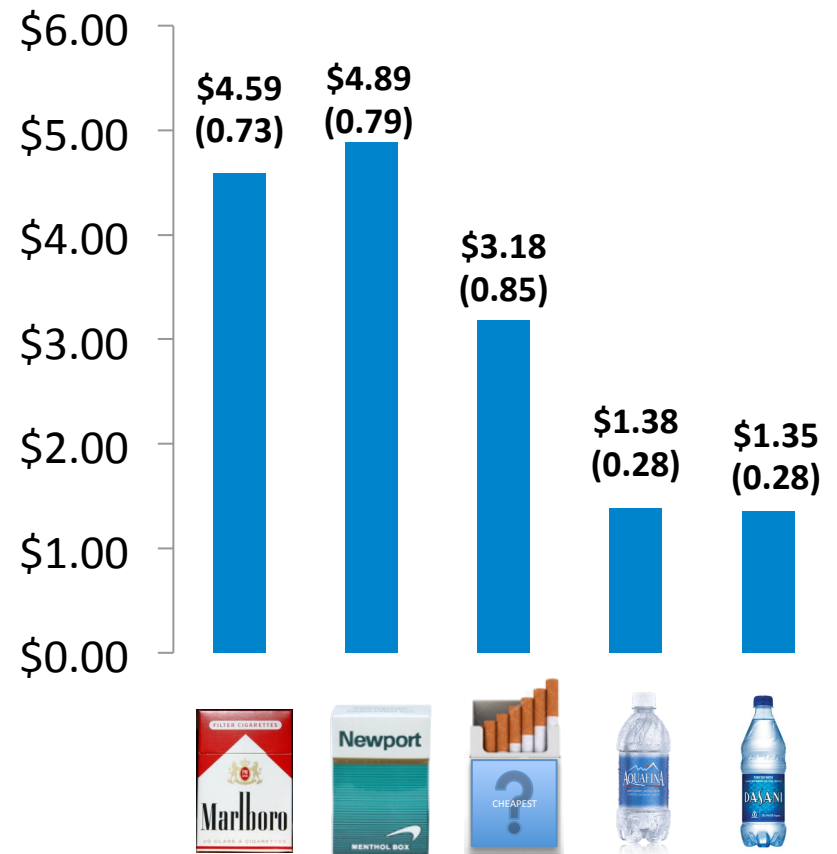


Mean (sd) of advertised prices in CA (2014) and US (2012)

