

Public Policies and Private Anti-Health Behavior

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Health economists have long recognized the distinction between health as an output and medical care as one of a number of inputs, including those detrimental to health, into the production of health. This distinction is reflected by the two programs for health research at the National Bureau of Economic Research (NBER): the program in Health Economics and the program in Health Care Economics. This paper reviews recently completed and current research by my colleagues and me in the NBER's Health Economics program directed by Michael Grossman. This work focuses on the effects of public policies on three unhealthy behaviors: cigarette smoking, drinking and alcohol abuse, and illicit drug use. Given the well-documented health and other consequences of the use of these substances, policies lowering use, particularly by youths, are likely to lead to substantial long-run improvements in health.

I. Empirical Analyses of Tobacco Use

Since the release of the first U.S. Surgeon General's report in 1964, federal, state, and local governments have used a variety of policies in the antismoking campaign. Initially, the focus was on the dissemination of information on the health consequences of smoking through the Surgeon General's and other reports, warning labels on cigarette packaging and advertising, the broadcast of antismoking ads under the Fairness Doctrine, and the eventual ban on television

and radio advertising. Starting in the mid-1970's and accelerating through the 1980's, the emphasis shifted to protecting non-smokers from the harmful effects of environmental tobacco smoke. This is reflected by the hundreds of state and local laws restricting cigarette smoking in a variety of public places and, in some cases, private work sites, as well as the comprehensive ban on smoking in all public and private work sites currently under consideration in Congress. Most recently, the emphasis has turned toward reducing youth access to tobacco. State and local laws establishing minimum purchase ages, limiting vending-machine sales, and others were enacted in the past few years. These efforts gained momentum with the federal government's recent Synar amendment requiring states to set and enforce a minimum purchase age of 18 years or lose part of their block grant funding.

Except for a flurry of state activity in the mid- to late-1960's, increased excise taxes on cigarettes were all but ignored in the antismoking campaign. This changed with California's Proposition 99 in 1988, which raised the state tax 250 percent and earmarked revenues for antismoking activities. Similar measures were passed by voters in Massachusetts in 1992 and Arizona in 1994 and are under consideration elsewhere. Modest, infrequent federal tax hikes have been aimed more at reducing large budget deficits than cutting smoking. The net result of this inactivity was a steep decline in real cigarette prices throughout the 1970's. This decline was reversed by the federal tax hikes in the 1982 and 1990 deficit-reduction packages, and subsequent state increases.

Using micro data on cigarette smoking from the late 1970's, I applied the model of rational addictive behavior developed by Gary S. Becker and Kevin Murphy (1988) to the demand for cigarettes (Chaloupka,

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1991). Unlike non-addictive models, intertemporal linkages in the demand for addictive goods are explicitly recognized by making current consumption decisions dependent on past choices. Addicts are treated as rational in the sense that they take account of the future consequences of their current decisions when making current consumption choices, in contrast to myopic models which assume that addicts ignore the future implications of their addictions.

My estimates support the hypothesis that cigarette smoking is an addictive behavior, since past cigarette consumption has a strong positive impact on current consumption. Further, these estimates support the hypothesis of rational rather than myopic behavior. Long-run price elasticities are about double short-run elasticities (which hold past consumption constant), as the model predicts for a relatively addictive good. Moreover, the long-run price elasticity (ranging from -0.27 to -0.38) is well above estimates from comparable models which ignore the addictive aspects of consumption. Finally, relatively strong restrictions on smoking in public places also significantly reduce consumption.

Henry Saffer and I (Chaloupka and Saffer, 1992a) use state data from 1975 through 1984 to examine the effects of smoking restrictions on cigarette demand. We find that the most restrictive laws, those limiting smoking in private work sites, had been enacted in places where antismoking sentiment was high, and consequently, demand was low to begin with. After controlling for this endogeneity, we find that relatively strong restrictions on public smoking significantly reduce demand, while more stringent restrictions had no additional impact.

