



Price, Tobacco Control Policies and Youth and Young Adult Tobacco Use

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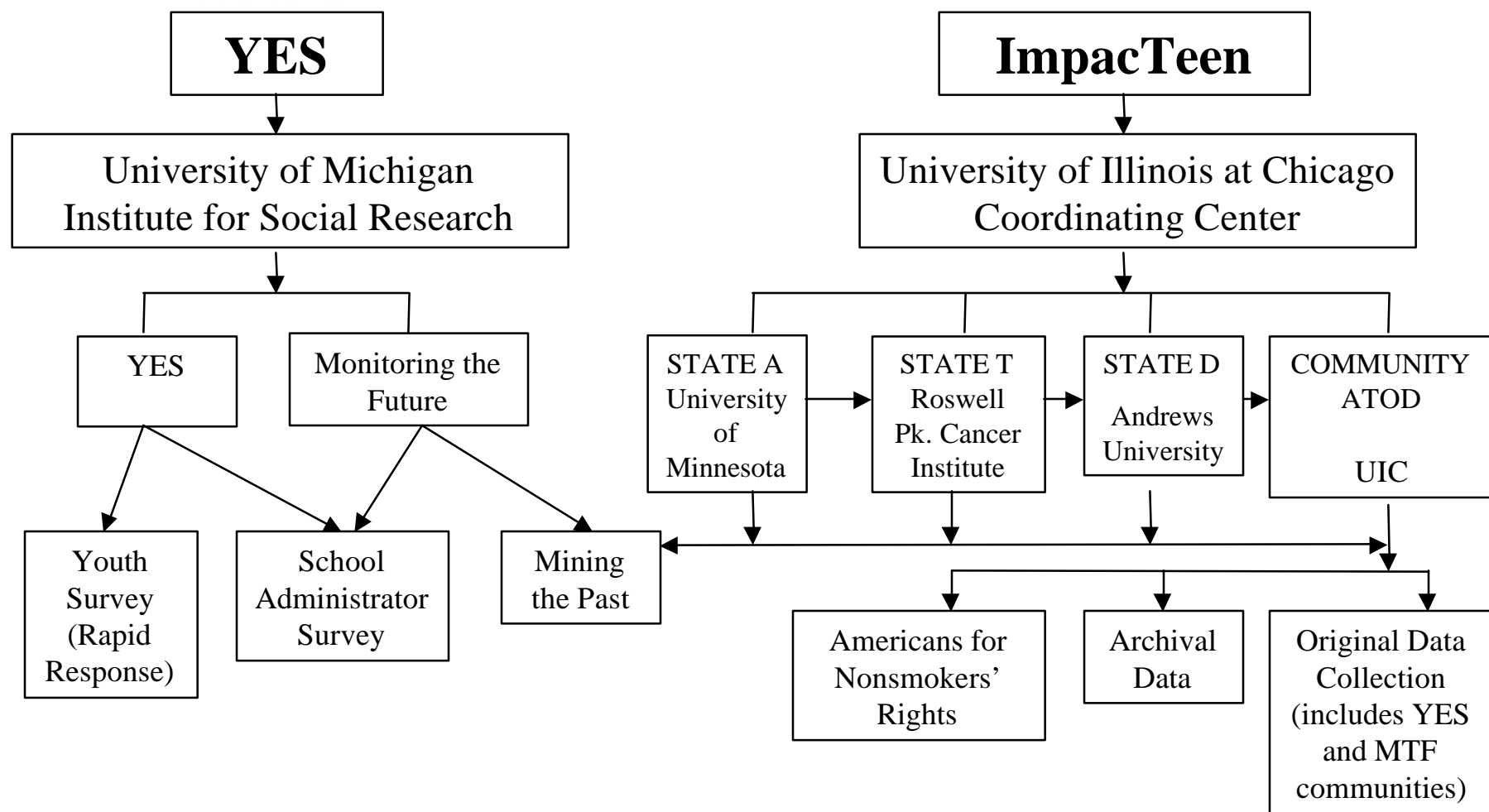
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Bridging the Gap Overview



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Research Triangle Institute - Community Mapping

