

The Composition and Magnitude of Alcohol Taxes in States: Do They Cover Alcohol-Related Costs?

JASON G. BLANCHETTE, J.D., M.P.H.,^a FRANK J. CHALOUKKA, PH.D.,^{b,c} & TIMOTHY S. NAIMI, M.D., M.P.H.,^{d,e,*}

^aDepartment of Health Law, Policy & Management, Boston University School of Public Health, Boston, Massachusetts

^bHealth Policy Center, University of Illinois at Chicago, Chicago, Illinois

^cDivision of Health Policy and Administration, University of Illinois at Chicago, Chicago, Illinois

^dSection of General Internal Medicine, Boston Medical Center, Boston, Massachusetts

^eDepartment of Community Health Sciences, Boston University School of Public Health, Boston, Massachusetts

ABSTRACT. Objective: At least one type of tax is applied to the sale of alcoholic beverages in all U.S. states. The purpose of this study was to characterize the composition and magnitude of alcohol taxes in states and to assess the relationship between total alcohol taxes (federal plus state) and the cost of excessive drinking. **Method:** The amount of tax (in dollars per standard drink) by state was estimated from data on state ad valorem excise, specific excise, and sales taxes in 2010 obtained from the Alcohol Policy Information System and Tax Foundation. These taxes were summed, and specific excise taxes were assessed as a proportion of total state taxes. Tax data on beer were analyzed for all 50 states. Tax data for wine and distilled spirits were restricted to the 32 license states and Washington, D.C., with fully privatized distribution systems. Total

alcohol taxes for the 32 license states were compared on a per-drink basis with published state estimates of the cost of excessive drinking in these states in 2010. **Results:** Specific excise taxes accounted for a weighted median of 20.1% of total state alcohol tax revenue in the 32 license states and Washington, D.C. The median total alcohol tax per drink (based on all federal and state taxes) was \$0.21, which accounted for 26.7% of the median cost to government and 10.3% of the median total economic cost of excessive drinking. **Conclusions:** Specific excise taxes account for one fifth of state alcohol taxes in the 32 license states; but even considering all tax types, total alcohol taxes account for only one tenth of alcohol-related costs (*J. Stud. Alcohol Drugs*, 80, 408–414, 2019)

IN 2010, EXCESSIVE DRINKING cost the United States approximately \$249 billion, or \$2.05 per drink, of which approximately 40% was borne by the federal and state governments (Sacks et al., 2015).

Alcohol taxes are levied in all states to raise government revenue. Alcohol taxes increase the price of alcohol, and there is substantial evidence that both higher alcohol taxes and higher prices reduce excessive alcohol consumption and related harms (e.g., cancers, hypertension, injuries, and violence) (Elder et al., 2010; Wagenaar et al., 2009, 2010).

There are three types of taxes that may be applied to alcoholic beverages sold in states: specific excise taxes, ad valorem excise taxes, and general sales taxes. The two excise taxes single out a particular type of product (i.e., alcoholic beverages). Specific excise taxes are typically imposed at the wholesale level and are assessed per unit of volume (e.g., per barrel of beer), not as a percentage of the retail price. As a consequence, specific excise taxes can

erode over time as a result of inflation unless they are periodically increased.

In fact, a recent study found that, on average, alcohol-specific excise taxes in states declined approximately 30% across all beverage types from 1991 to 2015 (Naimi et al., 2018). Ad valorem excise taxes are assessed as a percentage of the retail or wholesale price of alcoholic beverages. They can be imposed on alcohol sold for on-premise consumption (e.g., in bars, restaurants), off-premise consumption (e.g., sold at liquor stores), or both.

In contrast to specific excise taxes, ad valorem taxes automatically adjust based on changes in the price of alcoholic beverages and, thus, do not erode in real terms when prices increase as a result of inflation or other market factors. However, these price-based taxes may drive consumers toward lower quality beverages or beverages with higher alcohol content in order to reduce consumers' tax burden per unit of ethanol, which in turn incentivizes producers to increase production of those types of products (Sornpaisarn et al., 2017). General sales taxes are applied to most goods and services and may be applied to alcohol as well. Similar to ad valorem excise taxes, general sales taxes are assessed as a percentage of the retail price of alcohol; however, they are not alcohol specific.

In addition to these state alcohol taxes, there are beverage-distinct (beer, wine, and distilled spirits, respectively), federal-specific excise taxes on alcohol that are applied based on a fixed amount per volume of alcohol and, thus, are

Received: February 20, 2019. Revision: May 19, 2019.

