

Alcohol tax rates have fallen by half over the past quarter-century.

Should Alcohol Taxes Be Raised?

BY IAN W.H. PARRY

Resources for the Future

Although excise taxes on beer, wine, and spirits raise about \$15 billion a year in revenue for federal and state governments, current alcohol tax rates in the United States are low by historical standards. In 1980, alcohol taxes represented about 22 percent of the pre-tax price of alcohol, whereas now, with the failure to raise nominal rates in line with inflation, they have fallen to about 10 percent of the pre-tax price (see Figure 1). Are current alcohol tax levels about right, or should they be increased?

HEALTH AND PRODUCTIVITY

Alcohol taxation is warranted to the extent that its consumption leads to broader societal costs — what economists call “negative externalities” — that are not taken into account by individual drinkers.

One possible externality is the burden of medical treatments, which are largely borne by third parties (the government and insurance companies), for liver cirrhosis and other alcohol-induced illnesses. Some studies suggest that the annual medical burden for alcohol-related illnesses easily justifies what federal and state governments collect in alcohol tax revenues. However, these estimates overstate the external cost because heavy drinkers tend to die younger, which lowers the burden of medical costs over their lifecycle. A 1989 study by Willard Manning et al., which compared lifecycle health outcomes for heavy and moderate drinkers, suggested a much smaller corrective tax — at most a few percent of pre-tax alcohol prices. Moreover, moderate alcohol consumption itself may have health benefits, implying a corresponding reduction in near-term health care costs, though this might be offset by higher longer-term medical costs as a result of prolonged longevity.

Alcohol abuse may also have broader societal costs if it results in reduced workplace productivity. For example, it seems plausible that heavy drinkers suffer from difficulty in

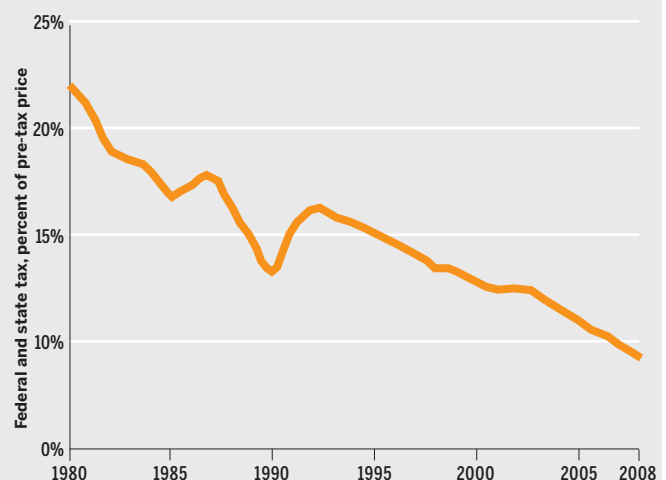
finding and retaining employment, concentrating on the job, and may acquire less human capital through education and training programs. Heavy drinkers themselves bear much of the cost of reduced productivity and employment, in terms of less take-home pay, and should take this into account. However, a substantial portion is also borne by the government through reduced income and payroll tax revenues.

Disentangling, statistically, the productivity effect of alcohol consumption has proved difficult, however. For example, for some people, higher wages (which are often used to proxy for productivity) may be positively associated with alcohol consumption, if they drink more when they have more money, while for heavy drinkers a negative association between productivity and alcohol could reflect poor work motivation rather than the impairing effects of drinking per se. In short, the jury is still out on whether or not productivity effects jus-

