

Fast Food Restaurant Taxes, Soda Taxes, and Weight Outcomes among U.S. Adults

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bridging the gap

Research Informing Policies & Practices
for Healthy Youth

Background: Soda

- Link between state-level Soda Taxes and BMI
 - Weak among adults (Fletcher, Frisvold, and Tefft 2009)
 - NOT significant among adolescents (Powell, Chriqui, & Chaloupka 2009)
- No research examining state-level restaurant taxes and weight outcomes

Background: Restaurant

- Increase in the consumption of foods away from home (FAFH), food at full-service and fast food restaurants.
- Over 45% of household food budgets and over 6% of total household budgets are spent on FAFH (McGranahan 2008).
- Link between number of fast-food and full-service restaurants and adult obesity (Chou, Grossman, & Saffer 2004).

Purpose

To assess the potential of fast food restaurant and soda taxes as potential policy instruments to address the obesity epidemic among U.S. adults.

Definitions: Soda Tax

- Depending on the state definitions, taxes on sodas and other beverages are based on either the general sales tax or the food sales tax
- General sales tax applies when “food” is defined to explicitly exclude items of interest
 - *E.g., KY Rev Stat Ann 139.485: “Food and food ingredients” are not taxable items; however, “food and food ingredients” shall not include...soft drinks.*
 - *In this example, food generally is not taxed but soft drinks are taxed at a rate of 6% (same as state sales tax)*

Many people may wonder if there are any natural ways to pass a urine drug test. The fact that there exist is wonderful. In actuality, there are home treatments that can help you pass a drug test in 24 hours. Narcotics can be eliminated from the body naturally. Your self-esteem will soar, and you'll feel more pure.

<https://www.impactteen.org/pass-urine-drug-test>

Definitions: Restaurant Tax

- Taxes on restaurants and prepared food bought for home consumption (or on-premises consumption) apply based on the **general state sales tax** rates and not based on the food tax rates
 - *And, thus, these taxes are higher than tax rates applied to food items generally*
- Restaurant taxes do not differ based on full-service, fast food, carryout or drive-through/quick service
- 47 states tax restaurant/prepared food sales based on primary legal research conducted by the Bridging the Gap Program

Definitions: Restaurant Tax Cont.

- 14* states specifically mention restaurants in their definition of taxable items
 - *For example, AZ Rev. Stat. specifically defines restaurants as a type of establishment subject to transaction privilege taxes based on proceeds from gross receipts*
- 34* states specifically mention prepared food or food purchased away from home in their definition of taxable items
 - *For example, ME Rev Stat Ann tit. 36 8 1752: “Prepared food means...(c) all food and drinks sold from an establishment whose sales of food and drinks that are prepared by the retailer account for more than 75% of the establishment’s gross receipts”*
- 2* states and DC specifically tax restaurant sales
 - *For example, D.C. CODE ANN. 47-2001(g-1): “Food or drink for immediate consumption includes...all food or drink, served by, or sold in or by, restaurants....”*

Data

- (BRFSS) Behavioral Risk Factor Surveillance System
 - Nationally representative sample of adults
 - Pooled cross-sections 1997-2008
 - Body mass index (BMI) and obesity ($BMI \geq 30$)
- State Tax Data
 - Our own data file containing specific tax amount for each state for each year
 - Fast food restaurant and soda taxes

Sample

- Final N=1,948,833
- Exclusion Criteria:
 - Currently pregnant
 - Younger than 20 years of age
 - Older than 64 years of age
 - Missing on height weight or control variables

Analysis

- **Models**
 - Logistic for probability of obese
 - OLS for BMI
- weighted using the BRFSS sampling weights
- State level clustering

- **Unobserved trends**
 - year fixed effects
 - state median household income control

- **Additional Controls**
 - individual demographics and ses, state cigarette tax

Results: Soda

	Obese/Logistic Regression OR (95% CI)	BMI/OLS Regression b (s.e.)
Females		
No tax (0%) - <i>reference</i>	1.00	
Low tax (>0 %- <4%)	1.07 (0.95 – 1.19)	0.14 (0.16)
Middle tax (>4% - <6%)	1.01 (0.88 – 1.17)	0.04 (0.19)
High tax (≥6%)	1.03 (0.91 – 1.17)	0.09 (0.18)
Males		
No tax (0%) - <i>reference</i>	1.00	
Low tax (>0 %- <4%)	1.05 (0.95 – 1.17)	0.15 (0.11)
Middle tax (>4% - <6%)	1.01 (0.91 – 1.12)	0.08 (0.12)
High tax (≥6%)	1.04 (0.95 – 1.15)	0.11 (0.11)

** p<.05

Results: Fast Food Restaurant

	Obese/Logistic Regression OR (95% CI)	BMI/OLS Regression b (s.e.)
Females		
No tax (0%) – <i>reference</i>		
Some tax (>0 - <8%)	0.96 (0.83 – 1.10)	-0.15 (0.20)
High tax (≥ 8%)	0.83** (0.70 – 0.98)	-0.55** (0.27)
Males		
No tax (0%) – <i>reference</i>		
Some tax (>0 - <8%)	1.06 (0.96 – 1.17)	0.17 (0.12)
High tax (≥ 8%)	0.93 (0.72 – 1.19)	-0.15 (0.33)

** p<.05

Results: Fast Food Restaurant

	Obese/Logistic Regression OR (95% CI)	BMI/OLS Regression b (s.e.)
Females		
No tax (0%) – <i>reference</i>	1.00	
Some tax (>0 - <8%)	0.96 (0.83 – 1.10)	-0.15 (0.20)
High tax (≥ 8%)	0.83** (0.70 – 0.98) [-0.001 (0.005)]	-0.55** (0.27) [-0.0002 (0.00009)]
Males		
No tax (0%) – <i>reference</i>	1.00	
Some tax (>0 - <8%)	1.06 (0.96 – 1.17)	0.17 (0.12)
High tax (≥ 8%)	0.93 (0.72 – 1.19)	-0.15 (0.33)

** p<.05

Limitations

- only examine state-level taxes, not including county or local taxes
- Models do not include information about consumption
- stability of the elasticity
 - Reduced by % of population with significant effect
 - Restaurant taxes are somewhat stable across time

Conclusions

- Current tax rates are too small to generate substantial changes in consumption or weight outcomes
- Restaurant-specific taxes hold more potential than soda
- Restaurants may be a good point of intervention for the obesity epidemic