This research was supported by Centers for Disease Control and Prevention assignment agreement 14IPA1404762 and National Institute on Alcohol Abuse and Alcoholism Grants R01AA018377 and R01AA026268. The findings and views expressed in this article are those of the authors and do not necessarily represent the position of the Centers for Disease Control and Prevention or the National Institutes of Health.

*Correspondence may be sent to Timothy S. Naimi at the Section of General Internal Medicine, Boston Medical Center, 801 Massachusetts Ave., Room 2046, Boston, MA 02118, or via email at: tim.naimi@bmc.org.

independent of price. These taxes are applied at the wholesale level and then are passed through to the retail price of alcoholic beverages, rather than being administered at the point of sale. However, in contrast to state alcohol excise taxes, federal alcohol excise taxes are identical across all states (Alcohol and Tobacco Tax and Trade Bureau, 2016).

Recent studies have evaluated changes in state alcohol-specific excise taxes on an inflation-adjusted basis (Naimi et al., 2018). However, there is limited information on total state alcohol taxes, the contribution of state alcohol-specific excise taxes to total state alcohol taxes, and the relationship between total state and federal alcohol taxes (i.e., total alcohol taxes in states) and the societal cost of excessive drinking. This information could help inform discussions on how to reduce excessive alcohol consumption and related harms and identify potential disparities between the cost of excessive drinking and alcohol taxes.

The purposes of this study, therefore, were to assess the different taxes that are applied to alcoholic beverages in U.S. states on a beverage-specific basis (i.e., for beer, wine, and distilled spirits), to assess alcohol-specific excise taxes as a percentage of total state alcohol taxes, and to compare the total alcohol taxes in states with published estimates of the total and government per-drink cost of excessive drinking in states.

Method

The amount of tax dollars per standard drink was estimated by state using tax rates, definitions of standard drinks, estimates of drink prices, and estimates of the proportion of alcohol consumed on-premise versus off-premise. These amounts were then compared with published estimates of the per-drink economic cost of excessive drinking in states.

Data on tax rates

State-level alcohol tax data were obtained from several sources including the Alcohol Policy Information System, the Tax Foundation, and the WestlawNext legal database using standard legal research methods (National Institute on Alcohol Abuse and Alcoholism, 2013; Tax Foundation, 2010; Thomson Reuters, n.d.). Data on 2010 alcohol taxes were used in this study to align with current estimates of the economic cost of excessive drinking in states (Sacks et al., 2015). Taxes for beer, wine, and distilled spirits were assessed on a per-drink basis by converting taxes on larger volumes of alcoholic beverages (e.g., excise taxes per gallon of beer) into equivalent taxes per standard U.S. drink, defined as 12 oz. of 5% alcohol-by-volume (ABV) beer, 5 oz. of 12% ABV wine, and 1.5 oz. of 40% ABV distilled spirits—all of which contain 14 g, 17.7 ml, or 0.6 oz. of ethanol (National Institute on Alcohol Abuse and Alcoholism, 2017).

Limited analyses on data from states with alcohol monopolies

Tax data on beer were collected and analyzed for all 50 states. However, tax data on wine and distilled spirits were only assessed among the 32 states and Washington, D.C., that do not have wholesale or retail monopolies on either of these beverage types (i.e., “license” states) because beverage-specific taxes are not generally available for state-controlled beverage sales. Therefore, the assessment of total alcohol taxes for wine and distilled spirits were restricted to these 32 license states and Washington, D.C., to assure the comparability of state alcohol tax data across beverage types by state.

Calculating dollars per drink for taxes based on percentage of price

Calculating taxes that are based on a percentage of price (i.e., ad valorem excise taxes and general sales taxes) requires estimates of the average prices paid for alcohol in off-premise establishments (e.g., liquor stores) and on-premise establishments (e.g., restaurants), respectively, on a beverage-distinct basis (i.e., for beer, wine, and distilled spirits), and the state alcohol ad valorem excise and/or general sales tax rates. However, state-specific retail alcohol price estimates are generally unavailable or not comparable. Therefore, we used average national alcohol price estimates from the *IMPACT Databank Review and Forecast* for beverage type and consumption location (beer, wine, and distilled spirits, and on-premise consumption versus off-premise consumption) (Shanken, 2011). We were then able to multiply the ad valorem taxes, sales taxes, or both charged by individual states by the estimated national prices for beer, wine, and distilled spirits, respectively.