Figure 1

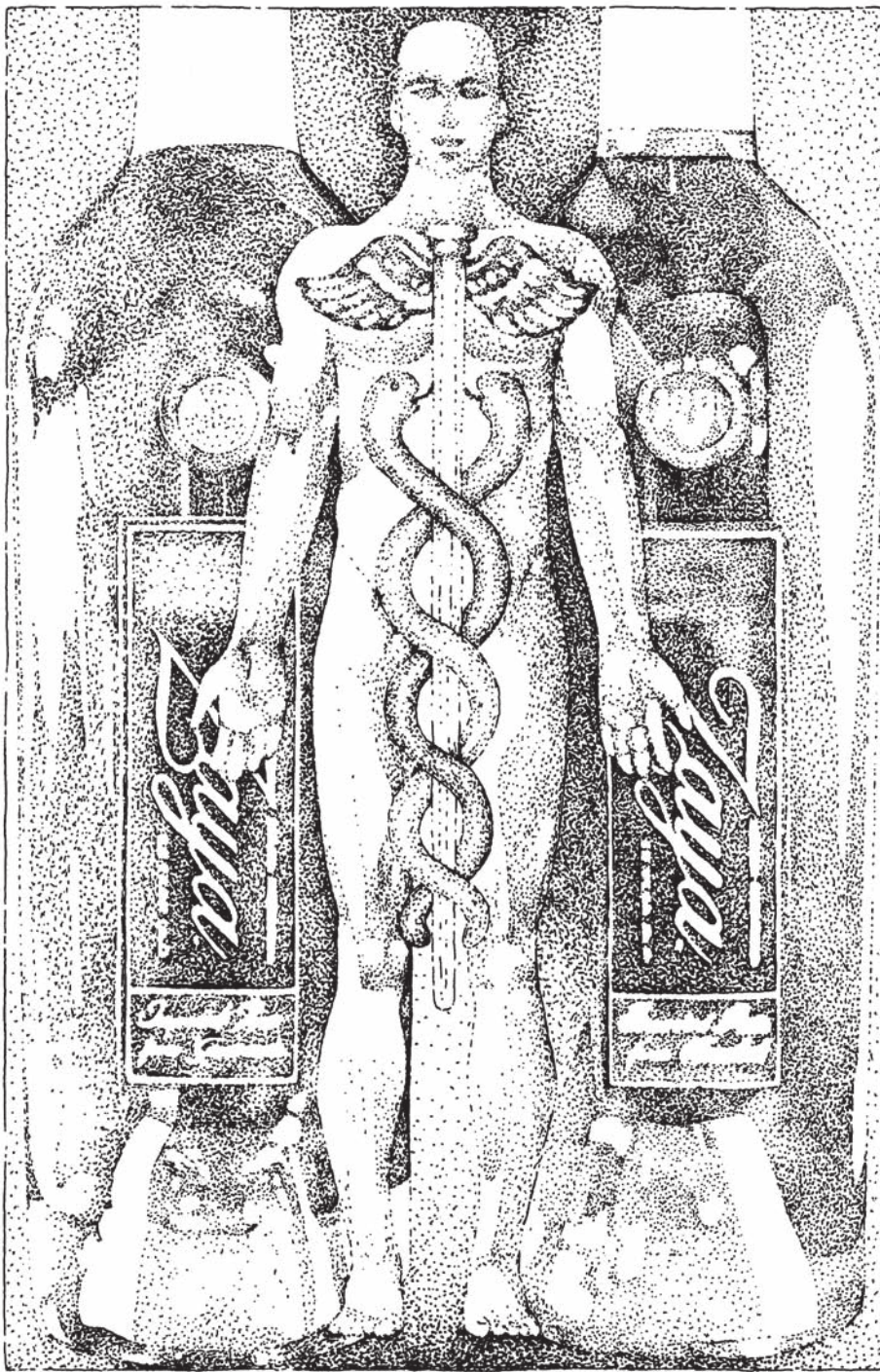
Alcohol Tax Rates

Averaged over beer, wine, and spirits, 1980–2008



SOURCE: U.S. Census Bureau, Bureau of Economic Analysis, and Alcohol and Tobacco Tax and Trade Bureau

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tify a significant alcohol tax. Based on the wide range of empirical estimates in the literature, the appropriate tax appears to range from almost zero to as much as 40 percent of pre-tax alcohol prices.

DRUNK DRIVING

Alcohol-related crashes account for around 40 percent of the roughly 40,000 or so people killed each year on U.S. highways, according to the National Highway Traffic Safety Administration (NHTSA). However, the bulk of fatalities occur in single-vehicle crashes where fatality risks should be taken into account by individuals when they decide whether or not to drink and drive. For example, a 2001 paper by Steven Levitt and Jack Porter estimates that only 17 percent of fatalities in drunk

driver accidents represent external risks. Nonetheless, if a statistical life is valued at \$6 million (which is approximately the value assumed by the U.S. Department of Transportation), the social costs of these deaths is substantial, about \$15 billion a year. Broader costs from accident risks that drunk drivers do not take into account include non-fatal injury risks to other vehicle occupants and pedestrians, third-party medical burdens for treating injuries, and property damages to automobiles (though a minor part of property risk may be taken into account if drivers anticipate elevated future insurance premiums should they cause a crash). Adding up all these external costs and dividing by spending on alcohol consumption, drunk driver risks appear to warrant an alcohol tax of roughly 30 percent of pre-tax prices.

