



SPRING SEMINAR SERIES

Jason M. Fletcher, PhD

April 8, 2009

Can State Level Policies Influence Children's Weight? Evidence Using Soft Drink Taxes and Vending Machine Bans

- Assistant Professor, Division of Health Policy and Administration, School of Public Health, Yale University
- **Motivation:** struck by the many policy interventions to reduce obesity prevalence but they are expensive and take a long time to see results
- Is there anything cheap and easy that will allow us to see results sooner?
 - State taxes on food and drink
 - Vending machine ban in schools
- Current focus is on soft drink consumption, which leaves out snack food consumption, but will broaden to include later
- **Why soft drinks?** Struck by the importance in the literature of soft drink consumption, especially the claim that soft drink consumption is the single largest contributor to calorie intake
- Could a decrease in consumption do anything? Literature suggests yes, that a small change in diet (reduction of 100 calories a day) could lead to weight changes

TAXATION

- If you increase the price of soft drinks will people drink less?
- Project looks to see if there is a change in adult weight with small tax rates on soda (3-5%)
- Overlay BRFSS data (1.3 million sample) with adult weights in each state with the state soda tax to see if people in states with higher taxes have lower weights
 - Alabama had no tax change over a 5-year period, but many states may go up or down by 1 percentage point
- Found that in the first year of a small tax change that there were very small weight changes
- What if there was a big tax change? NY proposed a 16-18% soda tax. Would that lead to greater weight loss changes?

- It's a "Black Box": all we can do is look at the end result, but we don't know everything that is going on. For example, maybe people are decreasing soda consumption but increasing snack food consumption and decreasing exercise.

Taxation and Children

- Used the EGLS-K data set which had a nationally representative sample of 5th graders who reported their own soft drink consumption
- It was a single cross section:
 - Average soda consumption in the last week = 4 sodas
 - 13% drank a soda that came from school, which means a lot are drinking soda outside of school.
 - 40% of the sample was overweight or obese.
- Found that if there is an increase in soda tax in the state that soda consumption decreases by one-tenth of a soda per week
 - Therefore, a small tax doesn't really reduce soda consumption in children.
- **Ongoing work:** trying to see what else is going on with children. Looking at the restricted NHANES and YRBS (Youth Risk Behavior Survey) to examine exercise and food consumption behaviors in order to compliment the work they are doing with adults

VENDING MACHINES

- What happens to children's weight if we ban vending machines from schools?
- In 2000, 25% of elementary schools sold soda in vending machines. (Note: in high schools almost every school has vending machines.)
- 2000-2004 Arkansas and California enacted vending machine bans in public schools
- One issue is that if you ban soft drink consumption in schools, children often turn to juice which still contributes excess calories to the diet. Also, vending machines are a source of revenue for the schools.
- 40% of kids can buy soda at school in ways other than through a vending machine, such as a school store or a la carte.
- Compared children's reported soda consumption in schools with vending machines to schools without and found that in schools with vending machines 86% drank soda in the past week and 84% without vending machines drank soda in the past week
- While there was little difference in how many children drank soda, those children with vending machines in school did consume more soda in school.
- 30% of children with no vending machines in school said they still could purchase soda in school other ways.
 - This tells you that if you take away vending machines kids will still drink the same amount of soda in total; therefore you won't affect their weight that way.

Next Steps

- Will use the 8th grade wave of data to look at states with new vending machine bans
- Also keep in mind that many students will now be in middle school where there are more vending machines

- Conclusion: Small policies in the short run using historical data do not seem to have changes in weight loss
- Will use Ohio as a case study to see if their large soft drink tax of 59% from 1993-1994 had an effect on weight by comparing it to other states at the time