Pricing Strategies for Reducing Obesity

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Making the Connection: Effective Approaches to Preventing Childhood Obesity
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Overview

• Why Pricing Strategies?
• What Pricing Strategies?
• Food Prices, Consumption and Obesity
• Beverage Taxes, Consumption and Obesity
• Pricing Policies to Promote Activity

Thanks to Lisa Powell, Jamie Chriqui, and other Bridging the Gap colleagues
Cigarette Prices & Cigarette Sales
1970-2010, Inflation Adjusted

Source: Tax Burden on Tobacco, BLS, and author’s calculations
Cigarette Prices & Adult Smoking Prevalence 2009

$y = -0.0132x + 25.518$

$R^2 = 0.1729$

Source: Tax Burden on Tobacco, BRFSS, and author’s calculations

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Cigarette Prices & Youth Smoking Prevalence

2009

Source: Tax Burden on Tobacco, YRBS, and author’s calculations

\[ y = -0.0129x + 25.34 \]
\[ R^2 = 0.1721 \]
Cigarette Prices, Cigarette Sales & Lung Cancer
1980-2006, Inflation Adjusted

Source: Nat Rev Cancer © 2009 Nature Publishing Group

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Source: Medscape
Pricing Policies to Curb Obesity

• Increases in prices of less healthy foods & beverages
  • taxes, elimination of corn subsidies, disallow purchases under food assistance programs

• Reductions in prices of healthier foods & beverages
  • subsidies, expanded or favored treatment under food assistance programs, purchasing cooperatives

• Increases in the costs of sedentary behaviors
  • taxes on video games, etc.; increased health & life insurance premiums

• Reductions in the costs of physical activity
  • tax credits for fitness programs, health club memberships, etc. ; exempt sports equipment from sales taxes

Source: Powell and Chaloupka, 2009; Chaloupka et al., 2009
Food Prices and Obesity Trends
Selected Food Price & Obesity Trends

1961-2009, Inflation Adjusted


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Selected Food Price & Obesity Trends
1978-2009, Inflation Adjusted


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Selected Food Prices & Youth Obesity Trends
1971-2009, Inflation Adjusted

Food Prices, Consumption and Obesity
A recent review of studies on the impact of food and beverage prices on consumption of various products; estimates suggest 10% own-price increase would reduce:

- Cereal consumption by 5.2%
- Fruit consumption by 7.0%
- Vegetable consumption by 5.9%
- Soft drink consumption by 7.8%
- Sweets consumption by 3.5%
- Food away from home consumption by 8.1%

Evidence from MTF: Community Food Environment and Youth Fruit and Vegetable Consumption and BMI

•Find that:
  
  • Youth in communities with lower fruit and vegetable prices have more frequent fruit & vegetable consumption and lower BMI
  
  • Youth in communities with lower fast food prices have less frequent fruit & vegetable consumption, higher BMI, and are more likely to be overweight

• 10 percent rise in fast food prices would increase probability of frequent F&V consumption by 3%, reduce BMI by 0.4% and lower probability of being overweight by 5.9%

Source: Powell, et al., Advances in Health Economics and Health Services Research, 2007
Evidence from MTF: Community Food Environment and Youth BMI

• Find that:
  • Impact of both fast food and fruit & vegetable prices greatest among youth in top of BMI distribution (most at risk group)
    • Above 90\textsuperscript{th} percentile, fast food price impact 4 times larger than average effect for full sample
    • Above 95\textsuperscript{th} percentile, fruit & vegetable price impact 5 times larger than average effect
    • Little impact of prices at low/mid-ranges of BMI
    • Supermarket availability inversely associated with BMI at all levels, with greater impact on upper end

Experimental Evidence

- Raised/lowered prices of 68 widely consumed foods and beverages by 12.5% and 25%
- Taxes on high calorie, low nutrient density foods:
  - Reduced purchases of high calorie, low nutrient foods
  - Increased purchases of low calorie, high nutrient foods
  - Increased proportion of protein, reduced proportion of fat purchased
  - Reduced overall calories purchased
- Subsidies on low calorie, high nutrient density foods:
  - Increased purchases of low calorie, high nutrient foods
  - Increased purchases of high calorie, low nutrient foods
  - Increased purchases of fat, protein, and carbohydrates
  - Increased overall calories purchased
- Suggests that taxing less healthy foods will reduce calories and weight, while subsidies unlikely to have significant impact