However, a far more direct (and therefore more cost-effective) response to these risks would be to penalize drunk drivers themselves, rather than taxing all people who consume alcohol. In a recent paper that I coauthored with Ramanan Laxminarayan and Sarah West, we calculate that the average (14-mile) trip by a drunk driver should be taxed at about \$20 to account for the full range of external risks imposed by drunk drivers. Unfortunately, the bulk of intoxicated driving trips go undetected. In fact, only about one in 1,500 drunk driver trips result in a police-reported accident, and subsequent court conviction, for the driver. We can infer from NHTSA statistics that in 2000 there were an estimated 1.3 billion instances of drunk driving, but only 800,000 drunk driver convictions.

This low detection rate implies that, on average, the optimal fine for convicted drunk drivers (i.e., the fine that, when multiplied by the probability of actually paying it, results in an expected penalty of \$20 per trip) would be about \$30,000. (Ideally, the fine would vary according to accident severity, blood alcohol content, past driving offenses, etc.) However, this level of fine would be an enormous burden for most people; in fact, the average fine for convicted drunk drivers is only about \$300 at present. Moreover, a dramatic increase in the fine would likely protract the judicial process, which already imposes significant societal costs (e.g., in judges' time). Alternatively, the expected penalty per instance of drunk driving could be increased by raising the likelihood of apprehending drunk drivers through, for example, more sobriety check-

points and breathalyzer testing of those pulled over for reckless driving. Again, however, this involves implementation costs in terms of policing resources. Netting out the policing and judicial costs involved in implementing drunk driver fines from the broader societal benefits of deterrence lowers the optimal fine by about 25 percent (implying an optimal expected penalty of about \$15 per instance of drunk driving).

Another possibility is to impose on convicted drunk drivers non-pecuniary penalties like license suspensions and jail terms, or community service in lieu of jail. Averaged across states and first-time and repeat offenders, the typical convicted drunk driver receives a license suspension of about 6 months and a jail term of about 10 days, or alternatively about 40 days of community service. Still, when valued in monetary terms and multiplied by the average conviction risk, these penalties imply an expected cost of only about \$3 per drunk driver trip. Moreover, unlike fines, non-pecuniary penalties may impose a substantial extra deadweight cost on society because the loss of utility to the individual from a driving ban or jail term is not offset by a corresponding gain in revenue to the government. Thus, the monetary equivalent of the optimum non-pecuniary penalty may be substantially lower than the optimum fine.

Yet another option, which has recently become technologically feasible, is to require that convicted drunk drivers install interlocks that require the drivers to pass a breathalyzer test in order to start their cars. (A recurring test prevents a drunk driver from operating a car that was initially started by a sober person.) Experience in New Mexico, where courts have been mandating interlock technologies, suggests this policy is highly effective in reducing recidivism.

Nonetheless, the practical difficulties of imposing stiff penalties on convicted drunk drivers, and the resource costs involved in apprehending, convicting, and penalizing them, suggest that alcohol taxes still have a role to play as part of a broader package of measures to deter drunk driving. In fact, in the absence of more aggressive drunk driver policies for the foreseeable future, it is appropriate to include most of the external costs of alcohol-related crashes in an assessment of optimal alcohol taxes. (In the same way, it is appropriate, at present, to consider traffic congestion when evaluating optimal gasoline taxes, even though peak-period road pricing would be a much more effective policy to reduce automobile congestion.)

Based on the discussion so far, it seems that an alcohol tax of roughly three times the current level of taxes might be justified on economic efficiency grounds, and perhaps more if workplace productivity effects are important. Higher taxes might also be warranted if people underestimate the future costs of becoming addicted to alcohol, though economists disagree on whether people do in fact misperceive the risks associated with addictive substances.