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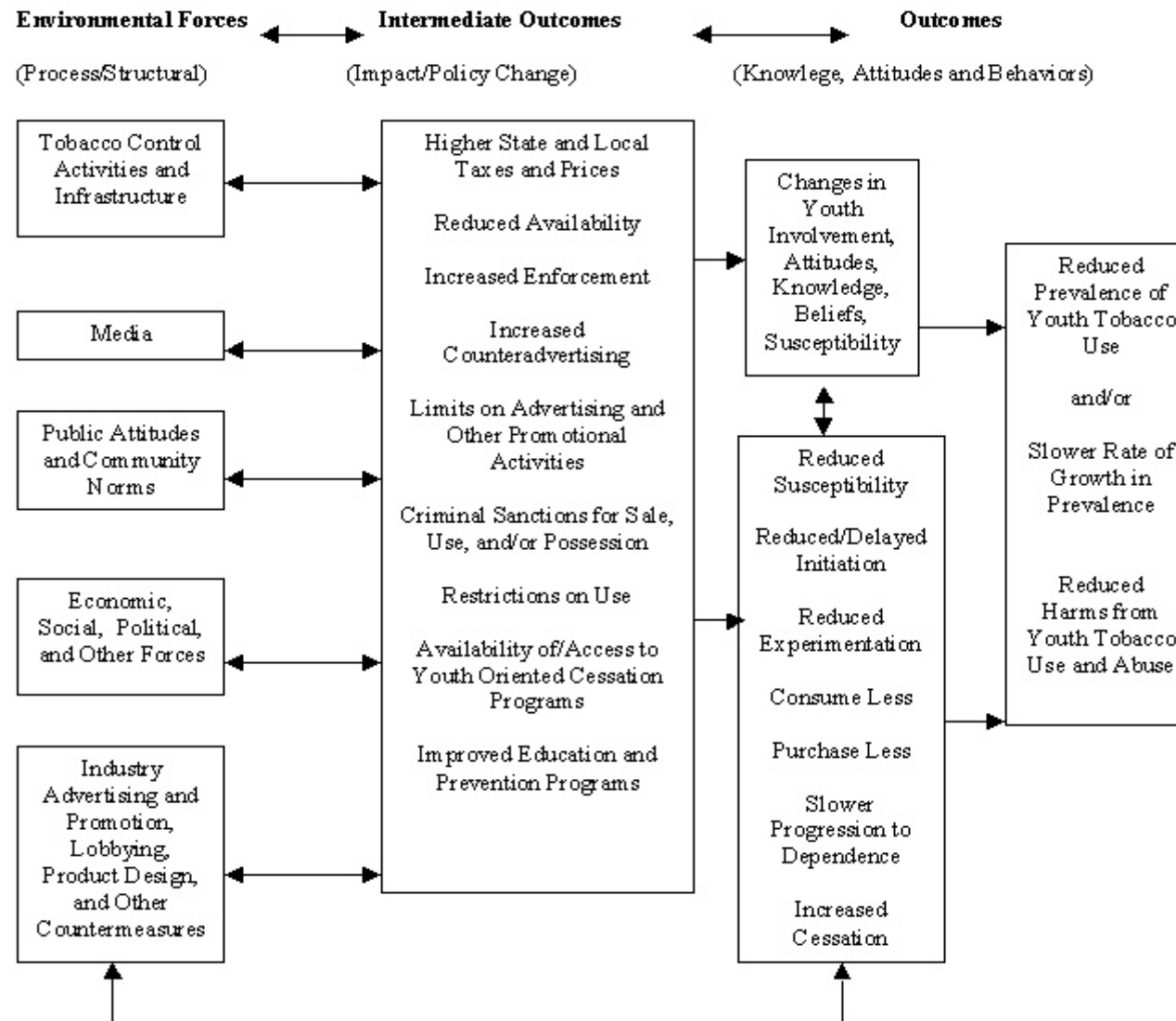
Objectives

- To build on existing information about the effectiveness of policies, environmental influences, and other factors in reducing youth substance use and abuse.
- To develop three databases -- one each for alcohol, tobacco, and illicit drugs -- for the 50 United States and District of Columbia, containing:
 - matrices of policies, environmental, social and institutional influences, and market mechanisms
 - measure of use, harms associated with use, and related outcomes
- To make the state-level data publicly available

Objectives

- To develop comparable, in-depth community-level information on policies, market mechanisms, and environmental, social and institutional influences on youth substance use.
- To merge community-level data with other Bridging the Gap data to examine effects of policies, programs and practices at the state, community and/or school levels on youth substance use.

Conceptual Framework



ImpacTeen Data Collections

- **Community Observations:**

- Retail outlets for tobacco and alcohol (product placement, pricing, promotions, advertising, counteradvertising, signage, and more)
- Local alcohol, tobacco, other drug, and youth specific ordinances and regulations
- General community observations (advertising, counteradvertising, social capital, and more)

- **Key Informant Interviews:**

- Modular interviews, targeted and snowball approach
- Detailed information on policy implementation and enforcement, wide range of other information

- **Archival Data:**

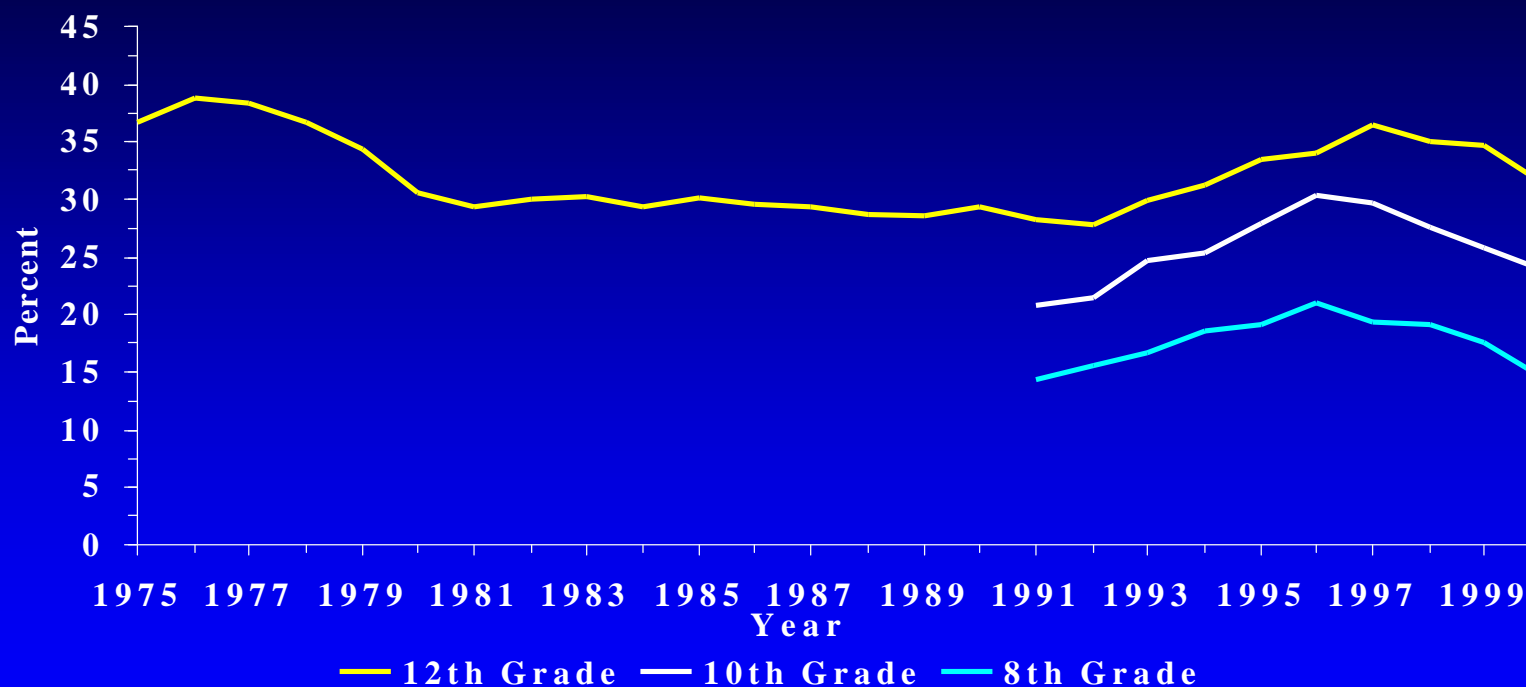
- FDA data, population characteristics, and much more

