

# Social and Health Effects of Changes in Alcohol Prices: Findings of a Research Collaborative

David H. Jernigan Ph.D.

Associate Professor

Department of Health, Behavior and Society

And Director, Center on Alcohol Marketing and Youth

Johns Hopkins Bloomberg School of Public Health

# Community Guide Recommendation

- “The Community Preventive Services Task Force recommends increasing the unit price of alcohol by raising taxes based on strong evidence of effectiveness for reducing excessive alcohol consumption and related harms. Public health effects are expected to be proportional to the size of the tax increase.”

# SHECAP

- Social and Health Effects of Changes in Alcohol Pricing: A Research Collaborative
- What research questions, if answered, would aid in translation of research into public health practice?

# The Collaborators

- University of Florida:
  - Alexander C. Wagenaar PhD, Stephanie A.S. Staras PhD, Melvin D. Livingston, Alana M. Christou MPH
- University of Illinois at Chicago:
  - Frank J. Chaloupka, Roy Wada, Lisa M. Powell
- Boston Medical Center:
  - Timothy S. Naimi MD MPH, James Daley MPH, Jason Blanchette MPH, Ziming Xuan ScD, SM
- Johns Hopkins Bloomberg School of Public Health:
  - David H. Jernigan PhD, Rebecca Ramirez MPH, Samantha Cukier MBA, Katherine A. Smith PhD

# Funding and Disclosures

- Contract Number 200-2011-40800 from The Centers for Disease Control and Prevention (CDC). This talk is the responsibility of the authors and do not necessarily represent the views of CDC.
- The authors have no financial interests to disclose.

# Common Opposition Arguments

Alcohol and tobacco industries use several common arguments in opposition to tax increases:

- Won't have the intended impact in terms of reducing use and consequences
- Won't generate the anticipated revenues while raising other costs
- Will lead to extensive tax avoidance and tax evasion
- Will harm poor and working class consumers
- Will lead to massive job losses

# I. What is the impact?

- Looking at a range of outcomes:
  - Underage drinking
  - Binge drinking
  - Social and health effects
    - Motor vehicle crashes
    - Teen pregnancy
    - Sexually-transmitted Infections

# Sexually Transmitted Diseases in the United States

- 20 million new infections each year
- 50% among 15 – 24 year olds
- Most common treatable STDs
  - Chlamydia – 2.6 million cases
  - Gonorrhea – 820,000 cases



# Racial/Ethnic Disparities in STDs

- Compared to Whites, STDs are
  - 2-22 times more likely among Blacks
  - 2 times more likely among Hispanics

# Methods:

## Alcohol Excise Tax Increase

- Illinois
- September 1, 2009
- Increase on all alcoholic beverages
  - Beer: \$0.046 increase per gallon
    - \$0.185/gallon → \$0.231/gallon
  - Wine: \$0.66 increase per gallon
    - \$0.730/gallon → \$1.39/gallon
  - Distilled spirits: \$4.05 increase per gallon
    - \$4.50/gallon → \$8.55/gallon
- Review of tax code by attorney trained in alcohol tax