Sugar Sweetened Beverage Taxes and Obesity
Soda Consumption and Weight Outcomes
California Counties, 2005

Source: CA Center for Public Health Advocacy & UCLA Center for Health Policy Research 2009
Carbonated Beverage Prices & Youth Obesity Prevalence
1999-2009, Inflation Adjusted

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Sources: Bureau of Labor Statistics, Youth Risk Behavior Surveillance System on-line, and authors' calculations
Note: Three states also impose a mandatory statewide local tax that is not reflected in the above data: CA (1%), UT (1.25%), VA (1%).

Data Source: Bridging The Gap/ImpacTeen

 bridging the gap
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State sales taxes on selected beverages, January 1, 2011

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USDA study on SSB and other beverage consumption estimates that a 10% price increase in SSB prices would result in the following changes in consumption:

**Own-price effect:**
- SSBs: -12.6%

**Cross-price effects:**
- Diet beverages: -4.6%
- Skim milk: +2.0%
- Low-fat milk: +1.2%
- Whole milk: +2.2%
- Juices: +5.6%
- Coffee/tea: -3.8%
- Bottled water: +7.5%

Evidence on Soda Taxes and Weight

• Generally modest associations between existing soda taxes and body weight, obesity
  • based on the existing low state sales tax rates applied to all carbonated beverages which range up to just 7%
  • Complicated by substitution to other caloric beverages and other sources of calories in response to taxes on some beverages

• Sizable, sugar-sweetened beverage taxes (e.g. 1-2 cents per ounce) likely to have measurable effects on BMI and obesity prevalence
  • Greater impact on youth, lower-income, and higher weight populations
  • Would generate significant revenues that could support obesity prevention and reduction programs
Pricing Policies to Promote Activity
Canadian Experience

• Provincial/Federal income tax credits for costs of enrolling in organized physical activity program
  • Some provinces have gone further with a refundable credit for those who do not owe income tax
  • Federal tax credit for public transit passes
  • 5-6% uptake of various credits
  • Little reason to expect tax credits to significantly increase activity and reduce obesity
    • Modest credits relative to costs (~15%)
    • Disconnect between time of spending and when credit is claimed
    • Substitution of one type of activity to another with little or no net increase in activity
    • Used by those already active
  • Significant lost tax revenues

Canadian Experience

• Exemption of some products/services from provincial sales taxes
  • Bicycles, bike parts; recreational and athletic programs

• Likely to have more of an impact than tax credits, but unlikely to have significant impact
  • Reduction in price immediate
  • Relatively modest price affect
  • Substitution among different types of activity in response to which are treated favorably

• Need to consider whether or not the funds foregone by tax credits, rebates, exemptions could have been spent more effectively on other programs targeting obesity

Summary & Conclusions
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• Sizable taxes on less healthy foods/beverages:
  • Significantly reduce consumption of taxed products
  • Would almost certainly have population level impact on obesity, particularly among high risk populations
  • Generate significant revenues that could be used to support obesity prevention and reduction programs
  • Sugar-sweetened beverage excise tax of 1-2 cents per ounce most promising
Summary & Conclusions

• Subsidies for healthier foods/beverages:
  • Significantly increase consumption of subsidized products
  • May increase consumption of other, less healthy products
  • Net impact on diet, caloric intake and weight likely positive, but likely less than for comparable tax
  • Costly to implement
  • Subsidies of fruits & vegetables through food assistance programs most promising
Summary & Conclusions

• Pricing policies to promote activity:
  • Few have been tried, little evidence of impact
  • Costly
  • Unlikely to have population level impact on obesity
  • Much more research needed
ImpacTeen

http://www.impacteen.org

Bridging the Gap

http://www.bridgingthegapresearch.org

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