Calculating total tax per drink

The total state alcohol taxes per drink by beverage type and consumption location (on-premise vs. off-premise) were calculated by summing the per-drink value of state-specific excise taxes, state ad valorem excise taxes, state sales taxes, and federal tax. In 2010, the federal excise tax per standard drink was \$0.05 for beer, \$0.04 for wine, and \$0.16 for distilled spirits (Alcohol and Tobacco Tax and Trade Bureau, 2016). To estimate the average tax per drink by beverage type, we modeled a 3:1 ratio of off- to on-premise sales (i.e., that 75% of alcohol is purchased in off-premise establishments) (Beverage Information Group, 2014). To estimate the average total state alcohol taxes per drink for the combination of the three beverage types (beer, wine, and distilled spirits) in the 32 states and Washington, D.C., where the sale of these beverages is fully privatized, we calculated the weighted average of beverage-specific

taxes using state beverage-specific alcohol sales data from the Alcohol Epidemiological Data System (LaVallee & Yi, 2012). State-specific excise taxes were then assessed as a proportion of total state alcohol taxes across beverage types by state in these 32 states and Washington, D.C.

Comparing tax per drink with economic cost per drink

The 2010 combined total state and federal alcohol taxes by drink in states were then compared with published estimates of the economic cost of excessive drinking in states and in the United States (Sacks et al., 2015). This study used a standard cost-of-illness approach to calculate the state-specific costs for excessive drinking, including lost productivity, medical costs, and legal and criminal justice system costs. Consistent with cost-of-illness methodology, this study did not include intangible costs, such as pain and suffering, in the cost estimates (Sacks et al., 2015).

Results

All 50 states and Washington, D.C., applied excise taxes to beverages sold by private retailers (Table 1). In addition, 43 states applied sales taxes to alcohol, and 14 states and Washington, D.C., had ad valorem excise alcohol taxes. Among the 50 states and Washington, D.C., only 4 states (Alaska, Delaware, Montana, and Oregon) applied only specific excise taxes, whereas the remainder also levied a sales tax, an ad valorem excise tax, or both on alcoholic beverages.

Overall, in the 32 license states and Washington, D.C., specific excise taxes accounted for a weighed state median of 20.1% of the total state alcohol taxes for all alcoholic beverages, 19.0% of alcohol tax revenues for beer, 13.3% of tax revenues for wine, and 28.6% for distilled spirits (Table 1). Twelve of the 14 states (85.7%) with ad valorem excise taxes on beer had above-median total beer taxes. In contrast, Delaware, Montana, and Oregon—three of the four states that levy only specific excise taxes on beer—had the lowest total state beer taxes in the United States in 2010.

The median-weighted total state alcohol taxes per drink across all beverage types in the 32 license states and Washington, D.C., was \$0.13 (range: \$0.03 [Delaware] to \$0.27 [Tennessee]) (Table 2). After also including federal alcohol taxes, the median-weighted total alcohol taxes in states per drink across all beverage types was \$0.21 (range: \$0.11 [Delaware] to \$0.35 [Tennessee]).

These federal and state taxes were then compared with the total economic cost per drink of excessive drinking based on a previous study (which ranged from \$0.92 to \$2.77; state median = \$2.05); we also compared them with the cost incurred by government per drink (which ranged from \$0.36 to \$1.19; state median = \$0.79) in 2010 (Sacks et al., 2015). Total alcohol taxes accounted for a median of 26.7%

of the economic cost to government per state (range: 15.2% [Colorado] to 40.6% [North Dakota], and 10.3% of the total economic cost of excessive drinking per state (range: 6.6% [Colorado] to 15.3% [Tennessee]) (Table 2, Figure 1).

Discussion

This is the first study to assess the contribution of specific excise taxes to total state alcohol taxes and the relationship between total alcohol taxes in states (i.e., state and federal alcohol taxes combined) and the economic cost of excessive drinking in the United States. In 2010, the median total state alcohol tax across all beverage types in the 32 license states and Washington, D.C., was 13 cents per drink, with specific excise taxes accounting for about one fifth of this amount. Adding federal taxes brought total taxes to 21 cents per drink. Even with the addition of federal taxes, however, the total tax per drink accounted for only one quarter of the cost per drink to government from excessive drinking and covered only one tenth of the total cost of excessive drinking.