More recently, Henry Wechsler and I (Chaloupka and Wechsler, 1994) looked at the impact of prices and all major tobacco control policies on cigarette smoking among college students. We find that both the decision to smoke and cigarette consumption by smokers are very sensitive to price. Our estimated price elasticity of demand by college students is -1.42 , over three times the consensus estimate for adults. This suggests that tax increases, by significantly reducing

smoking in younger populations, would lead to substantial long-run improvements in health. We also find that relatively strong restrictions on public smoking significantly reduce smoking participation rates, while any other restrictions reduce average consumption among smokers.

II. Empirical Analyses of Alcohol Use and Abuse

Unlike the antismoking campaign, the antidrinking campaign begun in the mid-1970's emphasizes responsibility rather than abstinence. Much of this campaign focuses on drinking by youths and young adults given their disproportionate involvement in alcohol-related accidents. The major policy in the campaign against youth alcohol abuse has been the federal Uniform Drinking Age Act of 1984 which forced states to raise their drinking ages to 21 years or lose part of their federal highway funding. Other measures in the campaign were directed at all segments of the population. One example is the Alcohol Traffic Safety Act of 1983 which provided incentives for states to enact and enforce more stringent drunk-driving laws. Over 500 state and local laws were enacted during the 1980's as a result of this act. A second example is Public Law 100-690 mandating that labels warning of the dangers of drinking and driving and drinking while pregnant appear on all alcoholic-beverage containers beginning in November, 1989.

Increased taxation, by raising price, could also significantly reduce alcohol abuse. However, this policy has been all but ignored in the antidrinking campaign. Federal taxes on beer and wine were constant in nominal terms from 1951 until 1991, when they were increased as part of a deficit-reduction package which also raised the tax on distilled spirits for only the second time since 1951. Likewise, state and local governments have raised alcohol taxes modestly and infrequently, usually with the intent of raising revenues rather than discouraging alcohol abuse. Due largely to the stability of these taxes, the real prices of alcoholic beverages declined significantly over time.

Moreover, the recent federal beer and spirits tax hikes were well below the increases needed to return them to their 1951 levels in real terms.

Adit Laixuthai and I (1993) studied youth alcohol consumption using data on high-school seniors for the years 1982 and 1989 from the Monitoring the Future project. We find that increases in beer prices lead to substantial reductions in the frequency of youth alcohol consumption and in heavy drinking among youths. Moreover, our policy simulations indicate that a policy which indexes the federal beer tax to the rate of inflation since 1951 leads to greater reductions in youth drinking and in heavy drinking than one that raises drinking ages from a uniform 18 years to a uniform 21 years. In subsequent research, we find that alcohol and marijuana are substitutes among high-school seniors (Chaloupka and Laixuthai, 1994). Reductions in the money price of marijuana or decriminalization of marijuana lower youth drinking.

Henry Saffer, Michael Grossman, and I (Chaloupka et al., 1993) completed the first comprehensive examination of the impact of alcohol control policies on drinking and driving. Using state motor-vehicle accident fatality rates for 1982 through 1988, we consider the effects of beer taxes, drinking ages, and all major policies to deter drunken driving. We find that a policy indexing beer taxes to the inflation rate since 1951 would have saved approximately 5,000 lives per year during the period covered by our sample, with about 1,700 of those saved between the ages of 18 and 20 years. On the other hand, going from a uniform drinking age of 18 years to one of 21 years would have saved fewer than 700 lives annually, mostly in the 18–20 age group. Finally, we find that swift and severe penalties for drunken driving, such as a one-year administrative license suspension, effectively deter drinking and driving.

Most recently, Grossman, Ismail Sirtalan, and I (Grossman et al., 1994) applied the rational-addiction model to the demand for alcoholic beverages by youths and young adults. Our sample comes from the panel data sets for 1976 through 1989 collected as

part of the Monitoring the Future project. Respondents are ages 19–27, the period during which alcohol abuse and dependence are highest. We find strong support for the hypothesis that drinking is an addictive behavior for young adults, particularly for the most frequent consumers. Moreover, we reject the hypothesis that young drinkers behave myopically. Estimated long-run price elasticities of alcohol demand and participation in frequent drinking exceed short-run elasticities, as predicted by the rational-addiction model, and are well above those obtained from models which ignore the addictive aspects of consumption.

