The Economics of Substance Use and Abuse

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Overview

- Overview of substance use patterns in the United States

- Description of the health, social, and economic consequences of tobacco, alcohol and illicit drug use

- Brief review of the findings from our research on the impact of prices and policies on use, abuse, and consequences
Tobacco Use in the US

• Adult smoking prevalence: 22.8%
• Youth smoking prevalence: 28.5%
• Over 40% of adult smokers have tried to quit in past year; more than 70% say they want to quit
• Smoking in US declining over past two decades, becoming more concentrated in lowest income, least educated segments of population
• Youth smoking rose for much of 1990s; has fallen in recent years
• Tobacco use rising in many developing countries
Alcohol Use in the US

• Adult drinking prevalence: 64%
  • Binge drinking prevalence: 16%

• Youth drinking prevalence (seniors): 73%
  • Report being drunk: 53.2%

• College student drinking prevalence: 81%
  • Binge drinking prevalence: 44%
  • Frequent binging: 23%

• Half of all alcohol consumed by ten percent of those who drink most frequently/heaviest

• Modest downward trend in drinking among adults

• Drinking among youth/college students not changing much in recent years
Illicit Drug Use in the US

• Adult (26+) prevalence:
  • marijuana: 5.6% (37%)
  • Any other drug: 4.4% (24.9%)
  • Non-medical pharmaceutical use: 3.3%

• Youth drinking prevalence (12-17):
  • Marijuana: 15.2% (19.7%)
  • Any other drug: 12.0% (18.7%)
  • Non-medical pharmaceutical use: 7.9%

• Young adult prevalence (18-25):
  • Marijuana: 26.7% (50.0%)
  • Any other drug: 18.4% (35.4%)
  • Non-medical pharmaceutical use: 9.6%

• Mixed trends in use of various drugs in various population subgroups
Consequences of Use: Tobacco

- Leading cause of preventable death in the United States
  - over 440,000 deaths caused by tobacco each year in the US
  - estimates suggest nearly 5 million premature deaths from tobacco each year globally

- Exposure to second-hand tobacco smoke results in over 3,000 annual lung cancer deaths and over 50,000 deaths from cardiovascular diseases

- Significant health consequences for children exposed to tobacco smoke
Consequences of Use: Alcohol

- Major cause of preventable death in the United States
  - over 100,000 deaths caused by alcohol each year in the US
  - almost 60% from diseases caused by or related to alcohol use
  - over 40% from accidents, violence and other outcomes resulting from alcohol use

- Consequences of alcohol use and abuse particularly important among youth/young adults
  - traffic crashes leading cause of death among youth/young adults
  - other accidents and violence
Consequences of Use: Illicit Drugs

• Major cause of preventable death in the United States
  - Over 16,000 deaths directly result from illicit drug use (e.g. overdose deaths)
  - Many more related to drug use such as deaths from AIDS, hepatitis, homicide, injury
  - Often result from combination of use of two or more drugs, including alcohol

• Direct deaths from illicit drug use more than doubled over past two decades
Consequences of Use:

- Host of social problems related to alcohol and drug use
  - violence (homicides, rape, assault)
  - property crime
  - traffic crashes
  - suicides
  - poor educational outcomes
  - lost productivity
  - workplace accidents
  - family instability
  - sexually transmitted diseases

and much more.....
Economic Impact:

• Tobacco:
  • Estimated economic cost: $150b/year
    - $75.5b in medical care costs
    - $81.9b in lost productivity
    - $7.18 per pack of cigarettes sold

• Alcohol:
  • Estimated economic cost: $166.5 billion/year
    - substantial costs imposed on non-drinkers from traffic crashes, violence, and other consequences

• Illicit Drugs:
  • Estimated economic cost: $109.9b/yr
    - substantial external costs
Rationale for Intervention:

• Public health, economic, and social impact

• Market Failures:
  • Imperfect Information
    - poor understanding of the health and other consequences of substance use
    - Compounded by fact that most substance begins during adolescence
    - Further complicated by role of addiction and overestimates of ability to quit

• Externalities:
  - health and other consequences
  - financial externalities
Research Focus

• Impact of the “full price” of alcohol, tobacco and illicit drugs on their use, abuse, and related consequences
  - misperception that addictive behaviors are unresponsive to economic incentives
  - “Full price” includes:
    • monetary price (tax, supply reduction)
    • time costs (availability)
    • expected legal sanctions
    • expected health consequences
  - Try to control for other influences
  - Much of research focused on youth and young adults
Young People More Responsive To Price Increases

• Proportion of disposable income youth spends on given substance likely to exceed that for adults

• Peer influences much more important for youth than for adults

• Youth likely to be less addicted than adults

• Young people tend to discount the future more heavily than adults

Sources: Grossman and Chaloupka, 1997
Tobacco Taxes and Tobacco Use

• Higher taxes induce quitting, prevent relapse, reduce consumption and prevent starting.

• Estimates from high-income countries indicate that 10% rise in price reduces overall cigarette consumption by about 4% - long run impact about double

• About half of impact of price increases is on smoking prevalence; remainder is on average cigarette consumption among smokers

• Lowest income populations most responsive to price changes

Source: Chaloupka et al., 2000
Cigarette Prices And Kids

• A 10% increase in price reduces smoking prevalence among youth by nearly 7%

• A 10% increase in price reduces conditional demand among youth by over 6%

  • Higher cigarette prices significantly reduce teens’ probability of becoming daily, addicted smokers; prevent moving to later stages of uptake.

