Developing Policy Measures for Obesity, Diet, and Physical Activity

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Overview

- Brief introduction to the Bridging the Gap program
- Providing some context: Examples of policy measures and policy impact from tobacco
- Efforts to develop state and local policy measures for obesity, diet, and physical activity
 - -NCI state policy systems
 - -BTG state policy system
 - -HER/BTG district wellness policy collection/coding
- Planned future policy measure development and analyses
- Recommendations

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Bridging the Gap Research Informing Practice and Policy for Healthy Youth Behavior

Guest Editors

Frank J. Chaloupka, Lloyd D. Johnston, Ross C. Brownson, and Antronette K. Yancey

Bridging the Gap is ...

- An cross team initiative of the Robert Wood Johnson Foundation
 - began with Tobacco & Alcohol & Other Drugs teams
 - More recently supported by the Childhood Obesity Team
- A collaborative effort to assess the impacts of policies, programs, & other environmental factors on adolescent health behaviors including diet, physical activity, and weight outcomes
 - Multidisciplinary, multi-site team of investigators
 - Original and archival data on national, state, community, and school-level influences
- Linked to the ongoing *Monitoring the Future* study
- 2 major components: YES! And ImpacTeen projects

Providing some context:

Examples from tobacco control policy measurement and impact studies

What lessons have we learned from tobacco control?

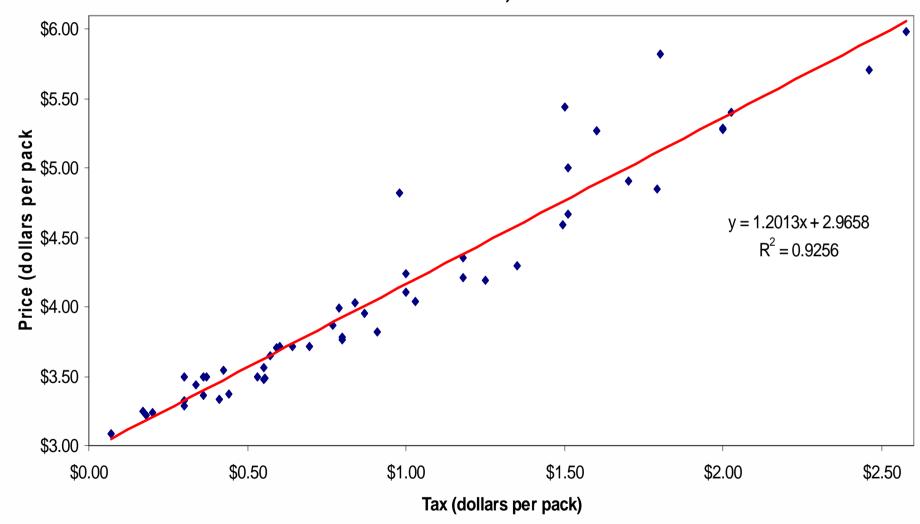
- Many years of experience collecting, assessing, and evaluating the impact of public policies on tobacco use and its consequences
 - NCI (SCLD), CDC (STATE), ALA (SLATI), CTFK, ANRF, MayaTech, BTG
- Tobacco control policies focus on both supply and demand issues
 - taxation and pricing
 - smoke-free air policies
 - youth purchase/use/possession
 - State tobacco control program funding
 - Direct sales policies
 - others

"What gets measured, gets changed"

 Evidence from tobacco control indicates that once the field started to <u>systematically</u> and <u>reliably</u> analyze and document policies (variations across jurisdictions and changes over time), it became possible to evaluate the impact of the policies on aggregate and individual-level measures of tobacco use

Findings from this research critical to policy makers, public health professionals, and tobacco control advocates in increasing strength and comprehensiveness of tobacco control policies over past 10-15 years