This study shows that, in general, states with a greater variety of alcohol taxes (e.g., specific excise taxes along with ad valorem excise taxes, sales taxes, or both) tend to have higher total state alcohol taxes. This is not only because of the additive effects of combining different types of state alcohol taxes but also because of the economic characteristics of different types of alcohol taxes. For example, the value of specific excise taxes erodes over time with inflation unless they are increased regularly (e.g., indexed for inflation) because specific excise taxes are based on the volume of alcohol sold and not the price. In contrast, both ad valorem excise and sales taxes are assessed as a percentage of the retail price and, thus, automatically adjust to changes in alcohol prices (Naimi et al., 2018).

Therefore, states that combine these taxing strategies tend to have higher total alcohol taxes over time, particularly when compared with states that only levy specific excise taxes on alcoholic beverages. For example, as shown in this study, Delaware and Alaska—the only two license states to apply only specific excise taxes to alcohol—have below-average total taxes (3 cents per drink in Delaware and 12 cents per drink in Alaska), and their taxes cover a relatively low percentage of alcohol-attributable costs in the state (7.0% for Delaware and 8.8% for Alaska) compared with most other states.

This study also demonstrates the importance of accounting for all types of state alcohol taxes when conducting alcohol tax-related research and policy evaluations. Previous research has documented that measures of alcohol taxes that incorporate all tax types improve the strength of statistical models assessing the association between total state alcohol taxes and binge drinking prevalence in states (i.e., there is a stronger association between state alcohol taxes and binge drinking prevalence when these models include all state alcohol taxes vs. specific excise taxes alone) (Xuan et al.,

TABLE 1. Presence of sales and ad valorem taxes, total state alcohol taxes (including excise, sales and ad valorem taxes) by beverage type, and proportion of total tax that is excise tax, United States, 2010