FISCAL CONSIDERATIONS

Alcohol taxes also provide revenue for government. This raises the issue of whether the ability to provide revenue constitutes a reason to set higher levels of taxation than warranted on externality grounds.

Externalities aside, the desirability of partly financing government through alcohol taxes depends on the economic costs of alcohol taxes compared with other taxes, such as income and payroll taxes. Taxes on labor income lead to economic costs because they distort the overall level of employment in the economy; for example, by reducing take-home pay, income taxes reduce labor force participation rates, particularly among secondary workers in the family. Taxes that fall on specific goods also cause economic costs by changing household behavior and inducing people to consume less of the taxed product, and more of other products, than they would otherwise prefer. Moreover, by raising the general level of product prices and depressing the amount of goods people can buy with their earnings, product taxes tend to reduce (albeit very slightly) labor supply at the economy-wide level.

Economists usually find that it is less costly to raise revenue from taxes with very broad bases, such as income and payroll taxes, than narrowly focused taxes on specific products that are easier to avoid by spending on other products. However, one important exception to this is when a product can be taxed, up to a point, with less effect on economy-wide employment than the employment effects of raising the same amount of extra revenue through higher income or payroll taxes. Although important — not least because governments frequently justify alcohol taxes on revenue-raising grounds — this issue is difficult to investigate empirically. Nevertheless, preliminary findings in a forthcoming paper coauthored by West and myself suggest that alcohol may indeed be one of these exceptions. In fact, fiscal considerations may greatly reinforce the case for higher alcohol taxes, though further empirical work on this issue is badly needed.

PORK OF EFFICIENCY? The big caveat in this discussion is that it assumes government will make good use of additional revenue from higher alcohol taxes. In particular, using the revenue to cut income and payroll taxes improves economic efficiency by alleviating (slightly) the distorting effect of those taxes on work effort, as well as distortions created by tax preferences (e.g., biases toward tax-preferred spending like employer medical insurance). If instead those revenues are wasted on pork-barrel spending projects, the fiscal argument for alcohol taxes is undermined and perhaps reversed.

Another possibility, especially attractive at present given the deteriorating fiscal outlook, would be to use the resulting revenue to pay down the federal budget deficit. However, it is unclear whether this would ultimately lead to lower tax burdens in the future, as opposed to higher public spending. The fiscal rationale for higher alcohol taxes largely hinges on revenue-neutrality provisions in accompanying legislation, requiring immediate offsetting reductions in other distortionary taxes (or alternatively, spending on projects with favorable benefit/cost ratios).

EFFECTS OF HIGHER TAXES

To sum up, the economic case for substantially higher alcohol taxes is qualified rather than definitive. Among other considerations, the optimal tax rate depends on the continued fail-

ure to heavily penalize drunk drivers for the danger they pose to others, as well as on whether extra alcohol tax revenues would be put to good use by government. Those caveats aside, it is difficult to accurately pin down the efficient level of alcohol taxes until more empirical consensus is achieved on productivity effects, the possibility of uninternalized addiction risks, and the appropriate balance between alcohol taxes and broader taxes in financing the government's budget.

Although it can be argued both ways, I would lean toward a phased increase in federal alcohol taxes. Suppose, for the sake of argument, that alcohol taxes were increased to 30 percent of pre-tax prices. What effect would this have?

Ideally, the tax would rise in proportion to the alcohol content of a beverage (rather than total beverage volume or the sales price), as alcohol content is what matters for external costs. Current (federal and state) taxes amount to about \$20 per gallon of alcohol contained in beer, \$18 per gallon for wine, and \$35 per gallon for spirits. Tripling those taxes would, for example, add roughly \$1.20 to the price of both a six-pack of beer and a bottle of wine. (Assessing to what extent the relatively higher taxation, on an alcohol-equivalent basis, for spirits is warranted or not is difficult because data on health effects and drunk driver crashes is not available by beverage type).

Empirical studies suggest that alcohol consumption is moderately sensitive to higher retail prices. Each 1 percent increase in price might reduce consumption nationwide by about 0.4 to 0.7 percent and the responsiveness of drunk driving to alcohol prices seems to be roughly comparable. Increasing total alcohol taxes from 10 to 30 percent of pre-tax prices would increase the retail alcohol price (averaged across beverages) by 18 percent, and therefore reduce consumption by about 7 to 13 percent. And this tax increase would raise about \$25 billion a year in extra government revenue. The annual net economic efficiency benefits of the tax increase could easily exceed \$10 billion if the revenue displaces other distorting taxes.