Finally, Saffer and I (1994a) used a simulation model to estimate the optimal tax on alcoholic beverages and to consider equalization of alcohol taxes. Current alcohol control policies generally favor beer and wine over distilled spirits. Our simulations suggest that equalization of the taxes on the alcohol in beer, wine, and distilled spirits is appropriate. Moreover, we find that alcohol taxes could be more than doubled before the social costs of the higher taxes would exceed their benefits.

III. Empirical Studies of the Demand for Illicit Drugs

Unlike tobacco and alcohol, the use of marijuana, cocaine, heroin, and other illicit drugs has been prohibited for most of this century. Consequently, most policies related to these substances focus on efforts to reduce supply, while users are generally subjected to criminal penalties. The illegal nature of these markets makes them particularly difficult to study, given potential underreporting of use in survey data as well as the lack of quality data on money prices and other aspects of full price.

Saffer and I (1994b) estimate the effects of prices and drug control policies on participation in the use of marijuana, cocaine, and heroin using data from the 1991 National Household Survey on Drug Abuse. We augment the survey with site-specific cocaine and heroin prices taken from the data contained in the DEA's STRIDE database, as well as data on average jail

sentences imposed for all drug offenses. We find that decisions to use heroin and cocaine are inversely related to their prices, with estimated past year participation elasticities of -0.96 for cocaine and -0.74 for heroin. Also, we find that higher average jail sentences significantly reduce the use of each of the three substances.

IV. Empirical Studies of Polysubstance Abuse

Some consequences of substance use, including motor-vehicle accident fatalities and various crimes, result from the consumption of alcohol and/or various illicit substances. Thus, policies aimed at reducing the use of one substance may induce substitution of other, now relatively less expensive substances for the relatively more expensive one. In some cases, these policies may have unintended consequences if substitution toward inherently more dangerous substances occurs. Understanding these interactions is important in designing comprehensive substance control policies.

Laixuthai and I consider these possibilities in our study of youth fatal and nonfatal motor vehicle accidents (Chaloupka and Laixuthai, 1994). We look at the effects of alcohol and marijuana prices and related policies on self-reported involvement in nonfatal accidents for high-school seniors in 1982 and 1989, as well as youth motor-vehicle accident fatality rates for the period from 1975 through 1988. Our results indicate that the net effect of an increase in the full price of alcoholic beverages on the probability of a youth traffic crash is negative. However, the opposite is found for marijuana. This implies that the reduction in accidents resulting from substitution away from alcohol and other substances to marijuana, as its full price is lower, more than offsets the increase in accidents related to marijuana use.

Saffer and I (Chaloupka and Saffer, 1992b) examine the effects of alcohol and drug policies in reducing various crime rates, given the well documented roles of alcohol and illicit drugs in these crimes. We use a time series of state cross sections covering

the years from 1975 through 1990 to look at overall crime rates as well as various disaggregated crime rates. We find that increased beer taxes and/or reduced availability of alcoholic beverages significantly reduce almost all crimes, including murder, rape, robbery, and burglary. However, higher drinking ages have no impact on crime. We also find that decriminalization of marijuana results in lower homicide rates. This may be the result of substitution of marijuana for other more dangerous substances (including alcohol) in states where marijuana is decriminalized. However, we generally find that decriminalization leads to higher property-crime rates.

V. Conclusions

Our research reaches one clear conclusion: policies raising the full prices of licit and illicit substances significantly reduce the use and abuse of these substances. Many of our studies indicate that the impact of these policies is largest among younger users. The clear message from these studies is that it is a mistake to assume that substance use and abuse is insensitive to price.

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