State Cigarette Taxes and Prices, November 1, 2006

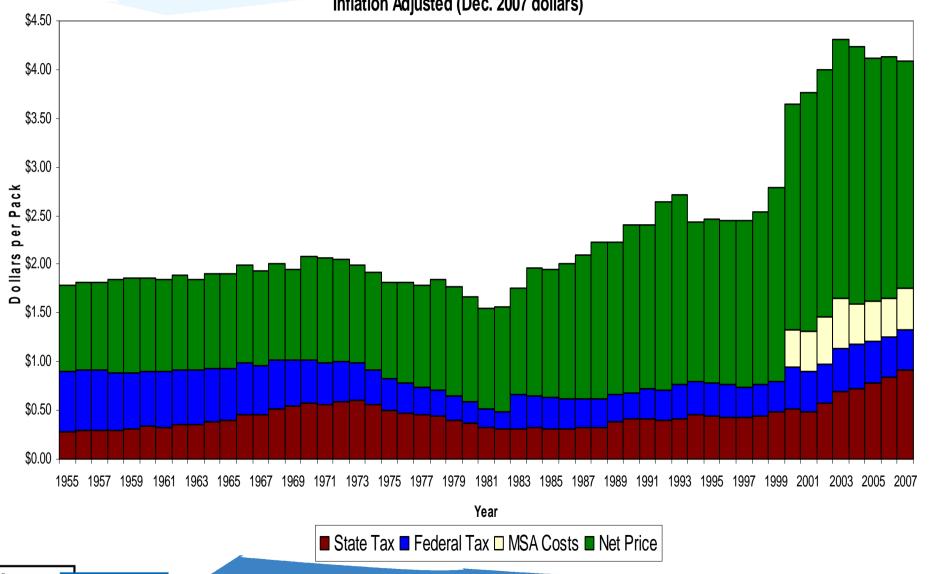




Source: Tax Burden on Tobacco, 2006, and author's calculations

Cigarette Taxes and Prices, 1976-2007

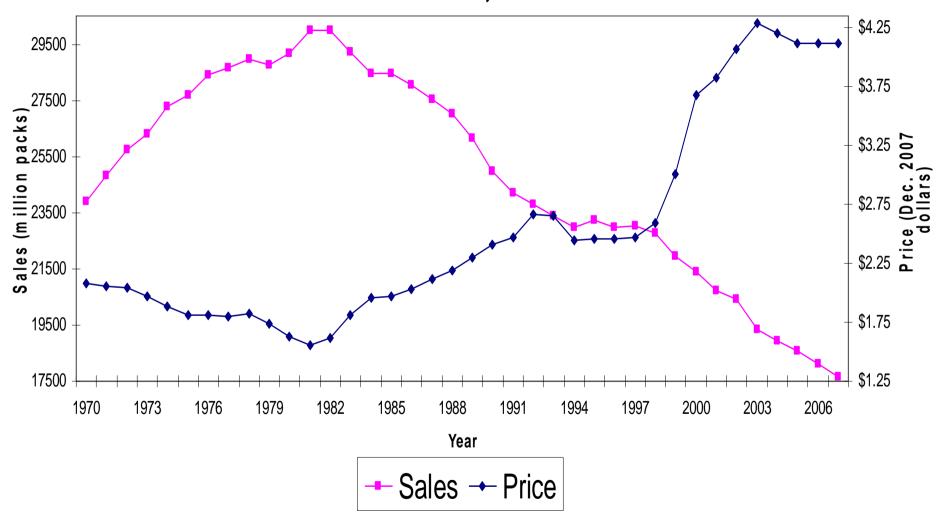
Inflation Adjusted (Dec. 2007 dollars)





Source: Tax Burden on Tobacco, 2007, and author's calculations

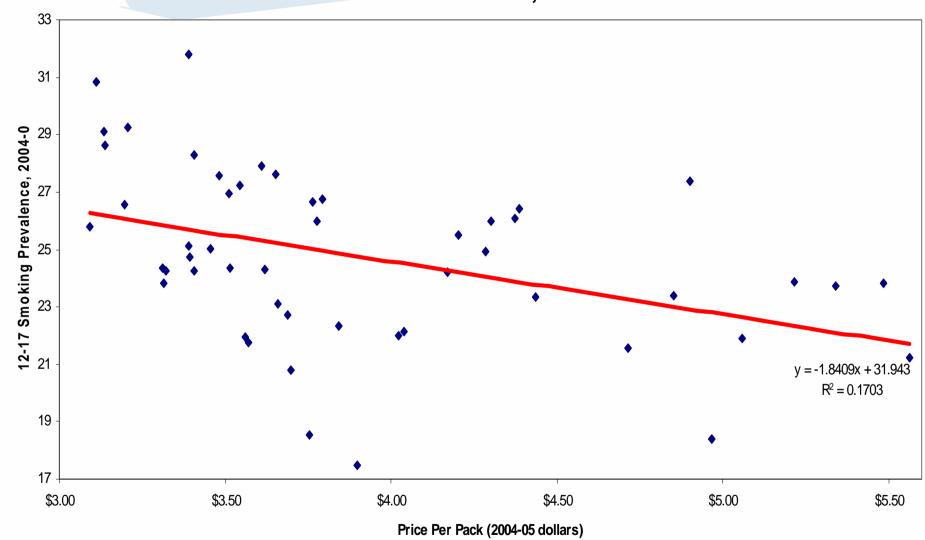
Cigarette Prices and Cigarette Sales United States, 1970-2007





Source: Tax Burden on Tobacco, 2007, and author's calculations

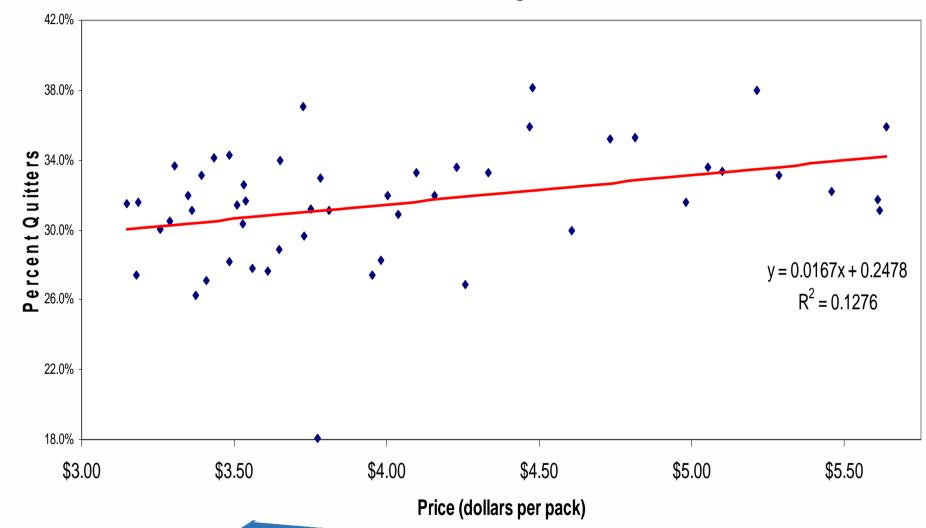
Cigarette Prices and Adult (26+) Smoking Prevalence US State-Level Data, 2004-05





