The Political Economy of Soda Taxation

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The Political Economy of Soda Taxation

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Abstract

There has been an increase in the prevalence of obesity in the United States over the past several decades. The academic literature has highlighted numerous possible causes, including the consumption of soda and other sugar-sweetened beverages. Soda taxes have been suggested as a way of reducing the consumption of sugar-sweetened beverages and a number of U.S. states “disfavor” sugar-sweetened beverages relative to food in their tax code. In this note we employ a political economy model to explain the adoption of these “soda taxes.” We find that more Democratic states and those with a higher rate of adult obesity are more likely to have soda taxes and states with more convenience stores per capita are less likely to have adopted a tax.

JEL Codes: D72; H75

Key Words: soda, sugar-sweetened beverages, political economy, median voter, special interests

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1 Introduction

Obesity has emerged as a cause of serious concern in the United States and the rest of the world in recent decades (Philipson, 2001). In the early 1970s, approximately 15% of adults were obese in the United States (Cutler et al., 2003). By 2010 that number had risen to approximately 35% (Flegal et al., 2012). A prominent explanation for this change has been the falling price of calorie-dense foods such as soda and other sugar-sweetened beverages (SSBs) (Lakdawalla and Philipson, 2009). Of the 250 to 300 of additional calories Americans consume today versus several decades ago, Brownell and Frieden (2009) point out that half of those calories are due to SSBs.

Given the effectiveness of cigarette taxes on consumption (Stehr, 2007), public health officials in numerous states have called for higher taxes on SSBs (Brownell and Frieden, 2009). According to one estimate, a one cent per ounce tax on SSBs could lead to between a 12 and 20% decline in consumption (Brownell et al., 2009). Wang et al. (2012) report similar findings. While studies showing large effects of SSB taxes on consumption and health outcomes have been criticized for not fully accounting for substitution effects (Fletcher et al., 2015), the call for taxes on SSBs continues to intensify (Colantuoni and Rojas, 2015).

To this point the economic literature has focused entirely on the effect of SSB taxes on consumption, health outcomes, and health disparities (Dharmasena and Capps, 2012; Sharma et al., 2014; Etilé and Sharma, 2015). While crucially important to understanding the effects of these taxes, it is also important to understand the factors underlying the adoption of these taxes. In doing so we follow in a small literature on the political economy of taxation (Holcombe, 1997; Besley and Rosen, 1998; Kenny and Winer, 2006; Hall and Ross, 2010; Duncan and Gerrish, 2014; Hoffer, 2016). This literature remains agnostic on whether a particular tax is normatively good or bad and instead focuses on how the political and economic factors associated with a jurisdiction influence tax use and structure.

We build off this literature to determine the factors influencing the adoption of soda taxes at the state level. We employ state-level data from Chriqui et al. (2014). As of
January 1, 2014 there were twenty-two states where the sales tax on soda sold through grocery and convenience stores was higher than the rate applied to regular food products. We follow Congleton and Bennett (1995) and use a combined median voter and special interest empirical political economy model and find evidence in favor of both median voter and special interest influence.

2 Data

While much of the political discussion regarding soda and other SSBs taxes has focused on the imposition of new or higher rates on SSBs, in practice much of what is called a “soda tax” occurs by states’ exempting groceries but taxing SSBs at the general sales tax rate. For example, West Virginia eliminated its sales tax on food purchased for home consumption in 2013 but chose to continue to tax SSBs at the normal sales tax rate of 6 percent. Conversely, Idaho has a state sales tax of 6 percent on regular food sold for home consumption and soda is taxed at that rate. The five states without statewide sales taxes levy no additional tax on SSBs. We define any state as having a tax on soda if the sales tax on regular soda is higher than the general sales tax on food as of January 1, 2014. This is often called a “disfavored” tax (Taber et al., 2014).

Our political economy model is one where both the interests of the median voter and special interests can play a role. The median voter model assumes that political outcomes reflect the preferences of the median voter (Congleton, 2004). Empirically, variables representing the median voter’s interests and preferences should help explain outcomes of majoritarian decision-making. At the same time, special interests group models of political economy emphasize that public programs have different effects on different groups of citizens in society. Therefore, those with the most to gain (or lose) from a policy will want to play a large role in the political process (Becker, 1983; Congleton and Bennett, 1995).

We employ three variables to model the preferences of the median voter. First, Chriqui et al. (2008) point out that many adopt SSB taxes during time of fiscal crisis. We use
state debt per capita during fiscal year 2013 from Tax Foundation (2015) to proxy for the extent to which the median voter feels they need revenue from taxing SSBs. Second, citizen preferences regarding the prevalence of the obesity problem might inform their views towards SSB taxes. We therefore control for the adult obesity rate in each state in 2012 obtained from the Behavioral Risk Factor Surveillance System (Winterfield, 2014). Third, we control for overall voter ideology and political preferences by including the percentage of votes in the 2012 Presidential election received by the Democratic candidate, President Barack Obama.

Special interests, such as soda companies, have played a prominent role in many city and state SSB tax battles (Onshi, 2012). Empirically, however, it is difficult to measure the influence of so-called “Big Soda” at the state level. Instead, we identify three potential special interest groups that have a strong incentive to influence SSB tax policy and may be able to influence policy due to their low cost of organizing: sugar producers, corn producers, and convenience stores. State-level production of beet and cane sugar (1,000 of short tons, raw value) in 2013 was obtained from Economic Research Service (2015) and put into per capita terms. Similarly, corn production (per 1000 bushels) by state was obtained from National Agricultural Statistics Service (2015) and also placed in per capita terms. Our prior is that states with higher production of corn and sugar will, ceteris paribus, be less likely to disfavor SSBs. The number of convenience stores per capita in each state in 2013 was calculated from data obtained from News. States with more convenience stores per capita, we hypothesize, will be less likely to disfavor SSB since convenience stores owners are a well-identified group with a strong interest against an SSB tax.