States	Sales tax	Ad valorem taxes	Beer		Wine		Distilled spirits		All beverages
			Total tax (\$/drink)	Proportion from excise tax	Total tax (\$/drink)	Proportion from excise tax	Total tax (\$/drink)	Proportion from excise tax	Proportion from excise tax
Median			0.10	19.0%	0.18	13.3%	0.15	28.6%	20.1%
Alabama	✓ ^a		0.15	65.6%	N.A.	N.A.	N.A.	N.A.	N.A.
Alaska			0.10	100.0%	0.10	100.0%	0.15	100%	100.0%
Arizona	✓		0.10	14.9%	0.18	18.1%	0.14	25.3%	19.6%
Arkansas	✓	✓ ^c	0.18	12.8%	0.32	9.5%	0.27	11.2%	11.5%
California	✓		0.13	14.9%	0.19	4.0%	0.17	23.0%	15.9%
Colorado	✓		0.05	16.6%	0.08	16.1%	0.07	36.9%	25.1%
Connecticut	✓		0.10	18.6%	0.16	14.9%	0.15	35.9%	25.1%
Delaware			0.02	100.0%	0.04	100.0%	0.04	100%	100.0%
Florida	✓		0.12	36.7%	0.22	39.6%	0.17	44.8%	40.5%
Georgia	✓		0.15	64.7%	0.15	39.8%	0.11	41.5%	54.0%
Hawaii	✓		0.14	62.6%	0.14	37.5%	0.13	52.7%	55.3%
Idaho	✓ ^a		0.09	15.2%	N.A.	N.A.	N.A.	N.A.	N.A.
Illinois	✓		0.10	21.1%	0.19	28.0%	0.20	50.6%	36.1%
Indiana	✓		0.10	10.6%	0.18	10.5%	0.14	22.3%	15.1%
Iowa	✓ ^a		0.10	18.6%	N.A.	N.A.	N.A.	N.A.	N.A.
Kansas		✓ ^d	0.15	11.5%	0.23	5.1%	0.18	16.1%	11.7%
Kentucky	✓	✓ ^e	0.15	4.9%	0.23	8.6%	0.17	13.6%	7.8%
Louisiana	✓		0.08	36.9%	0.09	4.7%	0.09	31.9%	29.9%
Maine	✓ ^{a,b}	✓ ^{f,g}	0.11	29.4%	N.A.	N.A.	N.A.	N.A.	N.A.
Maryland	✓		0.09	9.8%	0.15	10.5%	0.11	15.8%	12.2%
Massachusetts	✓		0.09	10.9%	0.16	13.3%	0.15	32.6%	20.6%
Michigan	✓ ^a		0.10	19.7%	N.A.	N.A.	N.A.	N.A.	N.A.
Minnesota	✓	✓ ^c	0.14	10.3%	0.22	5.3%	0.21	28.6%	17.0%
Mississippi	✓ ^a		0.13	30.6%	N.A.	N.A.	N.A.	N.A.	N.A.
Missouri	✓		0.06	9.3%	0.11	14.8%	0.09	26.1%	17.2%
Montana			0.01	100.0%	N.A.	N.A.	N.A.	N.A.	N.A.
Nebraska	✓		0.10	28.9%	0.16	23.2%	0.13	33.8%	29.6%
Nevada	✓		0.10	14.4%	0.18	15.1%	0.15	28.1%	20.0%
New Hampshire		✓ ^{c,f}	0.09	31.0%	N.A.	N.A.	N.A.	N.A.	N.A.
New Jersey	✓		0.10	11.0%	0.19	17.9%	0.17	37.0%	23.7%
New Mexico	✓		0.10	37.1%	0.18	37.2%	0.15	47.4%	41.3%
New York	✓		0.07	20.1%	0.10	11.6%	0.14	54.6%	36.1%
North Carolina	✓ ^a		0.13	43.7%	N.A.	N.A.	N.A.	N.A.	N.A.
North Dakota		✓ ^c	0.11	14.2%	0.18	11.1%	0.14	21.1%	16.2%
Ohio	✓ ^a		0.09	19.0%	N.A.	N.A.	N.A.	N.A.	N.A.
Oklahoma	✓	✓ ^{c,f}	0.19	19.9%	0.29	9.6%	0.26	25.4%	20.1%
Oregon			0.01	100.0%	N.A.	N.A.	N.A.	N.A.	N.A.
Pennsylvania	✓ ^a		0.09	8.8%	N.A.	N.A.	N.A.	N.A.	N.A.
Rhode Island	✓	✓ ^{c,f}	0.11	8.5%	0.19	12.2%	0.16	27.0%	16.8%
South Carolina	✓	✓ ^{c,f,h}	0.15	48.1%	0.18	24.0%	0.19	28.0%	36.3%
South Dakota	✓	✓ ^{e,i}	0.08	33.1%	0.14	26.1%	0.12	39.1%	33.1%
Tennessee	✓	✓ ^j	0.21	6.2%	0.39	12.3%	0.30	17.4%	11.9%
Texas	✓ ^b	✓ ^{c,f}	0.15	12.1%	0.24	3.3%	0.20	14.4%	11.2%
Utah	✓ ^a		0.11	34.1%	N.A.	N.A.	N.A.	N.A.	N.A.
Vermont	✓ ^{a,b}	✓ ^{c,f,g}	0.13	19.0%	N.A.	N.A.	N.A.	N.A.	N.A.
Virginia	✓ ^a		0.09	29.0%	N.A.	N.A.	N.A.	N.A.	N.A.
Washington	✓ ^a		0.16	45.7%	N.A.	N.A.	N.A.	N.A.	N.A.
Washington, D.C.		✓ ^c	0.13	6.4%	0.23	5.2%	0.17	10.5%	7.7%
West Virginia	✓ ^a		0.09	17.6%	N.A.	N.A.	N.A.	N.A.	N.A.
Wisconsin	✓		0.07	8.5%	0.12	8.0%	0.12	33.4%	19.2%
Wyoming	✓ ^a		0.05	3.1%	N.A.	N.A.	N.A.	N.A.	N.A.

Notes: N.A. = not applicable. ^aDid not apply to off-premise sales of distilled spirits and wine because the state directly controlled the sale of these beverages in 2010 (i.e., these were control states at that time). ^bApplied only to locations selling alcohol for consumption elsewhere (off-premise retailers). ^cApplied at the retail level. ^dKansas had an ad valorem tax applied at the wholesale level for beverages purchased by on-premises retailers only; this tax was in addition to a retail ad valorem tax for both on- and off-premise establishments. ^eApplied at the wholesale level. ^fApplied only to locations selling alcohol for consumption on site (on-premise retailers). ^gApplied to beer only. ^hApplied to distilled spirits only. ⁱExcludes beer. ^jTennessee had an ad valorem tax on distilled spirits and wine applied at the retail level only for on-premises consumption, and a wholesale ad valorem tax on beer.