YES! and ImpacTeen Data Collections

- **State-level databases:**
 - **Separate databases for tobacco, alcohol and illicit drugs**
 - **State laws and regulations related to alcohol, tobacco, and other drug use and related outcomes**
 - **State level measures of alcohol, tobacco, and other drug use and the harms resulting from use**
 - **Wide variety of other state level information**
- **School-level information**
 - **Annual surveys of school administrators**
 - **Information on school alcohol, tobacco, and other drug related policies**
 - **Detailed information on school prevention curricula**
 - **Detailed information on other school programs targeting youth alcohol, tobacco and other drug use**
 - **School observations**

Background

Trends in Cigarette Smoking Anytime in the Past 30 days* by Grade in School-- United States, 1975-2000

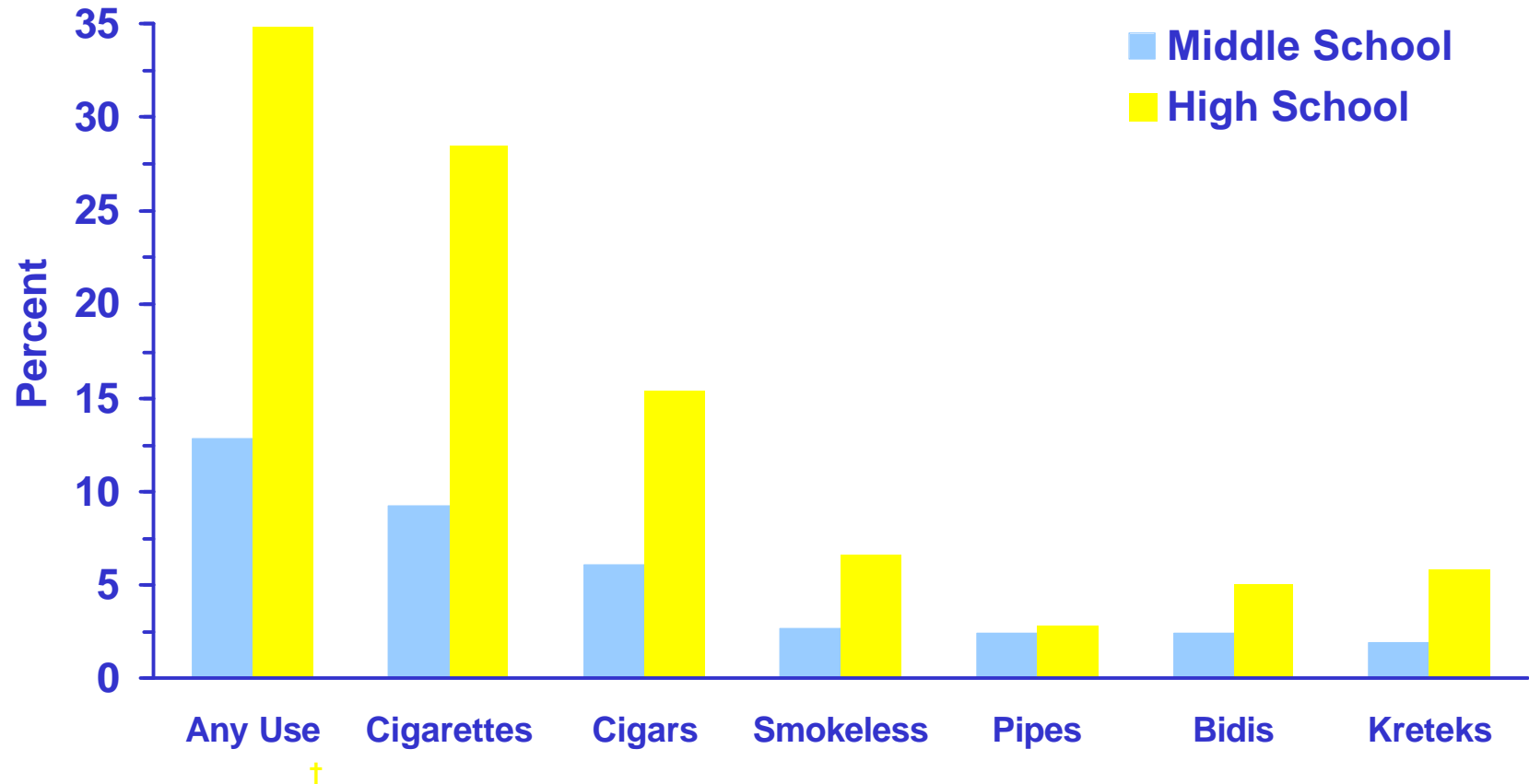


Source: Institute for Social Research, University of Michigan, Monitoring the Future Surveys

*Smoking 1 or more cigarettes during the previous 30 days

Background

Current* use among middle and high school students by type of tobacco product— National Youth Tobacco Survey, 1999



* Used tobacco on [†] 1 of the 30 days preceding the survey.

† Use of cigarettes, smokeless, cigars, pipes, Bidis, or Kreteks.