Admittedly, this tax increase would be regressive, as lower-income households tend to spend a greater share of their income on alcohol than higher-income households. (This applies even when, as preferred by most economists, a lifetime measure of income is used.) However, distributional concerns are best addressed through the broader tax and benefit system. Ideally, alcohol taxes should be set so that retail alcohol prices reflect not only production costs but also the external costs of alcohol abuse, and perhaps also a revenue-raising tax component. It is not clear that households with strong preferences for alcohol consumption deserve any special government compensation, even if they do have low income. **R**

Readings

- "A Theory of Rational Addiction," by Gary S. Becker and Kevin M. Murphy. *Journal of Political Economy*, Vol. 96 (1988).
- "Alcohol," by Philip J. Cook and Michael J. Moore. In *Handbook of Health Economics*, edited by Anthony J. Culyer and Joseph P. Newhouse; Elsevier, 2000.
- "Alcohol/Leisure Complementarity: Empirical Estimates and Implications for Tax Policy," by Sarah E. West and Ian W.H. Parry. *National Tax Journal*, forthcoming.
- "Alcohol Prices and Highway Vehicle Fatalities," by Christopher J. Ruhm. *Journal of Health Economics*, Vol. 15 (1996).
- "Drinking, Driving, and Deterrence: The Effectiveness and Social Costs of Alternative Policies," by Donald S. Kenkel. *Journal of Law and Economics*, Vol. 36, No. 2 (1993).
- "Fiscal and Externality Rationales for Alcohol Taxes," by Ian W.H. Parry, Ramanan Laxminarayan, and Sarah E. West. *Berkeley Electronic Journal of Economic Analysis and Policy*, Vol. 9, Article 29 (2009).
- "How Dangerous Are Drinking Drivers?" by Steven D. Levitt and Jack Porter. *Journal of Political Economy*, Vol. 109 (2001).
- "Is Utility Additive? The Case of Alcohol," by K.W. Clements, W. Yang, and S.W. Zheng. *Applied Economics*, Vol. 29 (1997).
- "New Estimates of the Optimal Tax on Alcohol," by Donald S. Kenkel. *Economic Inquiry*, Vol. 34 (1996).
- "Smoking's 'Internalities'," by Jonathan Gruber. *Regulation*, Vol. 25, No. 4 (Winter 2002).
- "The New Cigarette Paternalism," by W. Kip Viscusi. *Regulation*, Vol. 25, No. 4 (Winter 2002).
- "The Taxes of Sin: Do Smokers and Drinkers Pay Their Way?" by Willard G. Manning, Emmet B. Keeler, Joseph P. Newhouse, Elizabeth M. Sloss, and Jeffrey Wasserman. *Journal of the American Medical Association*, Vol. 261 (1989).
- "Updating Estimates of the Economic Costs of Alcohol Abuse in the United States: Estimates, Update Methods, and Data," by H. Harwood. National Institute on Alcohol Abuse and Alcoholism, 2000.

Comment

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In the previous article, Ian Parry makes a reasoned case that current alcohol taxes in the United States are below the level that balances drinkers' benefits from alcohol consumption against the negative effects such consumption can impose on others. Those negative effects — externalities — include traffic accidents, diminished productivity, and elevated health care costs paid for by taxpayer

funds. According to Parry's calculations, alcohol taxes should rise by enough to make them roughly 30 percent of pre-tax alcohol prices, whereas now they constitute only about 10 percent. This means that, for a typical six-pack of beer, the price would rise by about \$1.20.

Reasonable economists could debate endlessly the exact details of Parry's calculations. Many of the externalities that he attempts to quantify are challenging to pin down because of the statistical pitfalls that confront the use of non-experimental data. It is hard, for example, to determine the productivity effects of alcohol consumption because those who

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consume heavily might differ from those who consume occasionally, and those differences could determine both their alcohol consumption and their wages. People who suffer from mental illness, for example, might use alcohol to excess and fare poorly in the workplace even if alcohol does not impair their job performance.