TABLE 2. Total state and federal alcohol taxes in license states^a compared with the total costs for excessive drinking, United States, 2010

States ^a	Weighted state tax per drink for all beverage types ^b (\$ per drink)	Federal plus state alcohol tax per drink for all beverage types ^c (\$ per drink)	Cost of excessive drinking ^d (\$/drink)	Federal plus state tax per drink as a % of government cost per drink	Federal plus state tax per drink as a % of total cost per drink
Median	0.13	0.21	2.05	26.7%	10.3%
Alaska	0.12	0.20	2.25	20.9%	8.8%
Arizona	0.13	0.20	2.27	21.7%	8.9%
Arkansas	0.23	0.31	2.27	36.2%	13.6%
California	0.15	0.23	2.44	22.3%	9.2%
Colorado	0.06	0.14	2.14	15.2%	6.6%
Connecticut	0.12	0.20	2.04	24.9%	9.9%
Delaware	0.03	0.11	1.64	16.8%	7.0%
Florida	0.15	0.23	1.80	31.9%	12.8%
Georgia	0.13	0.21	2.10	24.5%	10.0%
Hawaii	0.14	0.21	1.58	34.0%	13.4%
Illinois	0.15	0.23	1.86	31.0%	12.2%
Indiana	0.13	0.20	1.96	25.8%	10.4%
Kansas	0.18	0.26	2.18	30.6%	11.8%
Kentucky	0.19	0.27	2.36	28.1%	11.3%
Louisiana	0.09	0.17	1.91	21.6%	8.7%
Maryland	0.10	0.19	2.22	19.8%	8.4%
Massachusetts	0.12	0.20	1.93	25.7%	10.3%
Minnesota	0.17	0.26	1.74	37.2%	14.8%
Missouri	0.08	0.16	1.83	22.1%	8.6%
Nebraska	0.12	0.20	1.61	28.8%	12.2%
Nevada	0.13	0.21	1.49	34.8%	14.2%
New Jersey	0.14	0.22	1.70	31.4%	12.9%
New Mexico	0.13	0.21	2.77	18.4%	7.5%
New York	0.10	0.17	2.28	17.7%	7.5%
North Dakota	0.13	0.21	1.40	40.6%	15.1%
Oklahoma	0.23	0.31	2.49	31.5%	12.3%
Rhode Island	0.14	0.22	1.82	29.7%	11.9%
South Carolina	0.17	0.25	2.13	31.7%	11.6%
South Dakota	0.10	0.18	1.59	28.6%	11.5%
Tennessee	0.27	0.35	2.25	39.7%	15.3%
Texas	0.18	0.26	1.99	32.7%	12.8%
Washington, D.C.	0.16	0.24	2.14	27.7%	11.3%
Wisconsin	0.10	0.18	1.83	24.8%	9.6%

^aRefers to the 32 states and Washington, D.C., without wholesale or retail monopolies on distilled spirits and/or wine. ^bWeighted tax-per-drink values across all beverage types in a state were calculated by averaging the tax-per-drink values for each beverage type (beer, wine, and distilled spirits) after weighting the values to correspond with the proportion of ethanol consumed for each beverage type in that state using data from the Alcohol Epidemiological Data System (LaVallee & Yi, 2012). ^cThis adds the weighted federal tax per drink to the weighted state tax per drink in the previous column. ^dThe cost of excessive drinking in 2010 on a state-specific basis was obtained from Sacks et al. (2015).

2015). As a consequence, studies that have only assessed specific excise taxes in states may have underestimated the potential impact of alcohol taxes on excessive drinking and related harms.

Our finding that total alcohol taxes in states account for only a fraction of the total economic cost of excessive drinking in states is consistent with other analyses that have compared costs and taxes based on specific excise taxes alone (Naimi, 2011). However, current cost estimates do not include certain alcohol-attributable costs (e.g., economic losses attributable to reduced productivity among excessive drinkers who are not alcohol dependent) and are, therefore, conservative. Nonetheless, of the \$249 billion in economic cost resulting from excessive drinking in 2010 (\$2.05 per drink), about \$2 in \$5 (\$0.80 per drink) were paid by state and federal governments, and these per-drink costs were still several times higher than the median-weighted total alcohol

taxes in states per drink (\$0.21) estimated in this study (Sacks et al., 2015).

This study is subject to limitations. Although the tax-to-cost estimates in this study were limited to the 32 license states and Washington, D.C., that did not have a wholesale or retail monopoly on any type of alcohol (because there are no comparable taxes in control states), the total magnitude of beer taxes—which accounts for the most alcohol consumed in all states and about two thirds of the alcohol consumed during binge drinking episodes (Naimi et al., 2007)—was similar between license and control states. There are other sources of government revenue (i.e., retail license fees) from alcohol not accounted for in this study. Furthermore, because there are no reliable state-level data on the price of alcoholic beverages, we used national price estimates to calculate the value of ad valorem and sales taxes in all states in which these taxes were applied.