Source: NSDUH, Tax Burden on Tobacco, 2007, and author's calculations

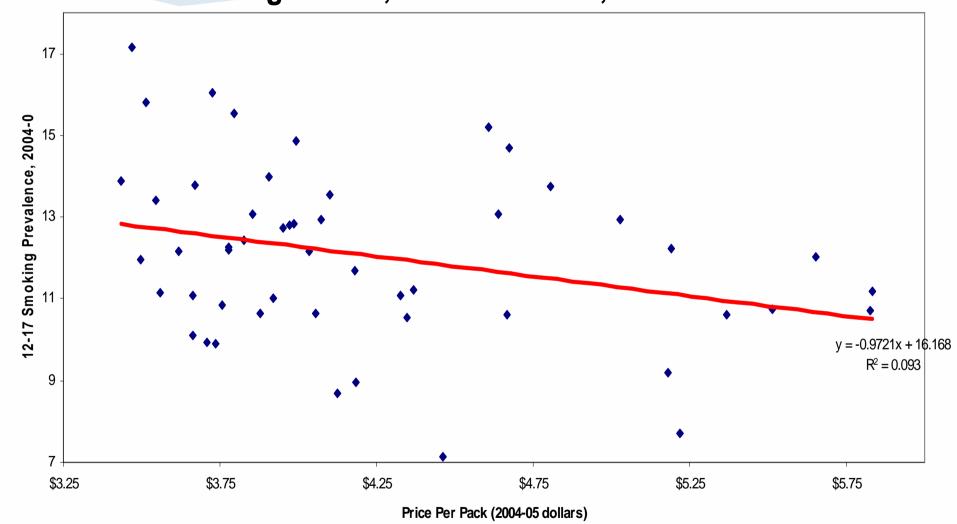
Cigarette Prices and Percentage of Ever Smokers Who Have Quit Smoking





Source: BRFSS, Tax Burden on Tobacco, 2006, and author's calculations

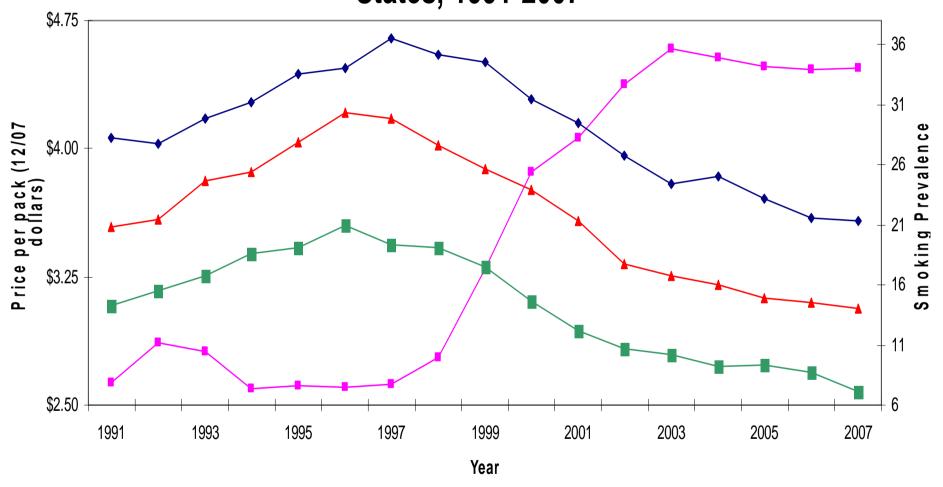
Cigarette Prices and Smoking Prevalence Ages 12-17, State-Level Data, 2004-05





Source: NSDUH, Tax Burden on Tobacco, 2007, and author's calculations

Cigarette Price and Youth Smoking Prevalence, United States, 1991-2007

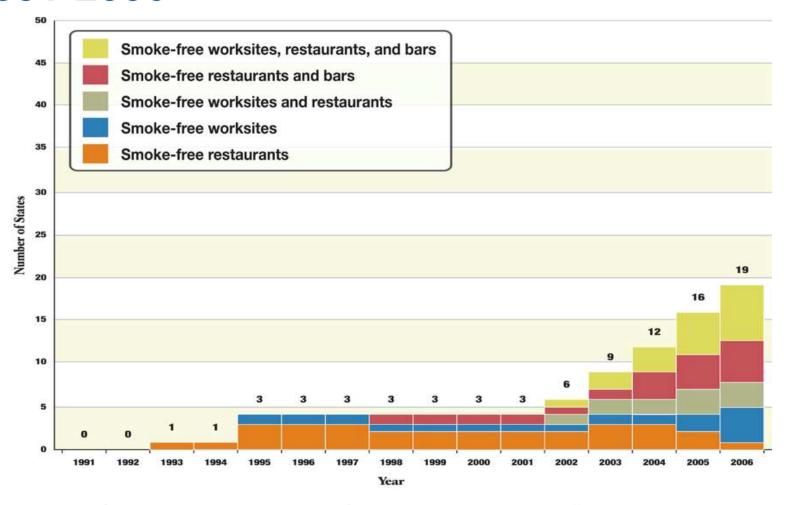


Cigarette Price → 12th grade prevalence → 10th grade prevalence → 8th grade prevalence