Tobacco Use Data

•Monitoring the Future Surveys (8th, 10th & 12th grade students)

- Conducted by the Institute for Social Research at the University of Michigan
- Funded by the National Institute on Drug Abuse
- Independent samples are drawn for each grade; samples are taken within the contiguous United States
- Data from 1991-1998 were used for various studies
- Multiple measures of youth tobacco use, including:
 - Indicator of past month smoking participation
 - Indicator of past month smokeless tobacco use
 - average daily cigarette consumption
 - frequency of past month smokeless tobacco use
 - categorical measures of intensity of smoking and smokeless tobacco use
 - index of smoking uptake

Tobacco Use Data

• **Longitudinal Monitoring the Future Surveys (8th, 10th & 12th grade students)**

- Panels formed from 1976 through 1993 high school senior surveys
- Follow-up surveys through 1995
 - select approximately 2,000 students from baseline surveys for biennial follow-up surveys
- Up to eight observations on some individuals, mostly ages 18-32 years
- Nearly 200,000 observations on about 50,000 persons

- Panels formed from 1991 through 1993 8th and 10th grade surveys
- Follow-up surveys through late 1990s (same process as for 12th graders)
- About 25,000 observations on nearly 10,000 persons

Tobacco Use Data

- 1993, 1997 and 1999 Harvard College Alcohol Surveys
 - 16,000+ students in each survey
 - 140 4-year colleges and universities (fewer in later years)
 - Measures of cigarette smoking:
 - Indicator of 30 day smoking participation
 - Categorical measure of intensity of cigarette smoking
 - Average daily cigarette consumption
 - Basic characteristics of each school
 - Information on campus tobacco-related policies:
 - Advertising restrictions, presence of smoke-free dorms, restrictions on smoking on campus and their enforcement, availability of tobacco products on campus

Tobacco Use Data

- 1996 Robert Wood Johnson Foundation/Audits&Surveys
Worldwide Youth and Young Adult Tobacco Use Surveys

- Five separate surveys:

- In-school high school student survey

- Approximately 17,000 students in 201 schools; nationally representative

- On campus college student survey

- Approximately 2,000 students at 50 universities; convenience sample

- In-home survey of 14-25 year olds not in school

- Approximately 2,400 persons in about 200 locations

- School administrator survey

- Detailed data on school policies and prevention curricula/programs

- In-store environmental survey

- Measures of cigarette prices and promotions, advertising, tobacco-related signage, product placement, and more

Tobacco Use Data

- 1996 RWJF/A&SW Youth and Young Adult Tobacco Use Surveys (continued)

- Very comprehensive, detailed information on tobacco use; multiple measures examined:

- 30 day smoking participation
 - Number of days smoked
 - Average cigarettes consumed per smoking day
 - Past month cigarette consumption
 - Smoking uptake
 - Smoking cessation
 - Sources of tobacco products
 - Purchase experiences
 - Much more

Tobacco Use Data

- Youth Risk Behavior Surveillance System (YRBSS):
 - State-specific data on public high school students (approximate ages 14-18 years old).
 - Nationally representative surveys of high school students
- National Youth Tobacco Surveys (NYTS)
 - Nationally representative surveys of middle school and high school students
- National Household Surveys on Drug Abuse
 - Nationally and state representative surveys, 12-17, 18-24 and 25 and older populations
- State tax-paid cigarette sales

Tobacco Policy Data

- Tobacco Control Expenditure Data: *Compiled by CDC, NCI and the Research Triangle Institute*):
 - A composite measure of state-specific expenditures from various sources (e.g., ASSIST, IMPACT, Smokeless States, excise taxes, state funds).
- Price Data: *The Tax Burden On Tobacco*
 - State-specific price estimates as of November 1st of each year:
 - Average price is constructed by weighting present year and past year prices, and then adding the average to the average of federal and state excise taxes for the current year.
 - Average cigarette tax (weighted average for relevant period)
 - Smokeless tobacco tax

Tobacco Policy Data

- Price Data:

- American Chamber of Commerce Researchers' Association*

- Quarterly, city-specific prices for a carton of king-sized Winston cigarettes for approximately 350 cities each quarter

- *Observational Data:*

- Prices per pack for leading cigarette brands
 - Price related promotions (cents-off specials, multi-pack discounts, gifts with purchase, in-store coupons, etc.)

- *Scanner Data:*

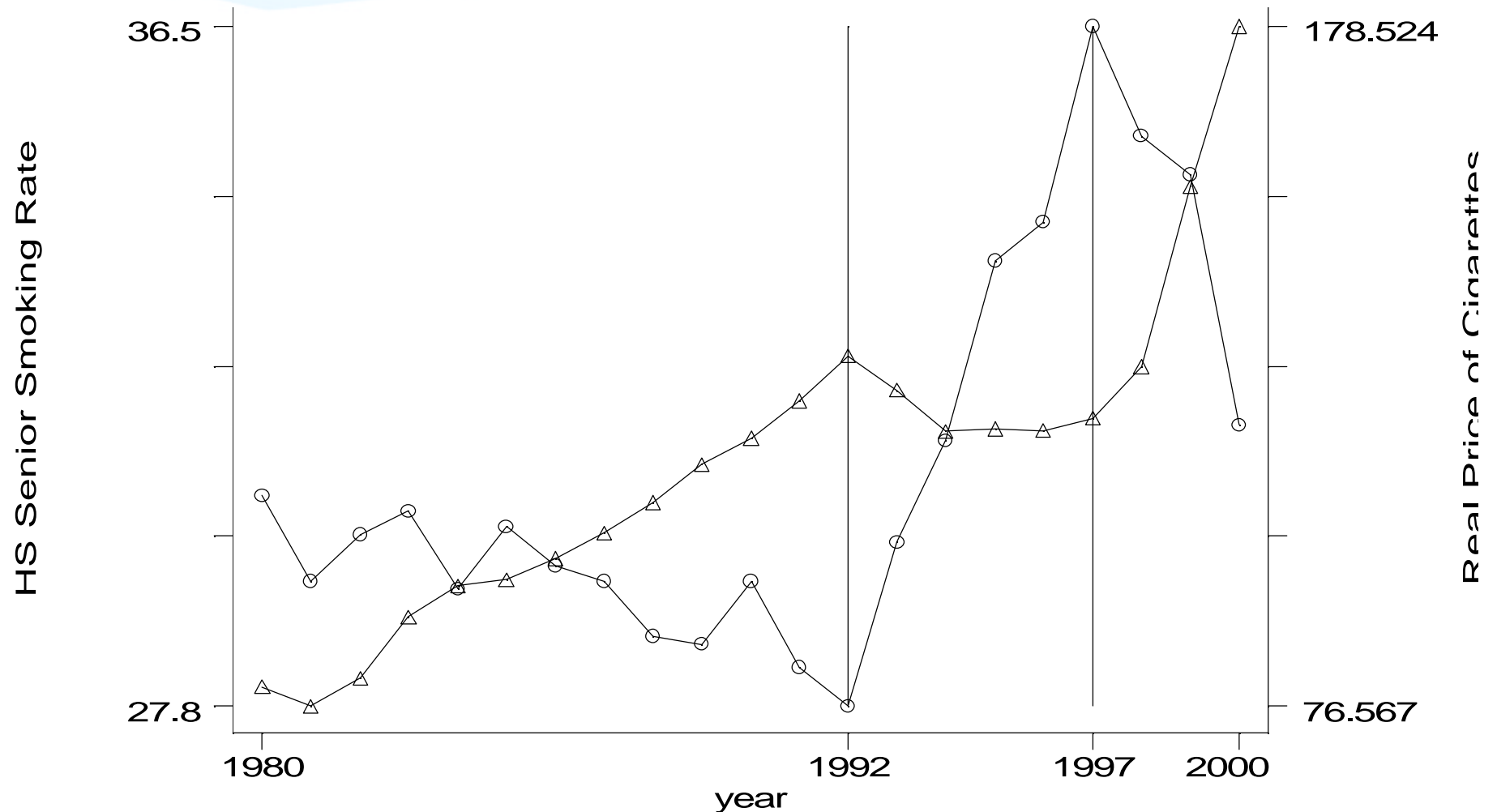
- UPC level data on prices for all cigarettes in 50 markets
 - Similar data for NRT products

