

Tools to Address Illinois Revenue: Increasing Sin Taxes

by Julian Reif

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In this report, Reif estimates the revenue that could be generated by increasing Illinois sin taxes on cigarettes, alcohol, and gambling. He discusses the efficiency and distributional effects of those taxes, as well as potential savings from a reduction in cigarette and alcohol consumption.

The fiscal crisis in Illinois warrants consideration of all options that could increase the state's revenue or decrease its expenditures. In this paper, I estimate the tax revenue that could be generated by increasing Illinois sin taxes on cigarettes, alcohol, and gambling as well as potential savings from a reduction in cigarette and alcohol consumption.¹

I. Revenue

A. Cigarettes

The average price of cigarettes in Illinois is \$6.85 per pack, which is above the national average but below that of many other states. Tax revenue from cigarette sales totaled \$810 million in the fiscal year ending June 30, 2013.² One way to raise revenue is to increase the state's cigarette excise tax from \$1.98 to \$2.48 per pack, which would increase the average price per pack by 7 percent.

As in the rest of the country, Illinois's per capita consumption of cigarettes has decreased over the past several decades as a result of higher cigarette prices, the enactment of various anti-smoking laws, and increased awareness of the dangers of smoking. That trend will continue to erode the tax revenue from cigarettes unless increases in the tax rate manage to offset the decline.

The effect on state revenue of an additional \$0.50 cigarette excise tax depends on the behavioral responses of smokers. Some are likely to quit smoking or reduce their consumption in response to a price increase, behaviors that

could be amplified if smokers influence one another.³ Much literature has examined the relationship between cigarette consumption and price. A comprehensive review⁴ of those studies suggests that each 1 percent increase in the price of cigarettes reduces consumption by approximately 0.4 percent, although a more recent analysis⁵ argues that the effect is significantly smaller.

To be conservative, I use estimates from the comprehensive review. Applying those results to Illinois suggests that a \$0.50 tax would reduce consumption by 2.9 percent.⁶ Using the most recent data available on cigarette sales, I estimate that after accounting for the behavioral responses of smokers, a \$0.50 increase in the state excise tax on cigarettes would increase state revenue by approximately \$175 million per year.

That estimated revenue increase assumes that the increase in the cigarette tax will not cause consumers to purchase cigarettes on the black market or in other jurisdictions where they are not subject to the tax. While those purchases are always a concern, they are less of a problem when the tax increase is statewide rather than citywide because statewide taxes are more difficult to avoid. For example, residents of Cook County, Illinois, can escape county, but not state, tax by purchasing cigarettes in DuPage County. That is not a large impediment for those living near the state border, and evidence suggests that some smokers engage in cross-border shopping.⁷ If an increased tax rate were to increase tax avoidance dramatically in large border cities like Chicago, that would reduce the revenue from the \$175 million estimate.

³Reif, "Addiction and Social Interactions: Theory and Evidence," (working paper).

⁴Frank J. Chaloupka and Kenneth E. Warner, "The Economics of Smoking," Vol. 1, *Handbook of Health Econ.* 1539 (2000).

⁵Kevin Callison and Robert Kaestner, "Do Higher Tobacco Taxes Reduce Adult Smoking? New Evidence of the Effect of Recent Cigarette Tax Increases on Adult Smoking," 52 *Econ. Inquiry* 155 (2014).

⁶If \$6.85 is the average price for a pack of cigarettes in Illinois, then 0.073 (0.5/6.85) is the proportional increase in price. Multiply that by 0.4 to get 0.029 as the proportional decline in consumption.

⁷David Merriman, "The Micro-Geography of Tax Avoidance: Evidence From Littered Cigarette Packs in Chicago," 2 *Am. J. Econ. Pol'y* 61 (2010).

¹I assume that the cigarette and alcohol tax burdens are fully passed on to consumers through higher prices.

²That cigarette tax revenue implies sales of 409 million cigarette packs. See "Illinois Department of Revenue, Monthly Revenue Report," June 2013, at 6.