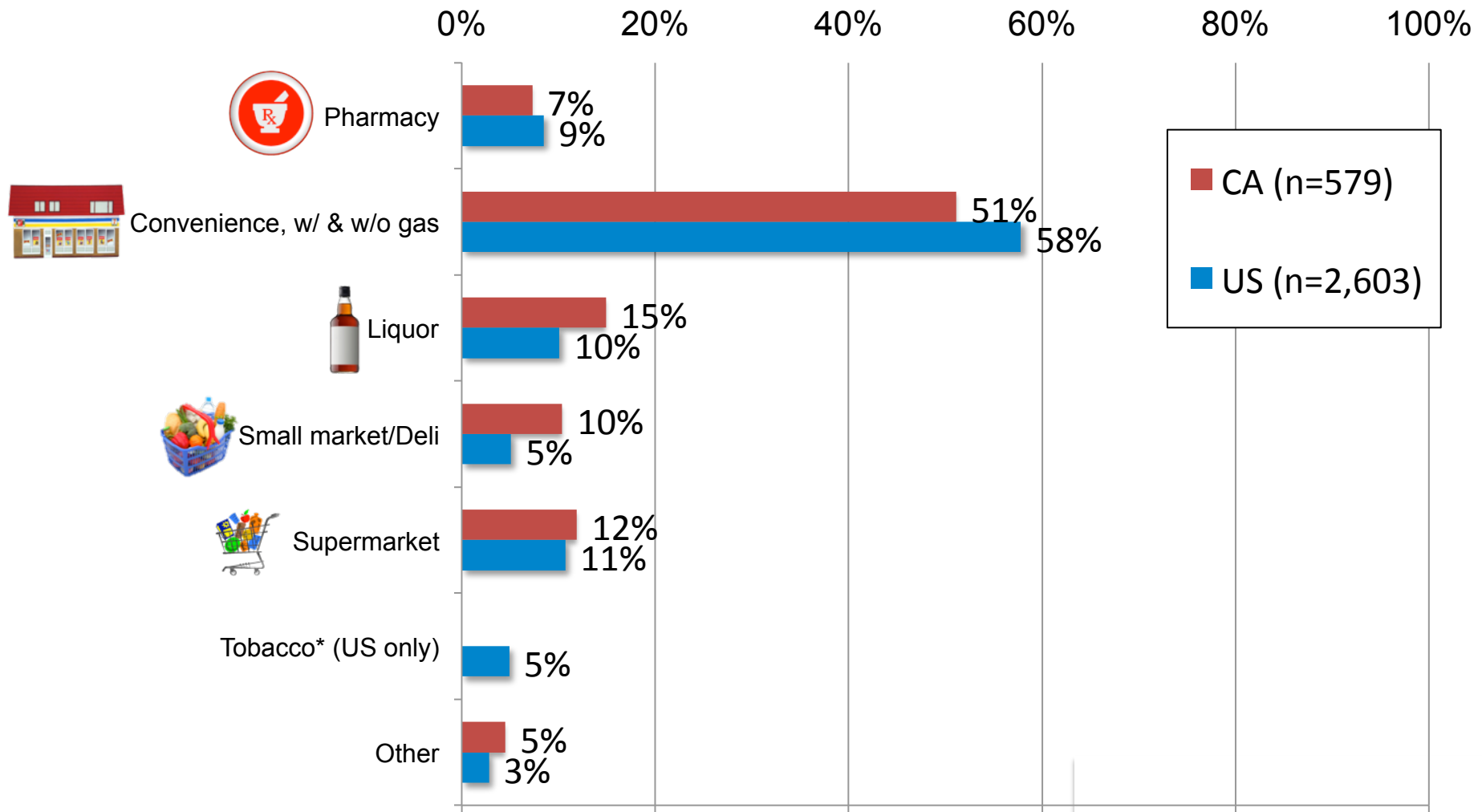
CA: before sales tax



US: before sales and state excise tax



Store type distribution in samples: CA (2014) and US (2012)



Descriptive statistics for neighborhood demographics, defined differently

	California (2014)	US (2012)
	Store-centered buffers	Aggregated block groups
Neighborhood demographics, M (SD)	(n=579)	(n=2,603)
% African American	5.7 (8.9)	11.8 (17.6)
% Asian/Pacific Islander	11.4 (13.3)	6.0 (8.0)
% Multiple/other race(s)	18.6 (12.0)	8.5 (10.8)
% Hispanic	38.3 (25.2)	15.5 (18.9)
% Young adults (ages 18-24)	10.4 (4.7)	9.9 (5.0)
% Youth (ages 5-17 in CA; under 18 in US)	17.5 (5.3)	23.6 (4.8)
Median household income, \$	60,545 (23,469)	58,985 (21,901)
Population density	7,592 (8562)	3,332 (5412)

Note: Cell entries are means and (standard deviations).

Analyses

- For California data, OLS regression models examined price as a function of store type, adjusting for neighborhood demographics
- For US data, analyses applied appropriate cluster, stratum and weight variables to account for probability of selection of the school enrollment zone and the store



Table 1. Correlates of price for tobacco and non-tobacco products in CA (2014)

	Cigarettes						Water	
	Marlboro n=511		Newport n=420		Cheapest Pack n=464		Aquafina n=256	
	Coef.	p	Coef.	p	Coef.	p	Coef.	p
Intercept	5.39	<.01	5.80	<.01	3.61	<.01	1.67	<.01
Store Type								
Pharmacy	Ref		Ref		Ref		Ref	
Convenience store	0.32	0.01	0.26	0.09	0.67	<.01	-0.31	<.01
Liquor store	0.37	0.01	0.47	0.01	0.47	0.01	-0.35	<.01
Small grocery	0.48	<.01	0.31	0.09	0.70	<.01	-0.39	<.01
Supermarket	1.12	<.01	1.44	<.01	1.19	<.01	-0.13	0.03
Other	0.27	0.15	-0.03	0.91	0.77	<.01	-0.32	0.04

Note: Models adjust for neighborhood demographics (race/ethnicity, age, median household income, population density (all standardized)).

Is it just that CVS was emptying shelves?