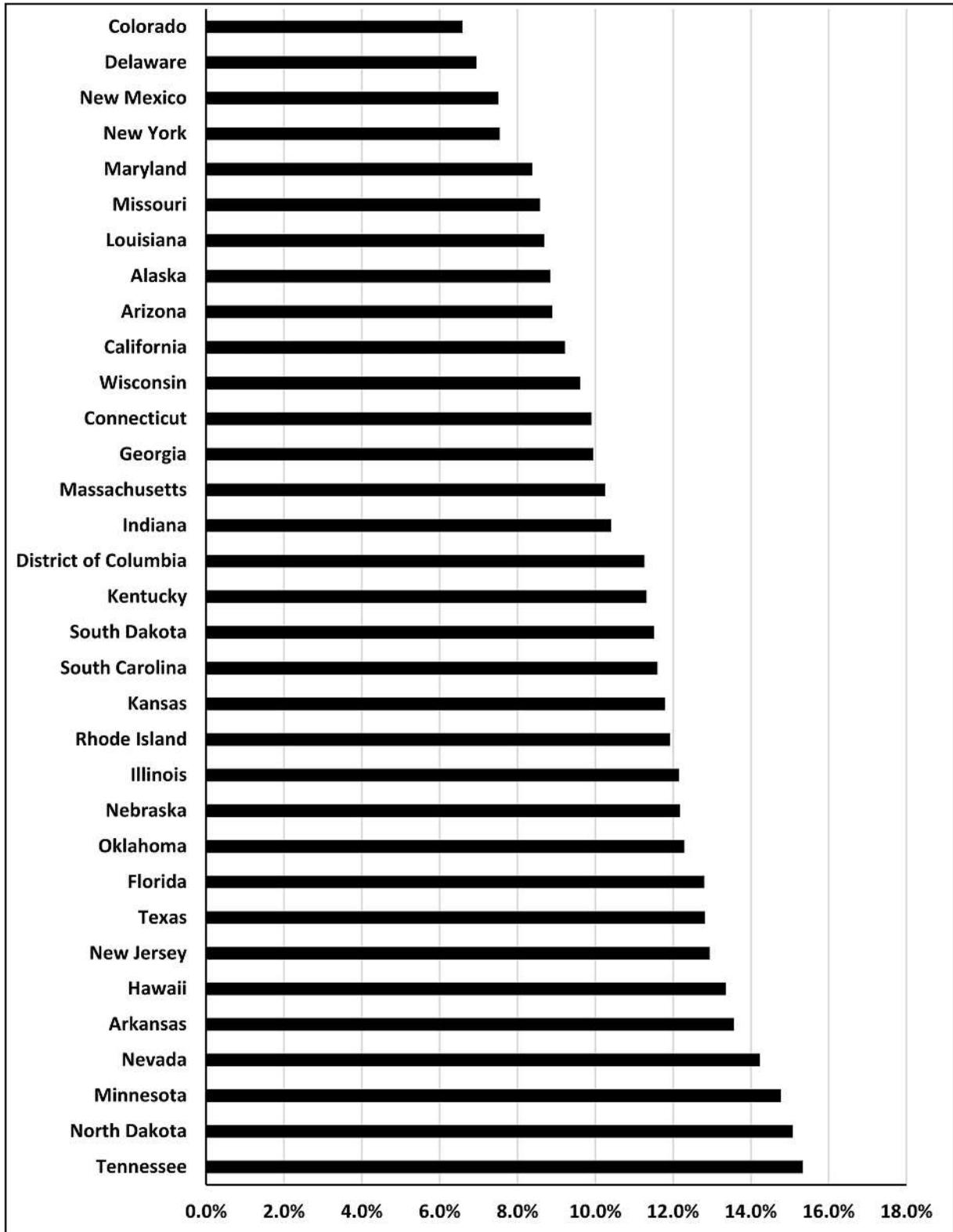


FIGURE 1. Proportion of costs attributable to excessive alcohol use accounted for by total alcohol taxes on a per-drink basis among the 32 license states in the United States, 2010. License states included the 32 states that did not have wholesale or retail monopolies on either wine or distilled spirits in 2010.

The methods used to generate the average beverage-specific prices on a national level are difficult to evaluate because they are proprietary. However, using the national average retail prices will overstate price in states with low alcohol excise taxes and understate prices in states with high alcohol excise taxes. Last, we compared the total alcohol taxes in states with total state costs attributable to excessive alcohol use in 2010 because that was the most recent year for which cost data were available. However, absent any adjustment in excise tax rates, the current total state alcohol taxes (in 2010 dollars) would likely be even lower than they were in 2010 because of inflation.