Table 1
Current Alcohol Tax Rates in Illinois and Its Neighbors

| State | Beer | Wine | Spirits |
|-----------|--------------|--------------|--------------|
| Illinois | \$0.231 (27) | \$1.390 (10) | \$8.550 (14) |
| Indiana | \$0.115 (42) | \$0.470 (25) | \$2.680 (42) |
| Iowa | \$0.190 (31) | \$1.750 (4) | \$12.99 (6) |
| Kentucky | \$0.760 (8) | \$3.160 (1) | \$6.860 (17) |
| Missouri | \$0.060 (49) | \$0.420 (37) | \$2.000 (47) |
| Wisconsin | \$0.065 (48) | \$0.250 (42) | \$3.250 (39) |

Rates are expressed in dollars per gallon. A state's national rank in terms of size of its tax is given in parentheses.
Source: Tax Foundation

Table 2
Sales, Tax Revenue, and Average Alcohol Prices in Illinois for Calendar Year 2012

| | Beer | Wine | Spirits |
|----------------------------------|------------------|------------------|-------------------|
| Quantity Sold (gallons) | 269.8 million** | 35.3 million** | 19.8 million** |
| Tax Revenue | \$62.3 million** | \$49.1 million** | \$169.3 million** |
| Average Retail Price (\$/gallon) | 9.1211* | 53.611* | 72.833*** |

Sources: *Bureau of Labor Statistics,
**Illinois Department of Revenue,
***Distilled Spirits Council of the United States.

B. Alcohol

Illinois, like most states, assesses three different excise taxes on alcohol sales: beer, wine, and spirits.⁸ Illinois tax rates are \$0.231 per gallon for beer, \$1.39 per gallon for wine, and \$8.55 per gallon for spirits. Those rates are the 27th, 10th, and 14th highest in the country, respectively.

Table 1 displays tax rates for Illinois and its neighbors, as well as recent data on alcohol sales, tax revenue, and prices in Illinois. Table 2 shows that in 2012 the state collected \$280 million in revenue, most of which came from the tax on spirits. Wine generated the least revenue, at \$49 million, while beer generated \$62 million.

I estimate the revenue effect of three hypothetical tax rate increases: a \$0.15 per gallon for beer, a \$0.30 per gallon for wine, and \$3 per gallon for spirits. Those rate increases would raise prices by 1.4 cents per 12-ounce beer, 1.2 cents per 5-ounce glass of wine, and 3.5 cents per 1.5 ounces of spirits. The revenue effect of those tax increases depends on the behavioral responses of consumers. A recent survey of the literature suggests that each 1 percent increase in price

⁸Cider is taxed at the beer rate, while low-alcohol spirits (defined as less than 20 percent alcohol by volume) are taxed at the wine rate.

leads to a 0.37 percent drop in beer consumption and a 0.7 percent drop in other alcohol consumption.⁹ I adopt those estimates.

My revenue estimates suggest that those hypothetical tax increases would raise state revenue by a total of \$103 million per year (Table 2). Most of the increase is driven by the higher excise tax on spirits, which I estimate would increase revenue by \$52.8 million.¹⁰ The beer tax increase would raise an additional \$39.9 million, and the wine tax increase would raise another \$10.3 million. Illinois's new tax rates would still remain below those of several other states (Table 3).

My estimates assume consumers in Illinois would not respond to higher taxes by purchasing alcoholic beverages in

⁹Craig A. Gallet, "The Demand for Alcohol: A Meta-Analysis of Elasticities," 51 *Australian J. Agric. & Resource Econ.* 121 (2007).

¹⁰The average price per gallon of spirits is \$72.83. The \$3 tax divided by 72.83 yields 0.041 for the proportional increase in price (4.1 percent). Multiplying that number by the 0.7 in the text gives 0.029 as the proportional decline in consumption (2.9 percent). At the new proposed rate of \$11.55 per gallon and the new quantity of 19.8*(1-0.029) million gallons, the new revenue would be \$222 million (an increase of \$52.8 million). The estimates for beer and wine are calculated similarly.