# Methods: Counterfactual

## States without alcohol tax changes

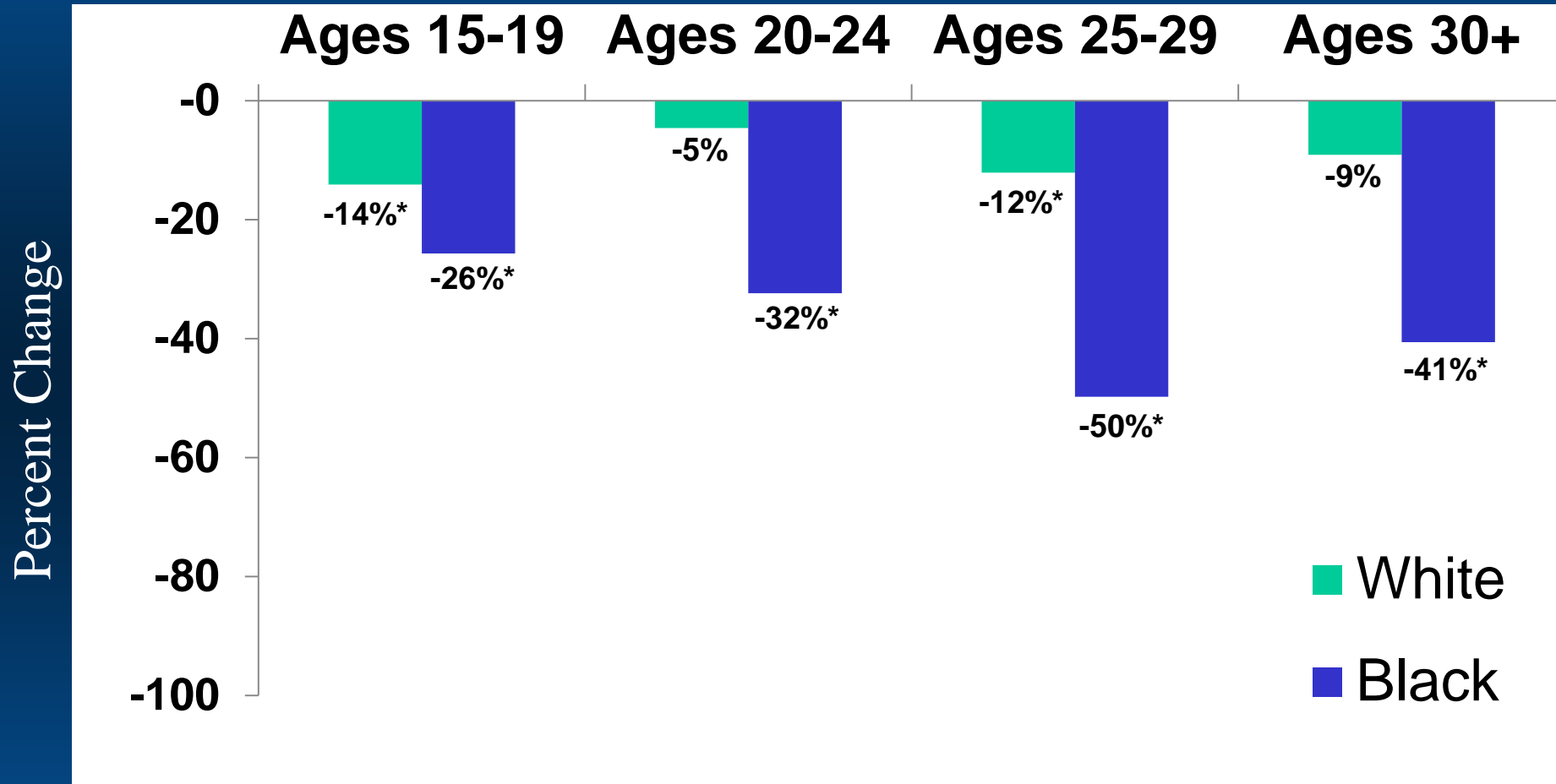
- 48 Contiguous US States
  - Alaska and Hawaii eliminated
- – 1 interest state (Illinois)
- – 18 monopoly states
- – 15 states with tax changes during study period (2003 – 2011)
- – 2 states that bordered Illinois
  - possible purchasing of alcohol in border states
- = 12 states

# Methods: Statistical Analysis

- Linear Mixed Model
  - Accounts for autocorrelation of STDs grouped by state
  - SAS 9.3
- Assumed normal distribution for STD counts
  - More than 20 STDs per month
- Banded Toeplitz covariance structure
  - Seasonality adjustment
- Adjust for median household income in Illinois
  - US Census Bureau
- Stratify by subpopulations
  - Race x Age