Pharmacies in CA sample

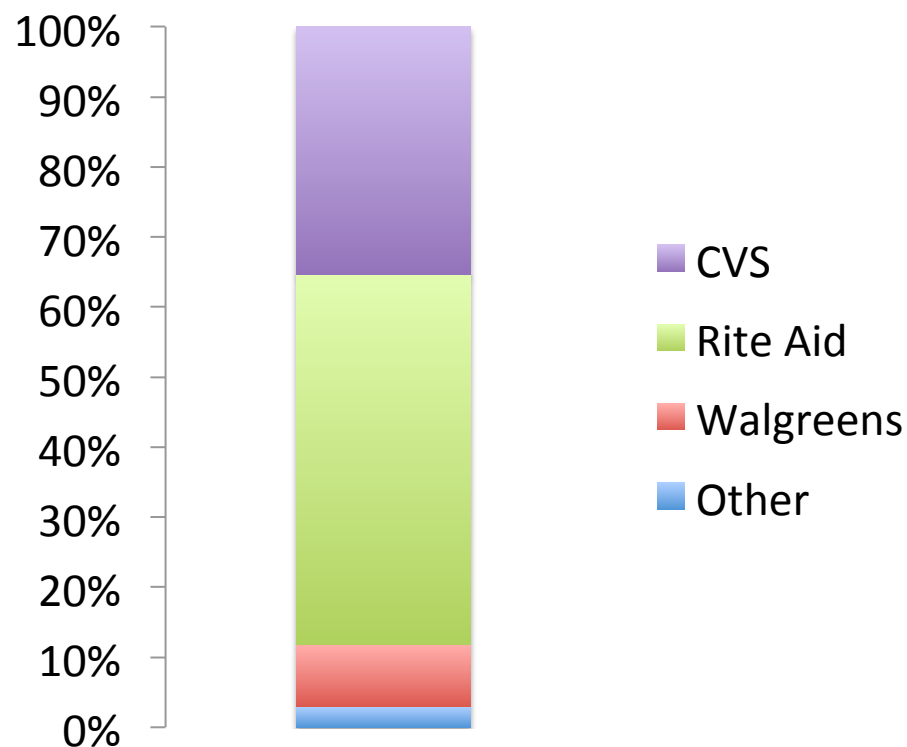


Table 2. Correlates of price for tobacco and non-tobacco products in tobacco retailers: US (2012)

	Cigarettes						Water			
	Marlboro n=2,290		Newport n=2,069		Cheapest Pack n=2,310		Dasani n=1,376		Aquafina n=395	
	Coef.	p	Coef.	p	Coef.	p	Coef.	p	Coef.	p
Intercept	4.23	<.01	4.74	<.01	2.98	<.01	1.64	<.01	1.65	<.01
Store Type										
Pharmacy	Ref		Ref		Ref		Ref		Ref	
Convenience store	0.36	<.01	0.11	0.18	0.18	0.01	-0.36	<.01	-0.35	<.01
Liquor store	0.53	<.01	0.27	0.08	0.28	0.01	-0.38	<.01	-0.43	<.01
Grocery store	0.63	<.01	0.40	<.01	0.57	<.01	-0.26	<.01	-0.47	<.01
Supermarket	0.52	<.01	0.65	<.01	0.36	<.01	-0.08	0.02	-0.13	<.01
Tobacco store	-0.01	0.96	-0.14	0.26	0.09	0.64	-0.19	0.02	-0.67	<.01
Other	0.41	<.01	0.14	0.22	0.26	0.05	-0.41	<.01	-0.39	<.01

Note: Models adjust for neighborhood demographics (race/ethnicity, age, median household income, population density (all standardized)).

Table 3. Correlates of price for tobacco and non-tobacco products: CA (2014)

	Cigarettes						Water	
	Marlboro n=511		Newport n=420		Cheapest Pack n=464		Aquafina n=256	
Neighborhood demographics	Coef.	p	Coef.	p	Coef.	p	Coef.	p
Race, %								
African American	-0.05	0.18	-0.08	0.02	-0.05	0.29	0.01	0.79
Asian/Pacific Islander	-0.05	0.16	-0.13	<.01	-0.07	0.15	0.02	0.34
Multiple/other race(s)	-0.05	0.29	0.02	0.75	-0.01	0.93	-0.01	0.75
Ethnicity, %								
Hispanic	0.01	0.89	-0.06	0.43	0.11	0.18	0.00	0.95
Age, %								
Age 5 to 17 yrs.	-0.13	<.01	-0.08	0.12	-0.24	<.01	-0.02	0.50
Age 18 to 24 yrs.	-0.08	<.01	-0.05	0.16	-0.07	0.11	-0.01	0.55
Median household income	0.02	0.60	0.06	0.21	0.11	0.03	-0.03	0.14
Population density	0.05	0.16	0.06	0.19	0.12	0.02	-0.03	0.27

Note. Models adjust for store type. Demographics are standardized; for example, Newport menthol cost \$0.08 less for each 9 percentage point increase in percent African Americans.