Table 3
Revenue Generated for Illinois
By Increased Tax Rates on Alcohol

| | Beer | Wine | Spirits |
|---|-----------------------|-----------------------|-----------------------|
| Proposed Tax Increase (\$/gallon) | \$0.15 (17) | \$0.30 (6) | \$3.00 (9) |
| Revenue Increase | \$39.9 million | \$10.3 million | \$52.8 million |
| Illinois's new national rank in terms of the size of its tax is given in parentheses. | | | |

other states. Economic research suggests that cross-border purchases of alcohol go up in response to alcohol tax increases but that the effects are usually small.¹¹

C. Casinos

The 1990 Riverboat Gambling Act legalized gambling in Illinois and led to the establishment of 10 riverboat casinos across the state. The act taxes riverboat gambling by levying an admissions tax of \$3 per person¹² and a wagering tax equal to a percentage of a casino's adjusted gross receipts (AGR), defined as revenue minus winnings paid to bettors.¹³

More than 90 percent of state casino tax revenue comes from the wagering tax. The rate has changed several times since 1990, beginning as a flat rate but changing to a graduated rate that increases with AGR. The state increased the tax rate in 1998, 2002, and 2003, and lowered it in 2005. State tax receipts have generally increased every year except in 2005, following the tax decrease, and from 2008 to 2010, during the financial crisis. The figure illustrates the evolution of Illinois's casino tax revenue over time.

I consider the revenue effects of a 5 percentage point increase in the wagering tax. Table 4 shows the current, effective rates and the new, hypothetical rates. The new rates would be lower than the ones in place from 2003 to 2005, when the top marginal rate reached 70 percent of AGR.

To accurately estimate the effect of the hypothetical tax increase on state revenue, I must take into account the behavioral responses of consumers, as I did with cigarette and alcohol taxes. One study analyzed Illinois's casino tax rate changes between 1999 and 2006 and estimated that a 1 percent increase in the tax rate reduced AGR by 0.2 per-

¹¹T. Randolph Beard et al., "Border-Crossing Sales, Tax Avoidance, and State Tax Policies: An Application to Alcohol," 64 *S. Econ. J.* 293 (1997); Mark Stehr, "The Effect of Sunday Sales Bans and Excise Taxes on Drinking and Cross-Border Shopping for Alcoholic Beverages," 60 *Nat'l Tax J.* 85 (2007); M. Asplund et al., "Demand and Distance: Evidence on Cross-Border Shopping," 91 *J. Pub. Econ.* 141 (2007).

¹²The one exception is Jumer's Casino in Rock Island, which pays a \$2 admissions tax per person.

¹³Illinois Gaming Board, "2012 Annual Report," (2013).

Table 4

| AGR | Current Tax Rate | Proposed Tax Rate |
|---|------------------|-------------------|
| \$0-25 million | 15% | 20% |
| \$25-50 million | 22.5% | 27.5% |
| \$50-75 million | 27.5% | 32.5% |
| \$75-100 million | 32.5% | 37.5% |
| \$100-150 million | 37.5% | 42.5% |
| \$150-200 million | 45% | 50% |
| Over \$200 million | 50% | 55% |
| <i>Source:</i> Illinois Gaming Board (2012) | | |

cent.¹⁴ Adopting that estimate and using the most recent data available on AGR, I estimate that a 5 percentage point increase in the wagering tax would increase state revenue by approximately \$50 million per year.¹⁵

II. Healthcare, Efficiency, and Distributional Considerations

A. Cigarettes

Medicaid amounts to almost one-quarter of total state expenditures. A decrease in smoking rates among Medicaid-eligible individuals as a result of a tax increase on cigarettes will affect the state budget because smoking significantly harms individual health and increases related costs.

A decrease in cigarette consumption affects healthcare costs in two offsetting ways: It is likely to reduce healthcare costs per capita because those costs are higher for smokers than nonsmokers at all ages, but it is also likely to increase the average life expectancy of the population, which eventually will raise total expenditures on healthcare. For example, a reduction in smoking rates may decrease the prevalence of lung cancer and its associated healthcare costs but increase the number of people in nursing homes.¹⁶