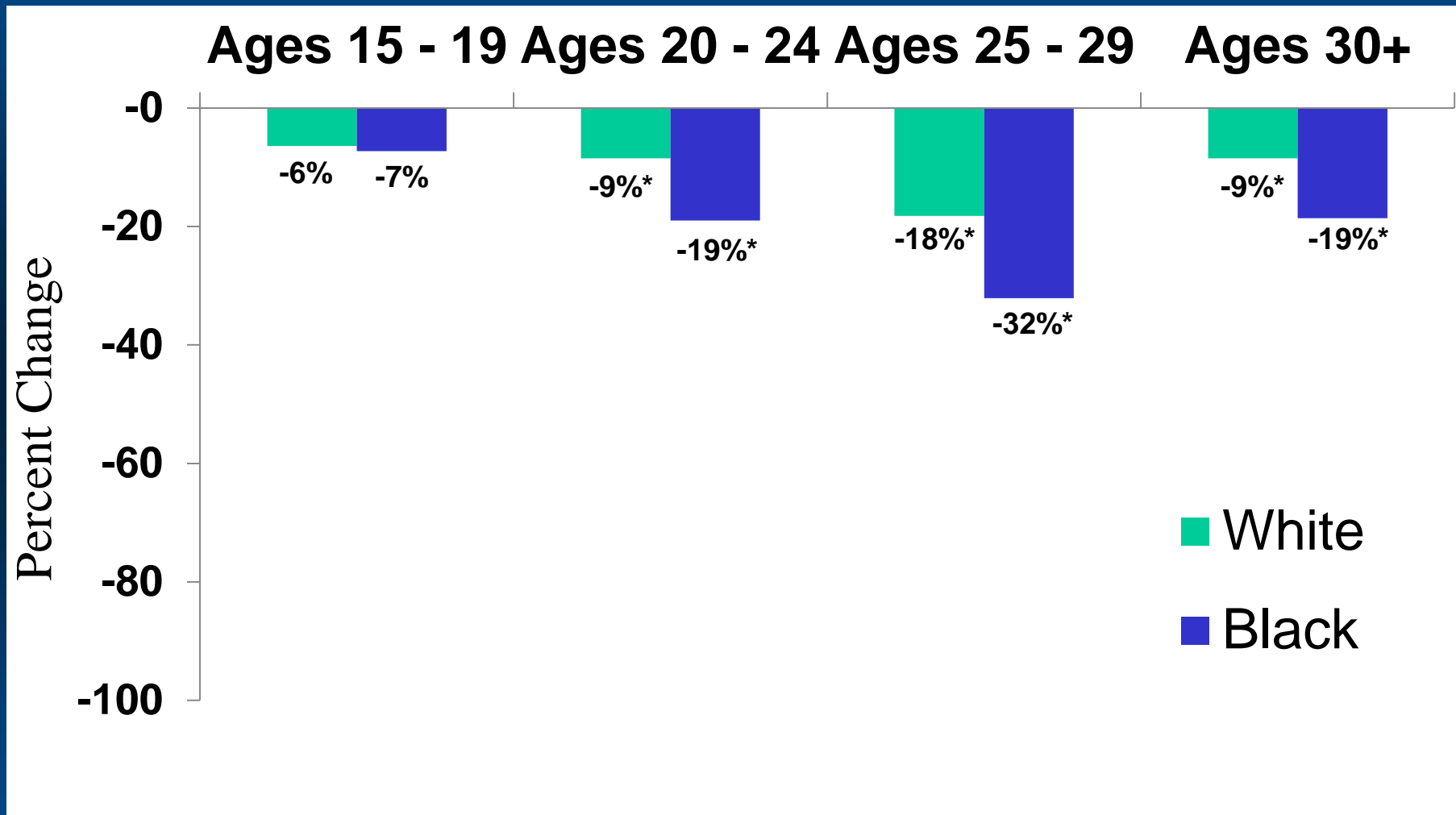
# Gonorrhea Rates

## Net Effect Following Alcohol Tax Increase



# Chlamydia Rates

## Net Effect Following Alcohol Tax Increase



# Public Health Implications

- Alcohol excise tax increase
  - Well-established evidence that taxes reduce drinking
  - Well-established that taxes reduce alcohol-related disease and traffic crashes
  - Likely also an effective strategy to prevent STDs
    - Especially among Blacks or other groups with modest incomes and higher than average disease or infection rates
  - May be a successful long-term strategy to reduce HIV infections

# Common Opposition Arguments

Alcohol and tobacco industries use several common arguments in opposition to tax increases:

- Won't have the intended impact in terms of reducing use and consequences
- Won't generate the anticipated revenues while raising other costs
- Will lead to extensive tax avoidance and tax evasion
- Will harm poor and working class consumers
- Will lead to massive job losses



# Economic Impact of Alcohol Taxation

Impact of alcohol taxation/consumption on jobs?