Source: MTF, Tax Burden on Tobacco, 2007, and author's calculations

Major Smoke-Free Air Legislation in the 50 States and the District of Columbia - 1991-2006

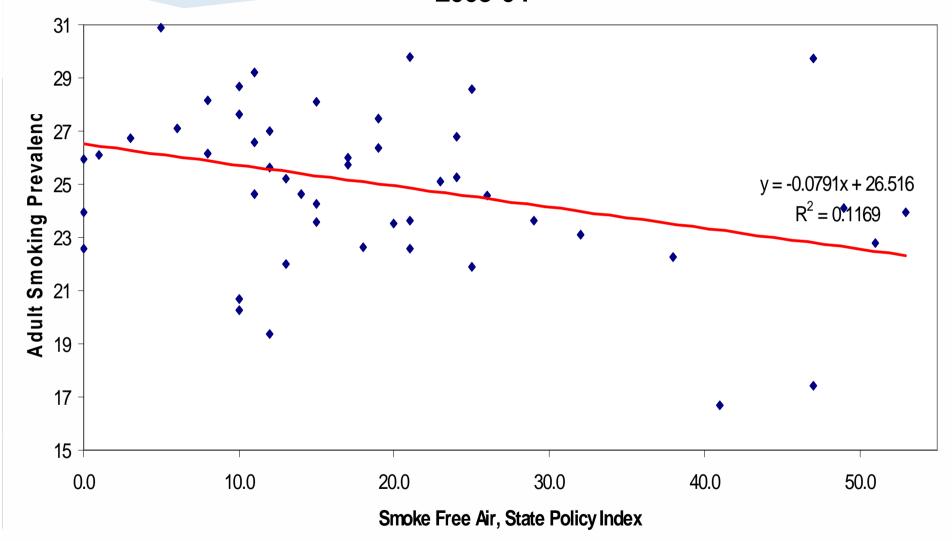








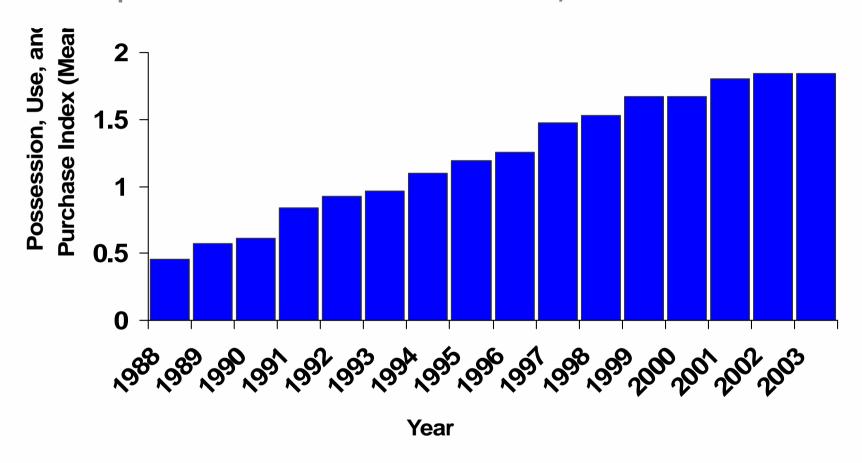
Smoke Free Air Policies and Adult Smoking Prevalence, 2003-04





Source: NSDUH, Mayatech & RPCI, and author's calculations

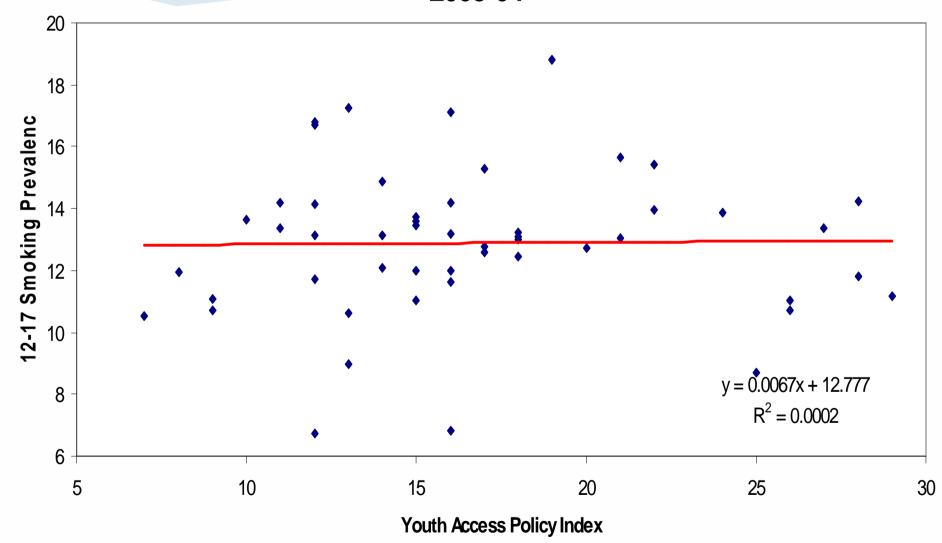
Mean Number of Possession, Use, and Purchase Laws per State* -- United States, 1988-2003**



*Includes the District of Columbia; Theoretical Range = 0-3; Includes 1st quarter of 2003 only.