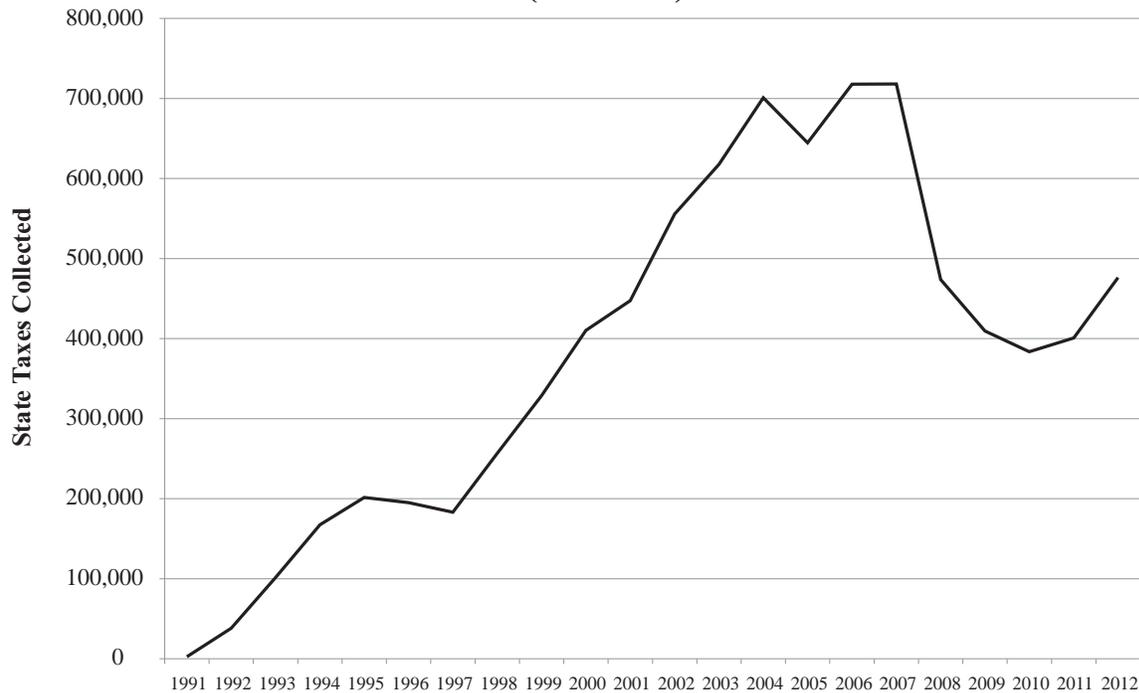
The Congressional Budget Office recently conducted an empirical analysis, estimating the net effect on Medicaid costs of an increase in the cigarette tax. Using their results, I estimate that a \$0.50 increase in the state excise tax on cigarettes would reduce Illinois's Medicaid expenditures by

¹⁴Kathryn L. Combs et al., "The Responsiveness of Casino Revenue to the Casino Tax Rate," University of St. Thomas — Minnesota working paper (2013).

¹⁵The casino industry generated \$1.64 billion in AGR in 2012, resulting in wagering tax revenue (local plus state) of \$527 million (*see supra* note 13). That corresponds to an average wagering tax rate of 32 percent. At the new proposed rate of 37 percent and new AGR of [\$1.64 billion]*[1-(5/32)*0.2], the new revenue would be \$588 million, an increase of \$61 million. The state collects about 83 percent of that, or \$50 million, with the remainder going to local governments.

¹⁶Medicaid accounts for 35 percent of all spending on long-term care for the elderly. *See* Congressional Budget Office, "Financing Long-Term Care for the Elderly" (Apr. 2004).

**Figure
Illinois Casino Tax Revenue
(1991-2012)**



Source: Illinois Gaming Board.

\$9 million over the next 10 years, or just less than \$1 million per year.¹⁷ That estimate accounts for savings flowing from lower annual healthcare costs as well as additional expenses resulting from an increase in life expectancy.

If we assume that consumers are rational and well-informed about the dangers of smoking and that the benefits to them of smoking outweigh the costs, then standard economic theory predicts that an additional tax would not make smokers happier.

However, some researchers argue that many consumers, particularly cigarette smokers, do not account for the long-term consequences of their decisions because the benefits are immediate, but the negative consequences are not. If that is

correct, a cigarette tax can benefit consumers by discouraging them from engaging in harmful behavior.

One study estimates that the optimal tax for cigarettes ranges from \$5 to \$10 per pack.¹⁸ If we account for city, county, and federal cigarette taxes, then increasing the Illinois state tax by \$0.50 would cause the total tax in Chicago, the most expensive place to purchase cigarettes in Illinois, to fall in the middle of that optimal tax range.