CAVEATS Parry is aware of this and other potential pitfalls, and he does a good job of trying to balance them out. He may well be right that the optimal tax on alcohol is higher than its current level, but I offer here several caveats about this kind of analysis.

The first problem is that most analyses of externalities do not address the enormous heterogeneity that exists regarding behavior that might cause externalities. In particular, some people use alcohol in ways that unquestionably generate externalities — driving under the influence — but many others consume alcohol on a regular basis without causing significant externalities.

The ideal policy toward alcohol in the light of this heterogeneity is to raise the price or in some way discourage consumption for people and circumstances that generate externalities, but not otherwise. Thus, penalties for drunk driving are in principle well-targeted because they fall on people who drink and drive, rather than on people who sip a glass of wine at home. An alcohol tax, however, imposes the same penalty on both kinds of alcohol consumers. Thus an alcohol tax may be beneficial if irresponsible users outnumber responsible users, but the tax lowers the welfare of responsible users and therefore could be negative if the proportions are reversed.

Standard analyses do not fully address this point, mainly because we do not have great information about the differences in behavior across externality-generating and non-externality-generating alcohol consumers. Both *a priori* reasoning and existing evidence suggest that heavy consumers of alcohol are less responsive to price increases than moderate alcohol consumers. If this is the case, then raising the tax on alcohol discourages alcohol consumption in exactly the wrong group of consumers and fails to achieve its goal of reducing externality-generating consumption. Analyses based on the “average” elasticity will not do a good job of accounting for this phenomenon.

The second problem with the externality framework is that determining what constitutes an externality, and which ones society should try to reduce, is difficult. Washing one’s laundry causes water pollution, a classic externality. Eating too much ice cream can cause heart disease, thereby increasing the costs of publicly funded health care. Watching late-night TV means less sleep and lower workplace productivity the next day, which can adversely affect one’s co-workers. In other words, a great many activities generate externalities. Since society does not have the resources to control them all, it must figure out which are most significant.

This is a complicated and subjective exercise, however, often with problematic implications. Smoking, for example, causes elevated health costs, some of which are paid out of

public funds. Thus, smoking causes a “fiscal” externality, and this might seem to justify policies to reduce smoking. At the same time, many smokers die younger than non-smokers, which means they collect less in Social Security and Medicare benefits. This is a beneficial externality because it reduces taxes on everyone else. The externality reasoning taken to its logical end thus implies that if smoking reduces Social Security and Medicare payments by more than it raises public health costs, governments should subsidize smoking.

Few people would endorse such a policy. Yet if society is unwilling to apply the externality logic consistently, the concept becomes a tool of special interests who use it to promote their own goals. Academics, for example, emphasize the positive externalities from education and use those claims to justify government support, but the evidence for such externalities is modest. The externality argument for intervention must therefore be applied with caution.

A more subtle problem for the externality framework is that it is often used to justify interventions that are terrible ways to address the externality in question. A classic example is drug prohibition, which many people justify by pointing to externalities from drug use. Reasonable people can mount a case for interventions that discourage drug use, but those arguments point to sin taxes and laws against driving under the influence, not to outright prohibition. In this case, the actual policy response to the perceived externalities is almost certainly worse than doing nothing, even if drug use generates significant externalities.

A different example is the greenhouse gas cap-and-trade legislation that recently advanced in Congress. Reasonable people can again mount a case for reduced use of fossil fuel, whether because of pollution concerns, congestion concerns, or global-warming concerns. But those concerns suggest the adoption of a carbon tax or peak-load pricing on highways as appropriate policy responses, not a complicated, costly, and likely ineffective policy like the cap-and-trade bill that will emerge from the political process.

This last limitation of the externality framework is based on political economy considerations; it does not undermine the economic case for imposing a tax on externality-producing goods. It is worth remembering, however, that the ideal policy one can design in a textbook or a research paper might morph into something entirely different — and much more ominous — when it reaches the real world. This might mean that *laissez-faire*, with all its warts, is actually better than real-world interventions.

Given these caveats about the externality framework for evaluating policy, what is the right tax rate on alcohol? The concerns outlined here suggest we really do not know. It is plausible that alcohol and a few other goods should be taxed at elevated rates, but it is far from obvious that we have any idea how high or low this tax should be. **R**

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