Increasing alcohol taxes could improve public health and reduce the disparity between alcohol-related costs and total alcohol taxes in states. This could also help prevent the reallocation of the societal cost of drinking from those who drink excessively to the general public. Conversely, if specific excise taxes are not increased, these taxes are likely to further erode over time because of inflation, which could result in an even greater disparity between alcohol taxes and alcohol-attributable costs.

References

- Alcohol and Tobacco Tax and Trade Bureau. (2016). *Tax and fee rates*. Retrieved from https://www.ttb.gov/tax_audit/taxrates.shtml
- Beverage Information Group. (2014). *Cheers On-Premise BARometer Handbook*. Norwalk, CT: EPG Special Information Media, LLC.
- Elder, R. W., Lawrence, B., Ferguson, A., Naimi, T. S., Brewer, R. D., Chatopadhyay, S. K., . . . Fielding, J. E., & the Task Force on Community Preventive Services. (2010). The effectiveness of tax policy interventions for reducing excessive alcohol consumption and related harms. *American Journal of Preventive Medicine, 38*, 217–229. doi:10.1016/j.amepre.2009.11.005
- LaVallee, R. A., & Yi, H.-Y. (2012). *Surveillance report #95: Apparent per capita alcohol consumption: National, state, and regional trends, 1977–2010*. Retrieved from <https://pubs.niaaa.nih.gov/publications/surveillance95/cons10.htm>
- Naimi, T. S. (2011). The cost of alcohol and its corresponding taxes in the U.S.: A massive public subsidy of excessive drinking and alcohol industries. *American Journal of Preventive Medicine, 41*, 546–547. doi:10.1016/j.amepre.2011.08.001
- Naimi, T. S., Blanchette, J. G., Xuan, Z., & Chaloupka, F. J. (2018). Erosion of state alcohol excise taxes in the United States. *Journal of Studies on Alcohol and Drugs, 79*, 43–48. doi:10.15288/jsad.2018.79.43
- Naimi, T. S., Brewer, R. D., Miller, J. W., Okoro, C., & Mehrotra, C. (2007). What do binge drinkers drink? Implications for alcohol control policy. *American Journal of Preventive Medicine, 33*, 188–193. doi:10.1016/j.amepre.2007.04.026
- National Institute on Alcohol Abuse and Alcoholism. (2013). *Alcohol Policy Information System (APIS)*. Retrieved from www.alcoholpolicy.niaaa.nih.gov/
- National Institute on Alcohol Abuse and Alcoholism. (2017). *What is a standard drink?* Retrieved from <http://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/what-standard-drink>
- Sacks, J. J., Gonzales, K. R., Bouchery, E. E., Tomedi, L. E., & Brewer, R. D. (2015). 2010 national and state costs of excessive alcohol consumption. *American Journal of Preventive Medicine, 49*, e73–e79. doi:10.1016/j.amepre.2015.05.031
- Shanken, M. (2011). *IMPACT Databank Review and Forecast: The U.S. Spirits, Wine, and Beer Markets*. New York, NY: M. Shanken Communications.
- Sornpaisarn, B., Shield, K. D., Österberg, E., & Rehm, J. (Eds.). (2017). *Resource tool on alcohol taxation and pricing policies*. Geneva, Switzerland: World Health Organization.
- Tax Foundation. (2010). *State sales, gasoline, cigarette, and alcohol tax rates by state, 2000-2010*. Retrieved from <https://taxfoundation.org/state-sales-gasoline-cigarette-and-alcohol-tax-rates>
- Thomson Reuters. (n.d.). WestlawNext. Retrieved from <http://next.westlaw.com>
- Wagenaar, A. C., Salois, M. J., & Komro, K. A. (2009). Effects of beverage alcohol price and tax levels on drinking: A meta-analysis of 1003 estimates from 112 studies. *Addiction, 104*, 179–190. doi:10.1111/j.1360-0443.2008.02438.x
- Wagenaar, A. C., Tobler, A. L., & Komro, K. A. (2010). Effects of alcohol tax and price policies on morbidity and mortality: A systematic review. *American Journal of Public Health, 100*, 2270–2278. doi:10.2105/AJPH.2009.186007
- Xuan, Z., Chaloupka, F. J., Blanchette, J. G., Nguyen, T. H., Heeren, T. C., Nelson, T. F., & Naimi, T. S. (2015). The relationship between alcohol taxes and binge drinking: Evaluating new tax measures incorporating multiple tax and beverage types. *Addiction, 110*, 441–450. doi:10.1111/add.12818