- *Self-reported Data:*

- Now collected in several surveys, including RWJF/A&S, NYTS, and NHSDA

- Nearby prices to account for cross-border shopping

Tobacco Policy Data



Youth Smoking vs. Cigarette Prices Over Time

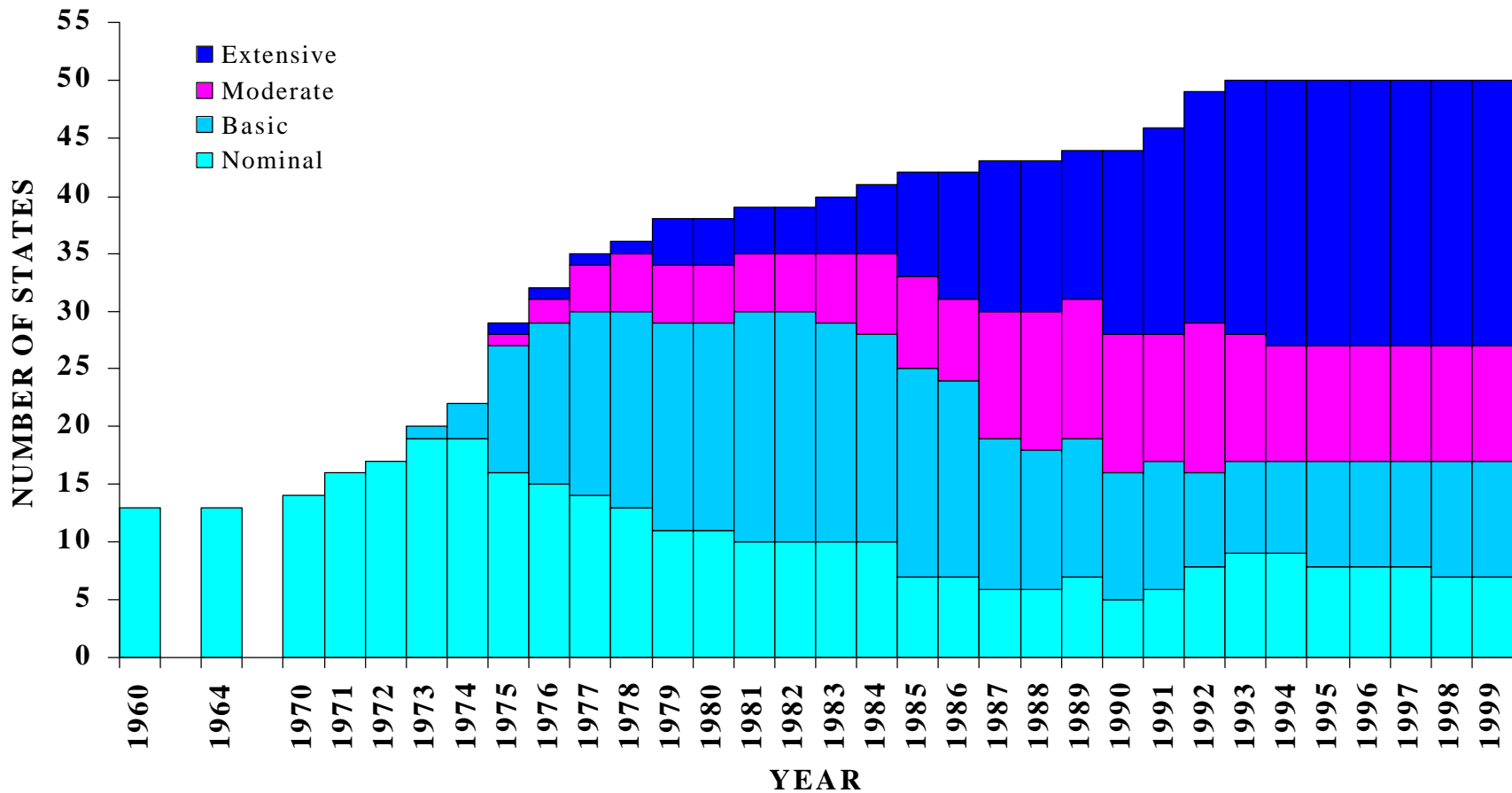
Tobacco Policy Data

- **Clean Indoor Air Laws**

- indicators of restrictions on cigarette smoking in private worksites, restaurants, government buildings, retail stores, and many other public places
- index reflecting comprehensiveness of individual restrictions
- indicators of home smoking policies
- measures of enforcement of and compliance with smoking restrictions
- Sources:
 - CDC's State Tobacco Activities Tracking and Evaluation system and unpublished data
 - American Lung Association's State Legislated Actions on Tobacco Issues
 - Americans for Nonsmokers' Rights Foundation local tobacco ordinance database
 - On-site data collection
 - State law books
 - Key informant surveys