- industry argues that alcohol makes significant economic contribution
  - employment in farming, manufacturing, distribution, and related sectors
  - multiplier effects as income earned in alcohol-related jobs spent on other goods & services
  - significant tax revenues from excise, income, corporate, sales taxes
- consequently, higher taxes that reduce consumption will cause economic losses, including job losses

# Gross vs. Net Employment Impact

- Gross Impact:
  - Alcohol excise tax increases will lead to decreased consumption of alcoholic beverages
    - Loss of jobs in alcohol-dependent/related sectors
- Net Impact:
  - Money not spent on alcoholic beverages will be spent on other goods and services
    - Gains in jobs in other sectors
  - Increased tax revenues spent by government
    - Additional job gains in other sectors

# Alcoholic Beverage Tax Simulations

## Employment Impact

- REMI (Regional Economic Models Inc.) model is a structural regional economic forecasting and policy analysis model
- Use REMI to model 5 states:
  - Arkansas, Florida, Massachusetts, New Mexico, and Wisconsin
  - Geographic diversity; differences in share of employment from alcohol manufacturing & distribution
  - Remaining states estimated based on findings from 5 states
- Beverage Industry Effect
- Income/Substitution Effect
- Government Revenue Effect
  - Spend as general revenue
  - Dedicated to health care
- Gross (industry only) vs. Net (total) effect

## Impact of 5-Cent per Drink Increase in Alcoholic Beverage Excise Taxes on Industry and Government Revenues (millions of dollars)

	AR	FL	MA	NM	WI
<b>Change in Sales Revenue</b>	<b>-28.2</b>	<b>-257.3</b>	<b>-88.7</b>	<b>-25.1</b>	<b>-87.3</b>
Beer	-13.9	-98.6	-31.8	-12.2	-37.3
Wine	-2.4	-46.6	-21.6	-2.8	-10.0
Spirits	-11.9	-112.1	-35.2	-10.2	-40.0
<b>Change in Government Excise Tax Revenue</b>	<b>47.4</b>	<b>418.2</b>	<b>144.3</b>	<b>42.3</b>	<b>143.2</b>

# Impact of 5-Cent per Drink Increase in Alcoholic Beverage Excise Taxes on Jobs in Selected Sectors

	Gross Impact	Net Impact
<b>Arkansas</b>		
<b>Total Jobs</b>	<b>-312</b>	<b>762</b>
Private Non Farm	-280	-22
Alcoholic Beverage Manufacturing	-14	-14
Retail Trade	-111	-89
State and Local Government	-32	784
Percent Change, Total	-0.027%	0.065%

*Preliminary – Not for Citation*

# Impact of 5-Cent per Drink Increase in Alcoholic Beverage Excise Taxes on Jobs in Selected Sectors

	Gross Impact	Net Impact
<b>Wisconsin</b>		
<b>Total Jobs</b>	<b>-1023</b>	<b>1072</b>
Private Non Farm	-937	-374
Alcoholic Beverage Manufacturing	-37	-37
Retail Trade	-363	-328
State and Local Government	-87	1446
Percent Change, Total	-0.037%	0.039%

*Preliminary – Not for Citation*

# Impact of Alcoholic Beverage Tax Increases on Total Jobs Spending as General Revenue Spent

		5 ¢	10 ¢	25 ¢	5%
AR	Gross Impact	-312	-585	-1232	-187
	Net Impact	762	1459	3262	447
FL	Gross Impact	-3113	-5872	-12541	-2093
	Net Impact	4157	7979	17911	2704
MA	Gross Impact	-961	-1809	-3849	-630
	Net Impact	881	1691	3803	553
NM	Gross Impact	-315	-593	-1260	-200
	Net Impact	593	1136	2547	366
WI	Gross Impact	-1023	-1919	-4045	-619
	Net Impact	1072	2054	4607	628

# Impact of Alcoholic Beverage Tax Increases on Total Jobs Revenue Dedicated to Health Care

		5 ¢	10 ¢	25 ¢	5%
AR	Gross Impact	-312	-585	-1232	-187
	Net Impact	59	118	286	33
FL	Gross Impact	-3113	-5872	-12541	-2093
	Net Impact	884	1709	3935	555
MA	Gross Impact	-961	-1809	-3849	-630
	Net Impact	205	399	932	122
NM	Gross Impact	-315	-593	-1260	-200
	Net Impact	119	230	528	72
WI	Gross Impact	-1023	-1919	-4045	-619
	Net Impact	976	1872	4204	571