**Sources: ALA's SLATI, CDC's STATE system, and Roswell Park Cancer Institute

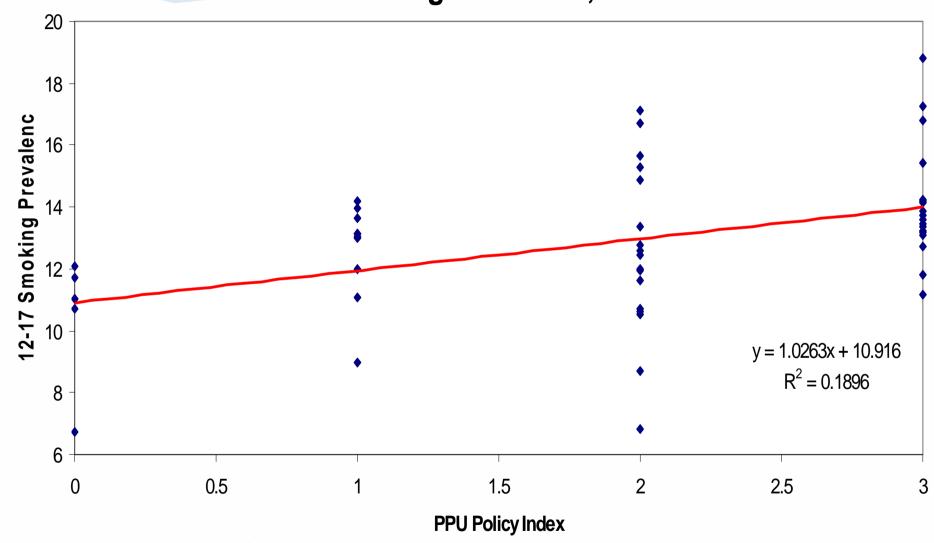
Youth Access Policies and Youth Smoking Prevalence 2003-04





Source: NSDUH, Mayatech & RPCI, and author's calculations

Purchase, Possession and Use Policies and Youth Smoking Prevalence, 2003-04





Source: NSDUH, Mayatech & RPCI, and author's calculations

Efforts to develop state and local policy measures for obesity, diet, and physical activity

State Policy Measurement

- National Cancer Institute State Policy Classification Systems
 - Focus on state-level policies affecting the school environment
 - Physical education policies
 - School-based nutrition policies
 - Developed by NCI and The MayaTech Corporation based on input from expert advisors and consultants
 - "Policies" defined to include state statutory and administrative laws
 - public policies that have the full force of law;
 - laws developed by state legislatures and regulations developed by executive agencies

State Policy Measurement: NCI Systems continued

- NCI Policy classification system development
 - Recommendations from panel of scientific, topical, and policy/advocacy experts
 - Review of best available data and science
 - Federal Government guidelines (e.g., U.S. Dietary Guidelines)
 - Expert recommendations (e.g., IOM panels)
 - Review of most comprehensive state laws and emerging laws
 - Pilot tested systems using laws from 5-10 states with extensive policies

State Policy Measurement: NCI Systems continued

PE System Topics

- 1. Minimum time reqs.*
- 2. PE staffing reqs.*
- 3. Curriculum standards*
- 4. Assessment of healthrelated fitness*
- 5. Recess (ES only)

Nutrition System Topics

- 1. A la carte F&B sales*
- 2. Vending machine*
- 3. Other venues*
- 4. Reimbursable school meals*
- 5. School meal environment
- 6. Food service director reqs.
- 7. Nutrition education*
- 8. Advertising/promotion
- 9. Preferential pricing
- 10. Coordinating/advisory council
- 11. BMI screening/reporting

*Grade-level coding (ES/MS/HS)

Note: additional dichotomous tracking variables to measure potential enhancement/inhibiting factors also captured in both systems.