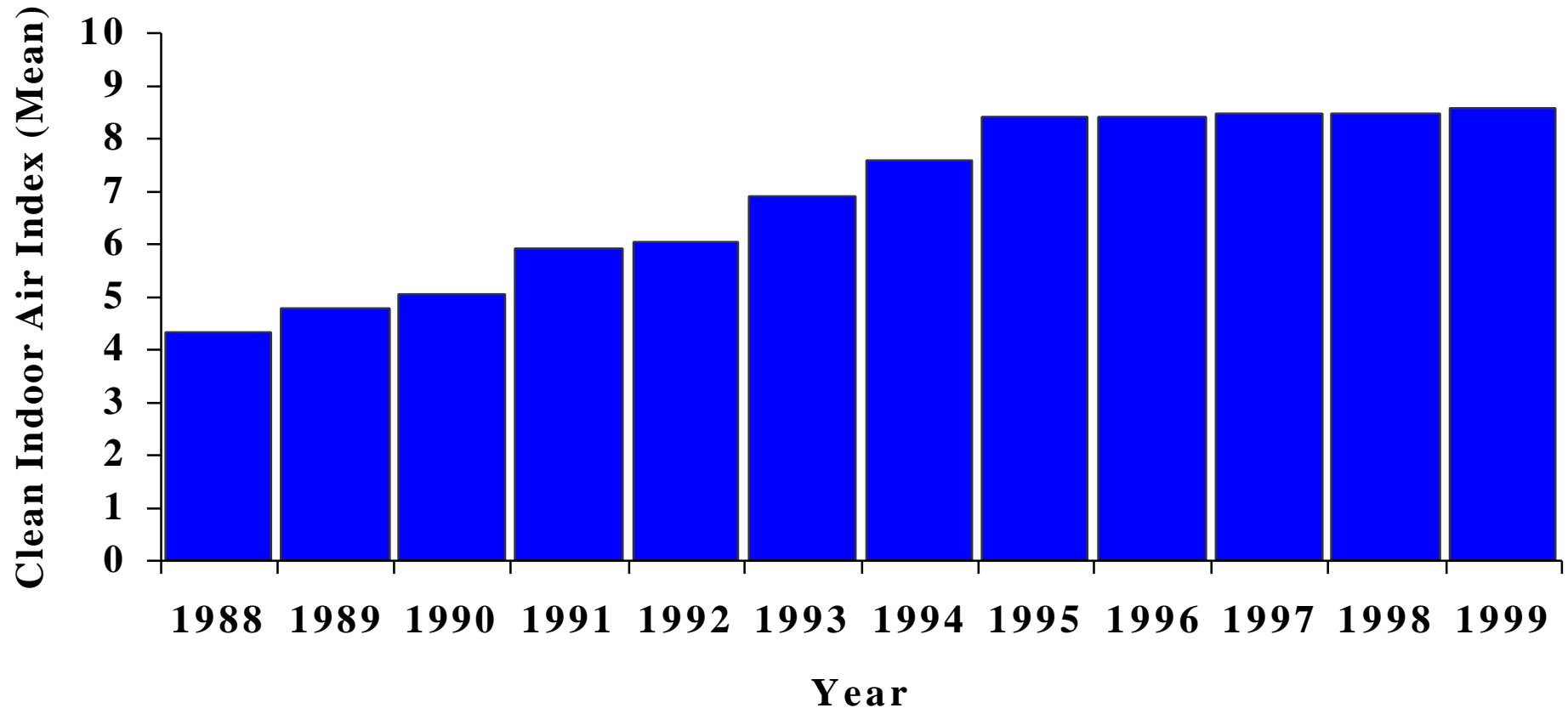
Tobacco Policy Data

Restrictiveness Of State Laws Regulating Smoking In Public Places – U.S., 1960-1999



Tobacco Policy Data

Mean Comprehensiveness of State Laws Regulating Smoking In Public Places – U.S., 1960-1999