Table 1 presents summary statistics of all independent variables. There is considerable variation in our variables of interest. For example, Vermont, Mississippi, and Alabama have the three highest number of convenience stores per capita, with just under one convenience store for every 1000 residents.
Table 1: Summary Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Obesity Rate, 2013</td>
<td>28.74</td>
<td>3.36</td>
<td>21.3</td>
<td>35.1</td>
</tr>
<tr>
<td>State Government Debt Per Capita, FY 2013</td>
<td>4848.42</td>
<td>6914.60</td>
<td>925.0</td>
<td>50241.0</td>
</tr>
<tr>
<td>% of Democratic Presidential Votes, 2012</td>
<td>48.18</td>
<td>10.28</td>
<td>24.8</td>
<td>70.5</td>
</tr>
<tr>
<td>Corn Production Per Capita, 2013</td>
<td>0.093</td>
<td>0.229</td>
<td>0</td>
<td>1.31</td>
</tr>
<tr>
<td>Sugar Production Per Capita, 2013</td>
<td>0.00046</td>
<td>0.0013</td>
<td>0</td>
<td>0.008</td>
</tr>
<tr>
<td>Convenience Stores Per Capita, 2013</td>
<td>0.00054</td>
<td>0.00134</td>
<td>0.00028</td>
<td>0.00098</td>
</tr>
</tbody>
</table>

Note: N=50. For sources of data, see discussion in text.

3 Empirical Results

Due to the binary nature of our dependent variable, we estimate our empirical model using probit, although results using logit and a linear probability model are quantitatively and qualitatively similar. Table 2 shows the probit results. In terms of our median voter model variables, we find that the adult obesity rate and the % of individuals voting Democratic during the 2012 Presidential election both positively explain the “disfavoring” of SSBs in the state tax code in a statistically significant manner. Our special interest variables do not perform as well, with corn and sugar production per capita not explaining the likelihood of a state disfavoring SSBs. The number of convenience stores per capita, however, is negatively related to a state disfavoring SSBs relative to food.

In addition to unreported logit and linear probability model regressions, we estimated the above model controlling for the average number of sunshine days and median household income. These additional variables were not statistically significant and slightly improved the size and significance of the results reported here. We were also concerned that there might be a big difference between the administrative decision to not treat SSBs like food and the decision to tax SSBs if the state does not have a sales tax. We therefore re-estimated the Probit regression reported here for a sample excluding the five states without a statewide sales tax. Our findings were unchanged. Finally, it might be more difficult to disfavor SSBs in states with a higher sales tax rate since the “cost” of disfavoring soda relative to food is larger. We therefore calculated the difference between the sales tax on food and SSBs and...
employed that as our dependent variable in an OLS regression with the controls included in 2. The observed relationships were the same.

Table 2: Probit Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Estimated Coefficient</th>
<th>Marginal Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Obesity Rate</td>
<td>0.1536 *</td>
<td>0.0479 **</td>
</tr>
<tr>
<td></td>
<td>(0.0827)</td>
<td>(0.0232)</td>
</tr>
<tr>
<td>State Government Debt Per Capita, FY 2013</td>
<td>-0.00069</td>
<td>-0.000021</td>
</tr>
<tr>
<td></td>
<td>(.0001)</td>
<td>(0.00003)</td>
</tr>
<tr>
<td>% of Democratic Presidential Votes, 2012</td>
<td>0.0722 **</td>
<td>0.0225 ***</td>
</tr>
<tr>
<td></td>
<td>(0.0312)</td>
<td>(0.0081)</td>
</tr>
<tr>
<td>Corn Production Per Capita, 2013</td>
<td>-0.0912</td>
<td>-0.0284</td>
</tr>
<tr>
<td></td>
<td>(1.2853)</td>
<td>(0.4006)</td>
</tr>
<tr>
<td>Sugar Production Per Capita, 2013</td>
<td>158.6999</td>
<td>49.476</td>
</tr>
<tr>
<td></td>
<td>(211.83)</td>
<td>(64.96)</td>
</tr>
<tr>
<td>Convenience Stores Per Capita, 2013</td>
<td>-3042.67 **</td>
<td>-948.58 **</td>
</tr>
<tr>
<td></td>
<td>(1471.71)</td>
<td>(394.86)</td>
</tr>
</tbody>
</table>

Note: Dependent variable is a binary variable equaling 1 if the tax on SSBs is higher than the sales tax applied to food purchased for home consumption. N=50 and the pseudo-$R^2=0.19$. *, **, and *** denote statistical significant at the 10, 5, and 1% levels, respectively. Numbers in parentheses are absolute standard errors. Marginal effects are average marginal effects. Constant included but not reported.

4 Conclusion

The economics literature has used the disfavoring of SSBs relative to food as a measure the impact of soda taxes on individual behavior. In this letter, we investigate the political economy forces driving the disfavoring of SSBs. We find that the adult obesity rate and voter ideology positively influences the disfavoring of SSBs, while the number of convenience stores per capita make it more likely that soda is treated like food sold for home consumption. To the extent that treating soda as a non-food for tax purposes is similar to enacting a separate higher rate on SSBs, our results inform ongoing attempts by public health policymakers to enact taxes on SSBs at the state and local levels.
References