State Policy Measurement: NCI Systems continued

Current and planned efforts

- Initial NCI metrics published as part of AJPM supplement
 - Physical education and School-based Nutrition
- Baseline data (as of 12/31/03) posted on NCI Web site along with codebook, policy classification tool, etc.

http://dccps.nci.nih.gov/hprb/data_systems.html

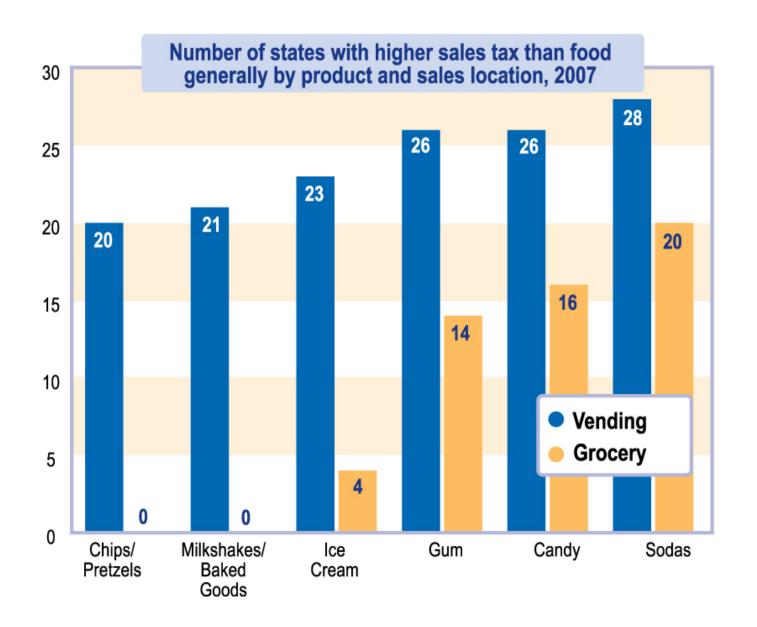
- NCI is currently funding MayaTech to update the data through 2008, using annual reference dates of December 31.
- NCI/MayaTech are working with Tracy Fox to update the school-based nutrition metric to build on the IOM (2007) recommendations on nutrition in schools

http://dccps.nci.nih.gov/hprb/data_systems.html

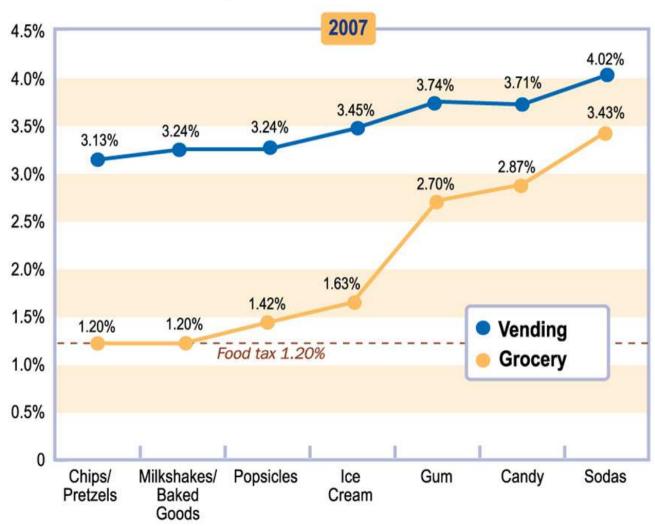


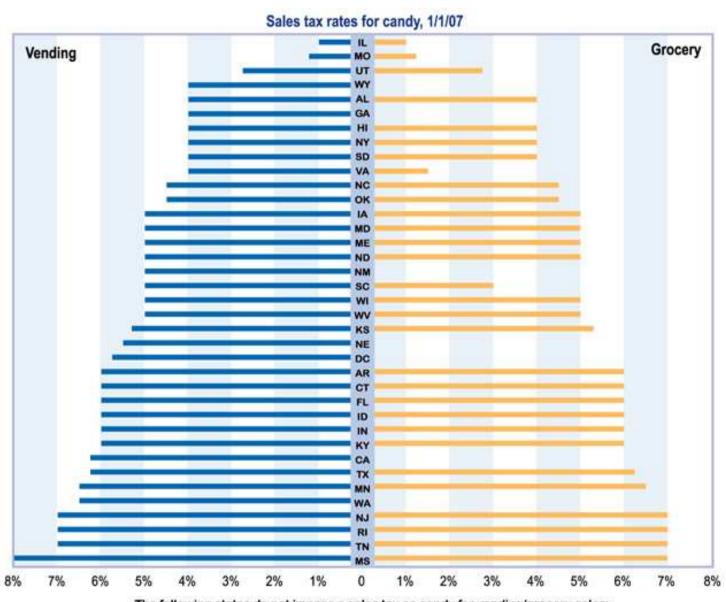
Additional State Policy Measurement

- As part of BTG, new state-level policy data being compiled by UIC and MayaTech to complement NCI data
 - State sales tax rates for snacks and sodas sold through grocery stores and vending machines
 - Annual data compiled for 1/1/97 through 1/1/07
 - Descriptive manuscript regarding the 2007 data in press at Journal of Public Health Policy
- Work in progress (1/1/07 reference date)
 - State sales tax rates for restaurants, fast food/carryout
 - State level laws regarding safe routes to school
 - Statutory/administrative law mandates/frameworks for local wellness policies (different from model policies/guidelines)
 - Baselines likely to vary depending on policy domain