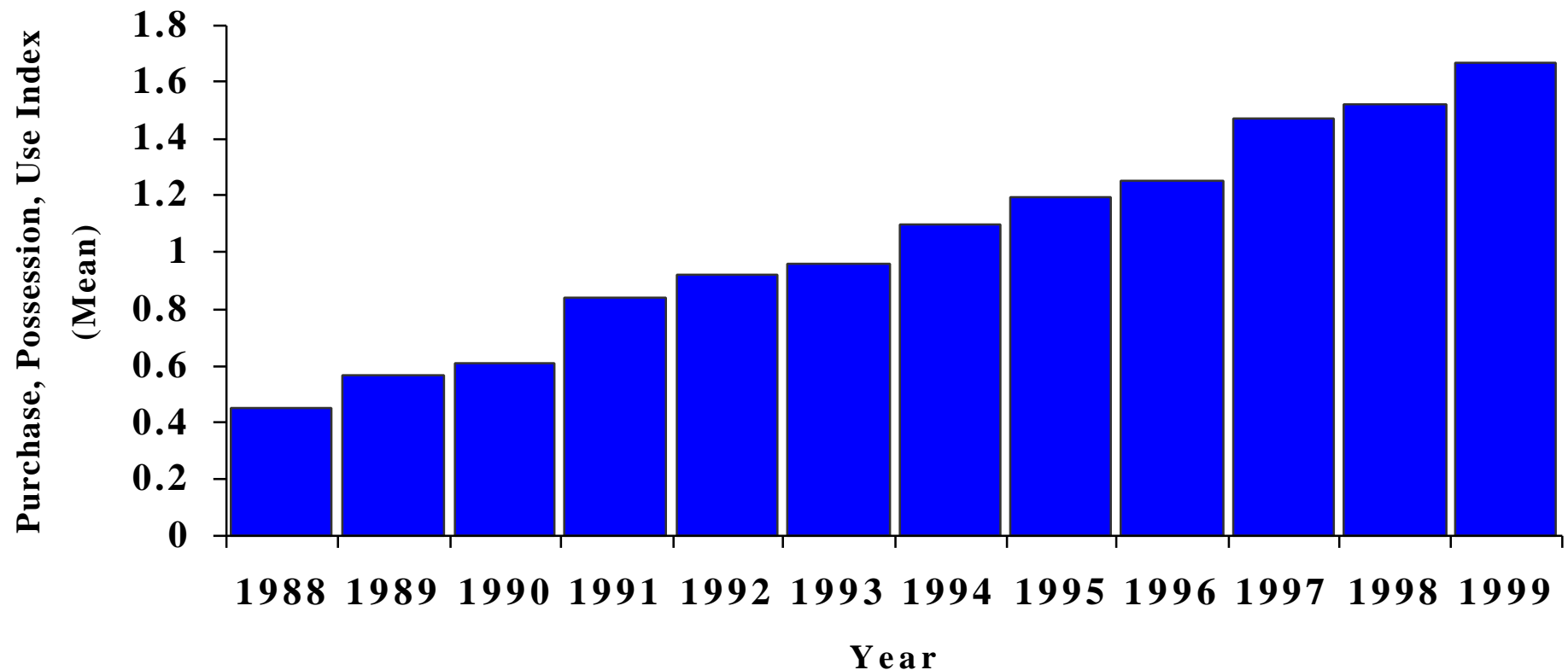
Tobacco Policy Data

- **Youth Access to Tobacco Products**

- indicators of restrictions on youth access to tobacco products, including minimum legal purchase age for cigarettes and other tobacco products, signage requirements, limits on vending machines, and others
- indicators of prohibitions on youth purchase, possession, and use of tobacco
- measures of enforcement of and compliance with youth access provisions
- Sources:
 - CDC's STATE system and unpublished data
 - ALA State Legislated Actions on Tobacco Issues
 - ANRF local tobacco ordinance database
 - SAMHSA Synar reports
 - FDA data
 - On-site data collection
 - Key informant surveys
 - Jonathan Gruber

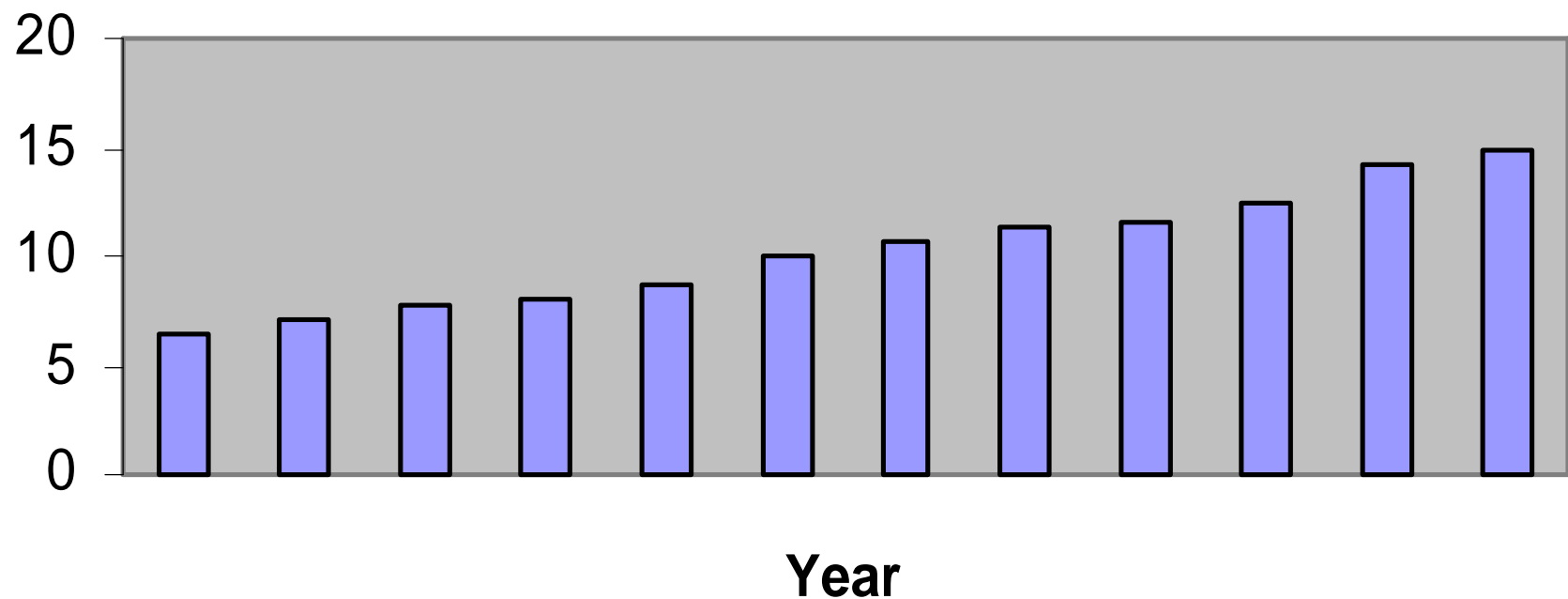
Tobacco Policy Data

**Mean Number of Purchase, Possession, and Use Laws per State* --
United States, 1988-1999**



Tobacco Policy Data

Youth Access Index, 1987-1998



Other Key Variables

- Age, sex, race/ethnicity, father's education, mother's education, respondent's earned income, respondent's income from other sources, labor force status, mother's work status, religiosity, and much more
- School-level information on school characteristics, policies, prevention curricula, and related-activities
- Demographic/SES and other state/community information