Another concern is that a cigarette tax increase may be highly regressive. Smoking in the United States is concentrated among low-income and less-educated individuals. Their expenditures on cigarettes as a fraction of their income are significantly higher than the expenditures of high-income individuals. However, research shows that low-income individuals are more sensitive to price changes in cigarettes than high-income individuals.¹⁹ The upper range of those estimates suggests that the decline in smoking

¹⁷The CBO estimates that a 3 percent decrease in the number of smokers would reduce Medicaid expenses by \$563 million over 10 years nationwide. I multiply their estimate by 0.032 (Illinois's share of national Medicaid spending) and then again by 0.5 (the federal government's share of Illinois's Medicaid expenses). My estimate assumes that the Illinois \$0.50 tax increase would, as in the CBO's analysis, result in a 3 percent decrease in the number of smokers.

¹⁸Jonathan Gruber and Botond Köszegi, "Is Addiction 'Rational'? Theory and Evidence," 116 *Q. J. Econ.* 1261 (2001).

would offset the increase in price so that total expenditures by low-income individuals would remain unchanged.

B. Alcohol

Increasing the excise tax on alcohol would reduce consumption, which might decrease state expenditures on alcohol-related costs. For example, a reduction in consumption might reduce Medicaid expenditures on alcohol-related accidents and chronic diseases and lower the state's prosecution and prison costs associated with alcohol-related crimes.

Of course, the reduction in consumption would not be uniform across consumers — alcoholics are less likely to reduce their consumption than casual drinkers — but even heavy drinkers respond to price increases.²⁰ That is especially relevant for Illinois; according to recent research, the state ranks far above the national averages for alcohol consumption and binge drinking.²¹

Research suggests that alcohol taxes are generally regressive.²² If policymakers find that distributional effect troublesome, they could mitigate it by not raising the tax on beer, the predominant type of alcohol consumed by low-income individuals.²³ In that case, my proposed tax rate increases for wine and spirits would still generate \$63 million in annual revenue.

C. Casinos

As with alcohol, low-income individuals spend a larger fraction of their income on gambling than high-income

individuals, and evidence suggests that gambling taxes are regressive.²⁴ The net effect must be compared with other alternatives, however. For example, if the state increases the casino tax in lieu of increasing the sales tax, which is also regressive, then the difference between those two options may be small for the taxes paid by low-income individuals.

III. Summary

I estimate that a \$0.50 increase in the state's cigarette excise tax would raise revenue by up to \$175 million per year and reduce Medicaid expenditures by almost \$1 million per year. Although cigarettes are predominantly consumed by lower-income individuals, many low-income smokers would significantly decrease their consumption in response to the tax, thereby mitigating some of their tax burden. Moreover, if smokers are not making rational, well-informed decisions, then economic theory predicts that a cigarette tax may benefit them by encouraging healthier behavior.

I estimate that excise tax increases of \$0.15, \$0.30, and \$3 per gallon for beer, wine, and spirits, respectively, combined with a 5 percentage point increase in the casino wagering tax rate would increase state revenue by \$153 million per year. Moreover, an increase in the alcohol tax would likely save the state money by reducing expenditures on alcohol-related criminal and medical costs.

Although low-income individuals would bear a significant portion of the tax burden, the burden may be lighter than alternative revenue generators such as an increase in the sales tax. Any regressive effect of increases in those excise taxes could be offset by a budget policy package that includes a larger income tax exemption together with a personal income tax rate that does not fall from 5 percent to 3.25 percent (as it is scheduled to do under current law). ☆

¹⁹That is, low-income buyers have a price elasticity greater than the 0.4 average elasticity cited above, while high-income buyers are less elastic than that.

²⁰J. Nelson, "Does Heavy Drinking by Adults Respond to Higher Alcohol Prices and Taxes? A Survey and Assessment," 43 *Econ. Analysis & Pol'y* 265 (2013).

²¹The Lewin Group, "Economic Costs of Excessive Alcohol Consumption in the United States, 2006," prepared for the U.S. Centers for Disease Control and Prevention (2006).

²²K.W. Clements et al., "Is Utility Additive? The Case of Alcohol," 29 *Applied Econ.* 1163 (1997).

²³Lydia Saad, "Wine Matches Beer in U.S. Drinkers' Preferences This Year," Gallup.com, July 27, 2011.

²⁴John E. Anderson, "Casino Taxation in the United States," *Nat'l Tax J.* 303 (2005).