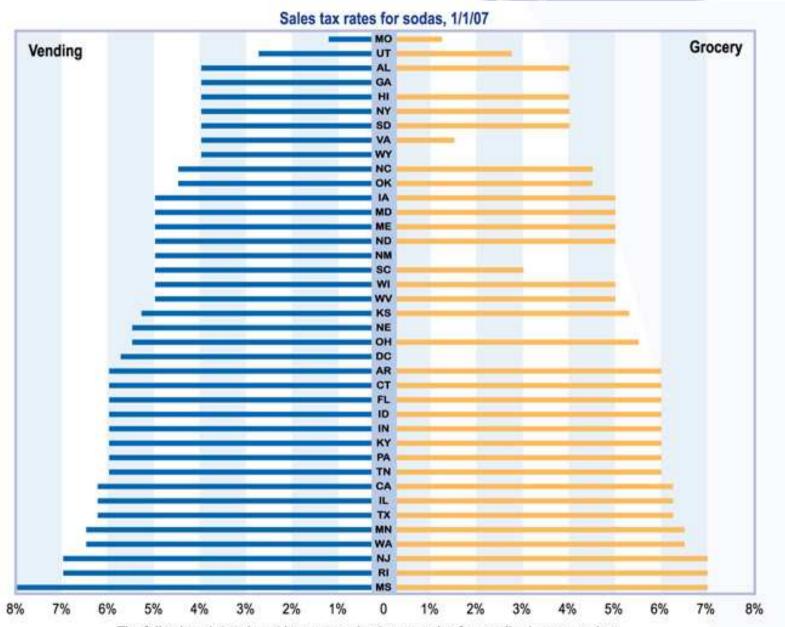


State sales tax rates for selected snacks and sodas by sales location, 2007



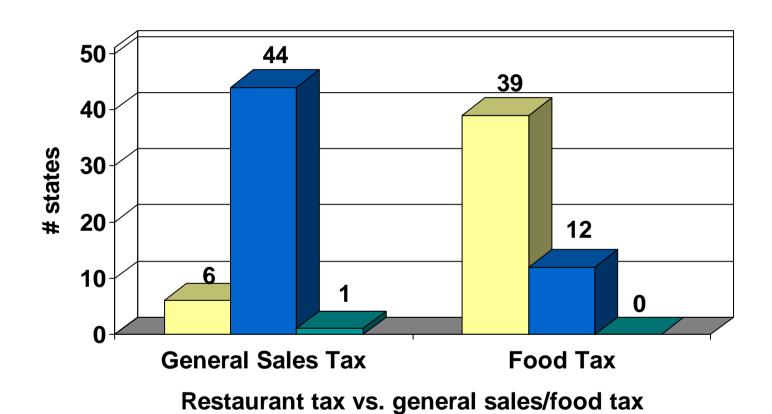


The following states do not impose a sales tax on candy for vending/grocery sales: AK, AZ, CO, DE, LA, MA, MI, MT, NH, NV, OH, OR, and PA.



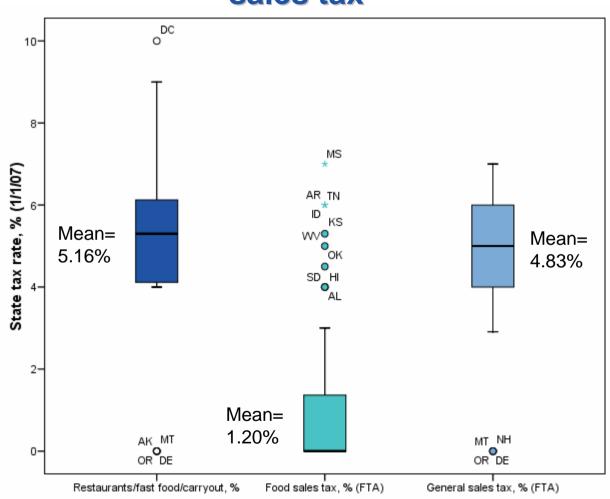
The following states do not impose a sales tax on sodas for vending/grocery sales: AK, AZ, CO, DE, LA, MA, MI, MT, NH, NV, OR, and VT.

Restaurant Tax Data (as of 1/1/07)



□ Rest tax > ■ Rest tax = ■ Rest tax <</p>

State tax rates as of 1/1/07: Restaurant, etc. tax vs. general food tax & general sales tax



Policy Research Example: Food Pricing and Youth Behavior

- •Find that:
 - youth in communities with lower fruit and vegetable prices have more frequent fruit & vegetable consumption and lower BMI
 - youth in communities with lower fast food prices have less frequent fruit & vegetable consumption, higher BMI, and are more likely to be overweight
 - •10 percent rise in fast food prices would increase probability of frequent F&V consumption by 3%, reduce BMI by 0.4% and lower probability of being overweight by 5.9%

Policy Research Example: Food Pricing and Youth Behavior

- •Find that:
 - •Impact of fast food and F&V prices greatest among most at risk youth (higher BMI)
 - •Above 90th percentile, fast food price impact 4 times larger than average effect for full sample
 - •Above 95th percentile, fruit & vegetable price impact 5 times larger than average effect
 - •Little impact of prices at low/mid-ranges of BMI
 - •Supermarket availability inversely associated with BMI at all levels, with greater impact on upper end
 - •No associations between fast food and full service restaurant availability

Safe Routes to School Policy Measurement

Initial topics

- SRTS Program Formality
- SRTS Laws' Purpose, Administration, and Approval Process
- Characteristics of Eligible Projects
- Selection of Projects/Vetting Criteria
- Other Relevant Laws Affecting Students' Ability to Walk or Bicycle to School
- Federal funding for SRTS projects