Statistical Analyses

- Probit and logit models for dichotomous outcomes
- Ordered probit/logit models for categorical frequency and intensity of use measures
- Poisson and negative binomial models for count data
- Least squares models for continuous data
- Threshold of change models for uptake analyses
- Discrete time hazard models for smoking cessation and smoking initiation
- Fixed effects models to control for state-specific unobservables
- Multiple model specifications/multiple subsamples
- Standard errors adjusted for clustering

Results - Price

- Consistent evidence that higher cigarette prices reduce cigarette smoking and other tobacco use
 - short-run price elasticity estimates for overall cigarette smoking cluster in the range from -0.25 to -0.40
 - About half of impact is on prevalence
 - Long-run estimates about double the short-run estimates
 - Price elasticity greater in the younger age groups:
 - Youth about 3 times more sensitive to price
 - prevalence elasticity estimates cluster in -0.50 to -0.70 range
 - Young adults about twice as sensitive to price
 - Prevalence estimates cluster in -0.3 to -0.6 range
 - Similar estimates for impact of price on smokeless tobacco use

Results - Price

- Evaluation of the Impact of the March 1, 2000 55-cent Increase in the New York State Cigarette Excise Tax:

- Initial efforts focus on schools participating in both 1999 and 2000 MTF surveys at 8th and 10th grade levels

- Preliminary Findings:

- Cigarette price increases:

- NY: Marlboro- \$1.00 (30.7%); Newport - \$1.00 (31.0%)

- US: Marlboro - 33 cents (11.5%); Newport 31 cents (10.2%)

- Smoking Prevalence (NY matched schools, after 4/1; US all schools after 4/1):

- 8th Grade - NY: -17.8%; US: - 11.2%

- 10th Grade - NY: -18.9%; US: -1.0%

Results - Price

- Strong evidence that higher cigarette prices increase the probability of smoking cessation among young adults
 - elasticity of smoking cessation estimates in range from 0.27 to 0.47
- Strong evidence that higher prices reduce the probability of smoking initiation among youth
 - elasticity of youth smoking initiation estimates range from –0.30 (any smoking) to –1.00 (heavy daily smoking)
- Strong evidence that higher prices significantly reduce youth smoking uptake
 - larger impact of price on transitions into more regular smoking
- Strong evidence that higher prices significantly reduce the frequency and intensity of youth and young adult smoking
 - impact of price increases as intensity of consumption increases

Results - Price

- Estimates indicate that young males and young African-Americans are more sensitive to price than young women and young whites
- No evidence that higher cigarette prices lead youth/young adults to substitute to other substances
 - if anything, cigarettes appear to be complements to other substances, including marijuana and alcohol
- Evidence from econometric analyses consistent with qualitative evidence from focus groups of young smokers conducted by the CDC's Network of Prevention Research Centers
- Evidence from econometric analyses consistent with self-reported anticipated responses to alternative cigarette price increases from the A&S surveys

Results – Smoking Restrictions

- Generally consistent evidence that restrictions on smoking in workplaces and public places significantly reduce youth, young adult, and adult cigarette smoking
 - More comprehensive restrictions lead to largest reductions
 - Reduce both prevalence and consumption among smokers
- Strong evidence that comprehensive restrictions on smoking in private worksites increase the probability of smoking cessation among young adults
- Strong evidence that restrictions on smoking at home significantly reduce the probability of youth smoking, smoking uptake, and youth cigarette consumption

Results – Youth Access Restrictions

- Generally little evidence that restrictions on youth access to tobacco products reduce youth smoking
 - likely due to the generally poor enforcement of these laws
- Relatively strong evidence that increased retailer compliance with limits on youth access (resulting from stronger enforcement) leads to significant reductions in youth smoking prevalence and consumption
 - little impact on youth experimentation
 - impact increases as youth progress to more regular smoking
- Some weak evidence that combination of policies prohibiting youth purchase, possession and use of tobacco products lead to significant reductions in youth smoking
 - effect appears largest on lowest risk youth

Results – Other Tobacco Related Policies

- Strong evidence that expenditures on comprehensive tobacco control programs and tobacco control coalitions lead to significant reductions in overall cigarette smoking, youth cigarette smoking
 - impact of mass-media counteradvertising campaigns most significant
- Consistent evidence that state preemption of stronger local tobacco control policies increases youth smoking prevalence and consumption
- Some evidence that smoker protection laws create favorable environment for tobacco use and lead to increased cigarette consumption

Results – Tobacco Marketing Practices

- Evidence that MSA ban on billboard advertising by cigarette companies increased advertising and promotional activities at the point of purchase
 - multipack discounts, gifts with purchase, cents off coupons more likely after billboard ban
 - exterior and interior store advertising more pervasive after billboard ban
 - functional objects more frequent after billboard ban
 - consistent with recent studies of impact of other advertising bans

Results – Tobacco Marketing Practices

- Find that tobacco company marketing efforts vary with respect to key community characteristics
 - Marlboro prices significantly lower in neighborhoods with greater youth and young adult populations
 - cigarettes more likely to be available for self service in neighborhoods with larger youth population
 - more interior and exterior cigarette advertising in low-income neighborhoods
- Evidence that pro-tobacco marketing efforts at the retail level are stronger in states with comprehensive tobacco control programs
 - greater likelihood of gift-with-purchase and other promotions
 - more extensive cigarette advertising on storefronts and in stores

Next Steps

- Continue to refine and improve analyses of the impact of school, community, state, and federal policies, regulations, and environmental factors on youth and young adult smoking
- Examine the impact of televised counteradvertising and other tobacco-related messages on youth knowledge, attitudes and beliefs about smoking and on their smoking behavior
- Examine the effects of newspaper coverage of tobacco issues on youth smoking related outcomes
- Continue to study tobacco company marketing strategies and their impact on youth smoking related outcomes
- and much more.....