Table 4. Correlates of price for tobacco and non-tobacco products: US (2012)

	Cigarettes						Water			
	Marlboro n=2,290		Newport n=2,069		Cheapest Pack n=2,310		Dasani n=1,376		Aquafina n=395	
Neighborhood demographics	Coef.	p	Coef.	p	Coef.	p	Coef.	p	Coef.	p
Race, %										
African American	-0.03	0.18	-0.09	<.01	-0.05	0.11	0.02	0.17	-0.01	0.54
Asian/Pacific Islander	0.07	0.39	0.10	0.26	0.09	0.28	0.01	0.45	0.00	0.69
Multiple/other race(s)	-0.15	0.09	-0.08	0.36	0.09	0.40	-0.03	0.28	0.01	0.72
Ethnicity, %										
Hispanic	0.02	0.82	0.01	0.85	-0.18	0.05	0.04	0.16	0.04	0.06
Age, %										
Age 0 to 17 yrs.	0.02	0.43	0.02	0.51	0.03	0.45	-0.01	0.53	-0.01	0.57
Age 18 to 24 yrs.	0.03	0.52	0.02	0.50	0.03	0.43	-0.01	0.21	-0.02	0.07
Median household income	0.12	0.05	0.09	0.15	0.19	0.02	0.01	0.39	0.01	0.32
Population density	0.43	<.01	0.37	<.01	0.42	<.01	0.01	0.49	-0.02	<.01

Note. Models adjust for store type. Demographics are standardized; for example, Newport menthol cost \$0.09 less for each 18 percentage point increase in percent African Americans.

Policy implications

- Compared to other store types, pharmacies sell cheaper cigarettes and more expensive bottled water
- Tobacco-free pharmacies would eliminate an important source of cheap cigarettes
- Important to state and local tobacco control because FDA precluded from mandating tobacco-free pharmacies

Disparities in price

- More evidence that Newport (menthol) cost less in African-American neighborhoods
- In CA, Newport also cost less in neighborhoods with higher proportion of Asian/Pacific Islanders
- In CA, cigarettes cost less in neighborhoods with a higher proportion of school-age youth
- No area demographics explained variation in price of bottled water



Adds to growing literature about disparities in marketing

Lower prices and/or more ads for cigarettes in:

- low-income neighborhoods

(Henriksen et al., 2011, *N&TR*, Cantrell et al., *Health & Place*; Khan et al., 2015, *Tobacconomics.org*)

- African-American neighborhoods across multiple studies

(Lee et al., 2015, *Am J Pub Health*)



Limitations

- Pharmacies narrowly defined
- Bottled water was the only non-tobacco comparison
- All data were collected before CVS quit tobacco
- Look at availability of promotions for explanation of differences between pharmacies and other store types

Preliminary impact of CVS decision

- Compared to states with few or no CVS stores, there was a 1% decrease in cigarette pack sales in intervention states, equivalent to 5 fewer packs per smoker over 8 months
 - 4% increase in nicotine-patch purchases in the first month
 - No relative change in sales of soda
- (Pollinski et al., 2015, for CVS health)



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Message framing: Retailer reduction

- Tobacco-free pharmacies would reduce the number of tobacco retailers by 10% to 14%

(Myers et al., 2013, Preventing Chronic Disease)

Why It Doesn't Matter If Wal-Mart and Walgreen Stop Selling Cigarettes

State lawmakers are asking five major retailers to stop selling cigarettes. But here's why the move won't make any difference.



Recommend new message framing: Price

- Why would stores that promote health care sell the world's deadliest product for cheap?
- Compared to other stores, pharmacies offer the best prices on cigarettes and the worst on bottled water
- Eliminating retail availability of cheap tobacco is a sensible, evidence-based policy

Questions

Contact information: lhensriksen@stanford.edu