Development status

- Engaging consultant from National Center for Safe Routes to School to review coding scheme
- Baseline measurement of 1/1/07
- Plan to compile annual data for 2005-2006 and prospectively starting with 2008

Local Policy Measurement

- Local wellness policy measurement
 - Wellness policies mandated by Congress (P.L. 108-265) for all school districts participating in the National School Lunch Program
 - Policies needed to be in place by the 1st day of the school year following June 30, 2006
 - Tool for measuring variability in local wellness policies developed by Healthy Eating Research Grantees
 - Marlene Schwartz (Yale) has led this effort

HER-developed Local Wellness Policy Coding Tool

- Parallels federally-mandated topics:
 - Nutrition education, reimbursable school meals, competitive food sales, physical activity/physical education, communications and marketing, and implementation and evaluation
- Incorporates many of the components of the NCI systems and systems developed by AFHK, NANA, and the Alliance for a Healthier Generation/Clinton Foundation
- 96-item coding tool (0/1/2 ordinal variables)
 - Initially tested by HER grantees on policies from school districts in CT, PA, MN, WA
 - Further refined by BTG researchers for use with a nationallyrepresentative sample of school districts throughout the U.S. (N=580 districts)

HER-developed Local Wellness Policy Coding Tool—UIC Adaptations to Facilitate Policy Evaluation Studies

- Adapt coding tool for measuring policy variance by grade-level (ES/MS/HS)
- Further refinement of competitive food variables to allow for policy nuances based on sale/serve "location" (i.e., a la carte, vending, school stores, fund raisers, parties, etc.)

Other activities related to local policy measurement

- Physical activity section of the HERdeveloped scheme being utilized by ALR researchers and others to measure policy impact
- NCI pilot study to apply state-level classification systems to local district policies
 - Easily adaptable; creates parallel linkages between state/local policy data

Lessons Learned in Developing Policy Measurement Systems

Measurement reliability is challenging

- Oftentimes, the policies are fairly complex and coding is highly subjective
- NCI systems had fairly high inter-rater reliability;
 however, ICCs varied by topic
- Individual coding often not feasible (<80% ICC's)
 - Be prepared to conduct consensus coding involving two or more coders to review each policy
- Often must supplement the measurement system with coding-specific decision rules as new "nuances" will often appear with each policy reviewed

Lessons Learned in Developing Policy Measurement Systems cont.

- Continued refinement of the systems often necessary
 - Avoid changing the system in the midst of coding offers to many chances for error
- Systems are developed based on the best available data/evidence at the time.
- Systems will need to be <u>enhanced over time</u> to capture new topics, recommendations, evidence, etc.

BTG plans for analysis and policy measurement

State policy measurement: Planned/possible future topics

- Planned topics
 - Farm to school program requirements
 - Restrictions on competitive food contracts/ vending
- Possible future topics
 - Dedicated funding for school-based nutrition, PE and/or other obesity prevention programs
 - Menu labeling requirements
 - Zoning/land use policies, policies related to the built environment
 - New taxes (if enacted, e.g., "junk food taxes")

Local policy measurement: Planned/possible future topics

- Planned refinement of HER coding tool; addition of new sub-topics by BTG researchers
 - Farm-to-school, BMI measurement/reporting, contract requirements, vending machine bans, closed campus provisions, etc.
- County/municipal policy collection and measurement
 - Zoning/school siting policies

Planned analyses... a few examples

- Relationships between:
 - state sales taxes for soft drinks and snacks and consumption patterns, weight outcomes
 - state sales taxes for restaurants and consumption patterns, weight outcomes
 - state/local policy requirements governing nutrition and physical activity and reported school practices, student behavior, weight outcomes
 - state safe routes policies and biking/walking to school among students

Recommendations

Developing Policy Measures

- •Invest in comprehensive efforts to systematically identify, measure and analyze policies
 - •Build on work of NCI and BTG
 - •At all levels national, state, local
- •Ensure coordination among policy measurement systems
 - •Learn from problems with tobacco control policy tracking efforts
 - •Maximize consistency across policy tracking systems
 - •Maximize sharing of data for use in evaluation

Developing Policy Measures

- •Refine and build indices that assess strength and comprehensiveness of policies
 - •Important for use in policy evaluation studies
 - •Useful for evaluating synergies among policies
- •Assess policy implementation and enforcement
 - •Critical to understanding ultimate impact of policies on behaviors/outcomes of interest

Using Policy Measures

- •Support research to evaluate the impact of policies and their implementation on key outcomes
 - •Numerous research designs
 - •interrupted time-series analyses
 - •analyses using repeat cross-sectional data
 - Analyses using longitudinal data
 - •Analyses that look at proximal and distal outcomes
 - Attitudes and knowledge
 - Physical activity
 - Healthy eating
 - •BMI and indicators for overweight/obese

Communicating Findings from Policy Evaluation

- •Support dissemination of policy research findings to policy makers and other relevant audiences
 - •Research on tobacco control policy nice example of partnerships between research, advocacy, and action-oriented efforts
- Develop mechanisms for feedback from policy makers to researchers
 - •Helps define priorities for policy research
 - •Identifies emerging policy issues that warrant research





www.impacteen.org

www.yesresearch.org

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