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Who Pays Sin Taxes?

Understanding the Overlapping Burdens of Corrective Taxes

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“Sin taxes”—or excise taxes on particular goods that society deems harmful—are popular in the United States. Federal, state, and local governments levy taxes on alcohol and tobacco with the dual and sometimes conflicting goals of curbing consumption and raising revenue. For many of these products, taxes represent a large share of the overall price. In New York City, a 1.75L bottle of vodka might sell for as little as $11.99 of which $7.97 is tax; and a $13.00 pack of cigarettes includes $6.86 in taxes.

To forward these goals, taxes on sin goods have grown in recent years. In 2009, the federal excise tax on a pack of cigarettes increased from $0.39 to $1.01. As part of the 2021 reconciliation package, House Democrats proposed doubling that to $2.00 per pack. All but nine states have substantially raised their tobacco taxes in the past two decades, with the median tax on cigarettes more than quadrupling between 2000 and 2021 from $0.34 to $1.78. Meanwhile, tax revenues from alcoholic beverages have grown, due to both rising consumption and state tax rate increases. Over the past decade, several localities have also levied new taxes on sugar-sweetened beverages (SSBs), with dozens more considering such taxes. Relative to income taxes, general sales taxes, or excise taxes on gasoline, sin taxes enjoy broad public support across the political spectrum.

One complaint about sin taxes is that they are regressive. One way to counter the regressivity would be to transfer some of the sin-tax revenue back to households through the income tax code. This is difficult (and less effective) if the sin-tax burdens of households with similar incomes vary drastically. It also requires understanding the combined burden across multiple sin taxes. Most studies focus on sin taxes for a single category in isolation, such as alcoholic beverages, SSBs, or cigarettes.

In our research, we draw on data describing household purchases of alcoholic beverages, tobacco, and SSBs

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and provide new measures of the concentration of total sin-tax burdens. Because a relatively small set of households purchase large shares of multiple sin goods, sin tax burdens are highly concentrated; the top 10 percent of sin-tax payers account for 80 percent of all sin taxes while the majority of households pay little to no sin tax. This extreme variation of burdens across the full population also holds among members of any income or demographic group, complicating both welfare analysis and measurements of distributional impacts. Conventional economic models based on averages—even averages within income or other demographic groups—will likely miss the extreme differences in sin goods purchases across households and obscure the stark distributional impacts. Analysis of potential policy reforms, such as the Congressional Budget Office's revenue options report, that aims to assess the distributional effects of changing sin-tax policy should move beyond average impacts by income group to meaningfully capture the impact of reforms.

Our analysis begins with documenting the high concentration of beer, wine, spirits, and cigarette purchases. Just 10 percent of households account for more than 80 percent of alcoholic beverage purchases by volume, while the bottom half of the distribution nearly abstains totally from purchases of beer, wine, or spirits. For cigarettes, 8 percent of households are responsible for virtually all purchases. We also consider a hypothetical national penny-per-ounce tax on SSBs, which would be more broadly borne since sugary beverages are purchased by three-quarters of households and since the top 10 percent of purchasers account for only 55 percent of sales volume.

The burden of sin taxes is further concentrated because households tend to purchase multiple categories of sin goods or none at all. This is particularly true of smokers, who in addition to buying highly taxed tobacco products also purchase larger quantities of SSBs as well as beer and spirits than the typical household. Heavy purchasers of wine, beer, or spirits also tend to purchase large quantities of the other alcoholic beverage categories. As a result, combined burdens are even more concentrated than sin taxes on individual categories, with the top 20 percent of households paying more than 90 percent of sin taxes.

These concentrated sin-tax burdens are not well explained by demographics such as income, education, age, race, or even state-level tax rates; the correlation between cigarette taxes and income, for example, is weakly negative at only −0.06. We document far more variation in sin-good purchases within income groups than across them, and the median household at all income levels faces little or no exposure to sin taxes, rendering the overall progressivity or regressivity of sin taxes less meaningful. Though household demographics explain only a tiny fraction of the variation of sin-tax burdens across households, the burdens are well explained by household purchase patterns (i.e., preferences), which appear to be relatively stable across time.

To account for both the multiple dimensions of dependence and the extreme concentration in sin-good purchases, we assign each household to one of eight mutually exclusive data clusters. These clusters explain 80 percent of the overall variation in sin-tax burden, while demographics alone explain less than 4 percent. Two clusters, which we label "Everything" and "Smokers," compose 8 percent of the population but pay 63 percent of existing sin taxes, averaging approximately 2 percent of income. These households are disproportionately from the bottom income quintile, have low education, and are aged 55–64. Demographically, these households bear a striking similarity to those that other researchers describe as most susceptible to deaths of despair. Because they also purchase more sugary beverages than any other clusters, the "Everything" and "Smokers" clusters would also bear a disproportionate share of new taxes on SSBs.

Households in the third-most-taxed cluster, which we label "Heavy drinkers," on average purchase the equivalent of 11 alcoholic drinks per adult per week and make up 6.7 percent of the population. They are most likely to come from the highest education and income groups. Most previous studies suggest that wealthier households are less price-sensitive and respond to price increases by switching to less expensive products rather than away from alcoholic beverages altogether. This suggests corrective taxes may be less effective at discouraging consumption among these households. If negative externalities grow more than proportionately with alcohol consumption, this group along with the "Everything" group would compose 9 percent of the population yet be responsible for almost 60 percent of alcohol's external damage. At the same time, the effective alcohol tax rate faced by these groups is not particularly high when compared with moderate spirits purchasers.

Assigning households to clusters also allows us to explain the evolution of the sin-tax burden from 2007–2020. Within a cluster, the sin-tax burden is relatively constant over time, even as some states changed statutory tax rates. Between 2007 and 2019, the "Everything" and "Smokers" clusters shrank by more than one-half, while the cluster of households purchasing little to no sin goods grew by nearly 70 percent. As a result, the share of sin taxes paid by the top 1 percent of sin-tax payers grew by 40 percent. These long-run trends reversed in 2020 with an uptick in the population shares of "Everything" and "Heavy drinkers." This reversal merits more investigation—it might be that the COVID-19 lockdowns led to higher purchases of alcoholic beverages or that consumption shifted from bars and restaurants, which our data do not cover, to the at-home purchases our data capture.

Our findings suggest that policymakers should carefully consider the distributional implications of raising tobacco, alcohol, or SSB taxes. A narrow set of households bears these taxes; unless policymakers believe that even higher taxes will lead them to smoke and drink substantially less, this small swath will bear much of the additional burden too. Policy assessment will need to move beyond average impacts on demographic groups to account for differences in preferences and incomes to accurately capture the welfare effects of different interventions.

NOTE

This research brief is based on Nirupama Rao and Yinan Wang, "Who Pays Sin Taxes? Understanding the Overlapping Burdens of Corrective Taxes," *Review of Economics and Statistics* (forthcoming), June 16, 2020.