• 10% price increase reduces probability of any initiation by about 3%, but reduces probability of daily smoking by nearly 9% and reduces probability of heavy daily smoking by over 10%

Sources: Chaloupka and Grossman, 1996; Tauras, et al., 2001; Ross, et al., 2001
Cigarette Smoking Among Youth by the Average Price of a Pack of Cigarettes in 50 States and the District of Columbia, 1999

Data: 1999 NHSDA (12-17 year olds); 1999 Tax Burden On Tobacco
Source: Giovino, et al., 2001
12th Grade 30 Day Smoking Prevalence and Price

Year

Cigarette Price

30 Day Smoking Prevalence
Research – Smoking Restrictions

- Stronger and more comprehensive restrictions on smoking reduce smoking prevalence, increase smoking cessation, and reduce cigarette use among continuing smokers
  - Workplace restrictions particularly important in promoting cessation among adults
  - Consistent evidence that restrictions on smoking in public places also reduce smoking among youth and young adults
  - Strong evidence that restrictions on smoking at home significantly reduce the probability of youth smoking, smoking uptake, and youth cigarette consumption

Sources: Evans et al., 2000; Wakefield et al. 2000; Woollery et al. 2000
Cigarette Smoking Among Youth by the Clean Indoor Air Legislation Rating in 50 States and the District of Columbia, 1999

Source: Giovino, et al., 2001
Research – Youth Access and PPU

• Generally little evidence that restrictions on youth access to tobacco products reduce youth smoking
  • likely due to the generally poor enforcement of and compliance with these laws

• Growing evidence that increased retailer compliance with limits on youth access leads to significant reductions in youth smoking prevalence and consumption
  • little impact on youth experimentation
  • impact increases as youth progress to more regular smoking

• Little evidence that policies prohibiting youth purchase, possession and/or use of tobacco products have any impact on youth smoking
  • only effect appears to be among lowest risk youth

Cigarette Smoking Among Youth by the Historical PPU Legislation Rating in 50 States and the District of Columbia, 1999

Source: Giovino, et al., 2001
Research Findings – Comprehensive Programs and Youth Smoking

• Higher spending on tobacco control efforts significantly reduces youth smoking prevalence and cigarette consumption among young smokers
  Elasticity estimate for youth smoking prevalence: -0.011; estimate for conditional demand: –0.012 (MTF data)

• Estimated impact of spending at CDC recommended levels: minimum: 7.7% reduction in youth smoking prevalence; maximum: 22.2% reduction

• Similar, but smaller, impact of comprehensive programs on smoking among adults

Sources: Farrelly, et al. 2001; Chaloupka et al. 2001
Change in Per Capita Cigarette Consumption Before and After an Excise Tax Increase and an Antismoking Campaign California & Massachusetts versus Other 48 States, 1986 to 1996

Source: CDC
Alcohol Prices and Drinking

- Estimates of overall price elasticity of alcohol demand based on aggregate data (Leung and Phelps, 1993):
  - Beer: -0.3
  - Wine: -1.0
  - Distilled Spirits: -1.5

- Higher prices reduce drinking prevalence, frequency of consumption, and number of drinks per drinking occasion.

- Estimates from models that account for addictive nature of alcohol consumption suggest that long run impact of price even larger.

- Estimates for youth generally find them more responsive to price than adults.
Alcohol Prices And Consequences of Drinking

- Higher alcoholic beverage prices found to reduce:
  - drinking and driving
  - fatal and non-fatal motor vehicle accidents
  - non-fatal workplace accidents
  - other accidental death rates
  - liver cirrhosis mortality rates
  - other alcohol-related health consequences
  - homicide rates
  - child and spouse abuse
  - rape, assault, and other violence
  - variety of delinquent behaviors among youth
  - suicide rates, attempts, and ideation
  - unprotected sex, date rape, and sexually transmitted disease rates
  - Find also that higher alcoholic beverage prices result in improved educational outcomes, human capital accumulation, and labor market outcomes
Impact of Other Alcohol-Related Policies

- Policies that reduce availability and/or raise expected legal consequences also effective in reducing the consequences of alcohol use and abuse
  - minimum legal drinking ages
  - policies affecting outlet density
  - drinking and driving related policies
  - limits on happy hours/sale of beer by the pitcher
  - campus restrictions on alcohol
  - many others...
Prices, Policies and Illicit Drug Use

- Similar research on marijuana, cocaine, and/or heroin use among youth, young adults and adults
- Consistently find that higher prices reduce prevalence, frequency, and intensity of use
  - Generally find evidence that use of various substances is complementary for adults; mixed findings for youth
    - Find little impact of stronger legal penalties for possession or sale
      - Find that greater spending on prevention/education/treatment activities is effective in reducing use
Summary

Substance use is widespread, particularly among youth and young adults.

Substance use results in a variety of health, social and economic consequences.

Increases in the full prices of tobacco, alcohol, and illicit drugs are effective in reducing use, abuse, and the consequences that result.