# Key Findings

- Increased alcoholic beverage taxes will not lead to net job losses
- Increased alcoholic beverage taxes will lead to some job transfers from the alcoholic beverage industry to other sectors
- Net impact of alcoholic beverage taxes increases on jobs is negligible

# Common Opposition Arguments

Alcohol and tobacco industries use several common arguments in opposition to tax increases:

- Won't have the intended impact in terms of reducing use and consequences
- Won't generate the anticipated revenues while raising other costs
- Will lead to extensive tax avoidance and tax evasion
- Will harm poor and working class consumers
- Will lead to massive job losses

# Methods

- Net cost of tax increase = new cost of alcohol – old cost of alcohol
- Cost = #drinks x total price (product + tax)
- Number of drinks at baseline – 2011 Behavioral Risk Factor Surveillance System (BRFSS) survey, 50 states and D.C.
- Baseline drinks per year = frequency of drinking (past 30 d) x usual average quantity consumed x 12

# Methods

- 4 tax increases – 5, 10, 25 cents, and 5%
- Assumed pass-through of tax of 1.0
- To determine consumption after new tax, used beverage-specific price elasticities from CDC Community Guide review, weighted to account for beverage-specific consumption in each state
- Weighted price per drink by beverage type obtained from Impact Databank

# Methods

- Excessive drinkers defined as those reporting binge drinking or heavy drinking (past 30 days) or any drinker aged 18-20
- Household income assessed at 4 levels
- Employment assessed as employed for wages vs. non-employed

# Results: Annual Per Capita Cost from State Tax Increases

## Non-excessive drinkers

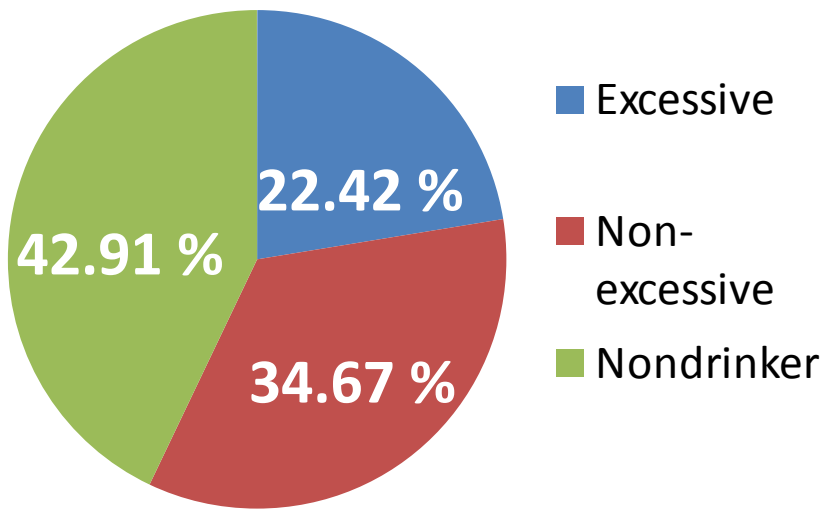
Tax Increase	State median net cost	Lowest state net cost	Highest state net cost
5 cent	\$2.34	\$1.98	\$2.96
10 cent	\$4.41	\$3.75	\$5.64
25 cent	\$9.07	\$9.07	\$12.00
5%	\$3.53	\$2.97	\$4.91

## Excessive drinkers

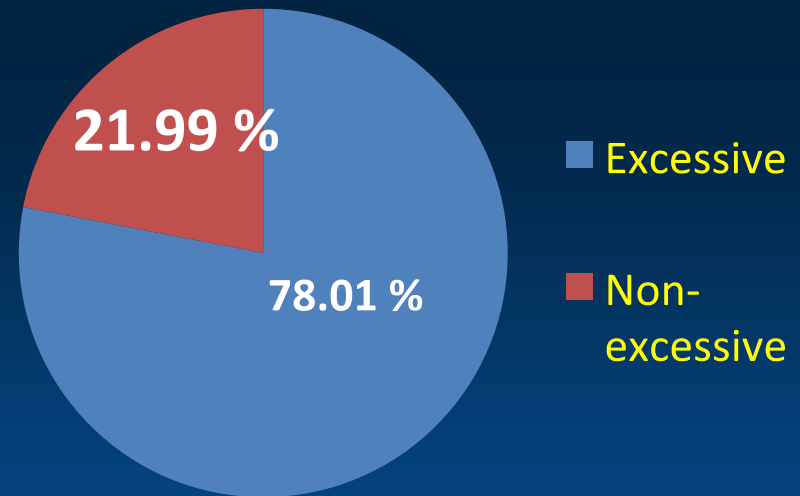
Tax Increase	State median net cost	Lowest state net cost	Highest state net cost
5 cent	\$12.89	\$10.42	\$16.40
10 cent	\$24.42	\$19.70	\$31.14
25 cent	\$50.51	\$40.67	\$65.43
5%	\$19.22	\$16.06	\$25.59

# Proportion of Population and Total Costs Paid, by Drinking Status

Proportion of total population, by drinking status



Proportion of total costs paid, by drinking status



# Proportion of increases in total alcohol-related costs for a 25 cent tax increase among non-excessive drinkers, by income

Income	State Median	Lowest State	Highest State
< \$25,000	3.2%	1.7%	5.8%
\$25,000 - < \$50,000	4.8%	2.3%	8.51%
\$50,000 - < \$75,000	3.7%	2.5%	6.1%
≥ \$75,000	7.7%	4.6%	14.6%



# Percent of Total Costs Paid among Non-Excessive Drinkers, by Employment Status

Employment status	Median percent	Lowest percent	Highest percent
Employed	14%	10%	20%
Not employed	8%	5%	12%

# Summary

- Non-excessive drinkers would incur modest costs for alcohol tax increases; non-drinkers incur no costs
- Excessive drinkers would pay considerably more individually and in aggregate than non-excessive drinkers
- Among non-excessive drinkers, those who earn less and are non-employed would pay less

# Common Opposition Arguments

Alcohol and tobacco industries use several common arguments in opposition to tax increases:

- Won't have the intended impact in terms of reducing use and consequences
- Won't generate the anticipated revenues while raising other costs
- Will lead to extensive tax avoidance and tax evasion
- Will harm poor and working class consumers
- Will lead to massive job losses

# Case Studies of Tax Changes

- IL: As of 9/1/09, the legislature increased alcohol excise taxes from:
  - Beer/Cider – from 18.5¢ to 23.1¢ per gallon
  - Wine – from 73¢ to \$1.39 per gallon
  - Liquor – from \$4.50 to \$8.55 per gallon
- MA: The legislature repealed alcohol's exemption from the state sales tax in off-premise locations at the same time that it increased the state's general sales tax to 6.25%, effective August 1, 2009. An initiative placed on the 2010 ballot reinstated alcohol's sales tax exemption as of January 1, 2011.
- MD: The legislature increased the sales tax on all alcoholic beverages, adding an additional 3% to the existing 6% general sales tax on the price of alcohol at both on- and off-premise locations, effective July 1, 2011.

# Preliminary Case Study Findings

	IL	MA	MA repeal	MD
Key politician support at onset	✓	✓✓✓	∅	∅
Grassroots organizing by proponents	✓	✓	✓	✓✓✓
Media advocacy/exposure	✓	✓✓	✓✓	✓✓✓
Revenue for alcohol field	∅	✓✓	∅	✓✓✓
Use of public health research	✓	✓	∅	✓✓✓
State health department involvement	∅	✓	∅	∅

# Preliminary Case Study Findings

- Some campaigns are large, public debates while others happen quietly, largely behind the scenes.
- Public health research is necessary, but certainly not sufficient.
- It's all about the revenue, and in some cases, dedicated funding is the key motivation.

## Some campaigns are large, public debates while others happen quietly, largely behind the scenes.

“There really wasn’t a huge grassroots organization, there wasn’t paid media, there weren’t editorial boards, there really was more of a grass tops campaign.” (IL advocate)

“I think the biggest strength was that they created their own coalition...it had its own infrastructure...they were not asking for permission, and they were making it visible, and they were going to push and push.” (MD state delegate)

“If you can get legislative language into the state budget...you’re not forcing legislators to vote for an independent tax...there were 200 other positive things they could say they did with that vote if they were getting any heat.” (MA advocate)

# What our research finds:

## Alcohol taxes:

- Have the intended impact in terms of reducing use and consequences
- Generate the anticipated revenues while reducing other costs
- Do not harm poor and working class consumers
- Do not lead to massive job losses – in fact, lead to slight increase in jobs, no matter the scenario



**THANK YOU!**

