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Research Informing Policies & Practices
for Healthy Youth

Pricing Strategies for Reducing Obesity

2011 Leadership for Health Communities Childhood Obesity Prevention Summit
Making the Connection: Effective Approaches to Preventing Childhood Obesity
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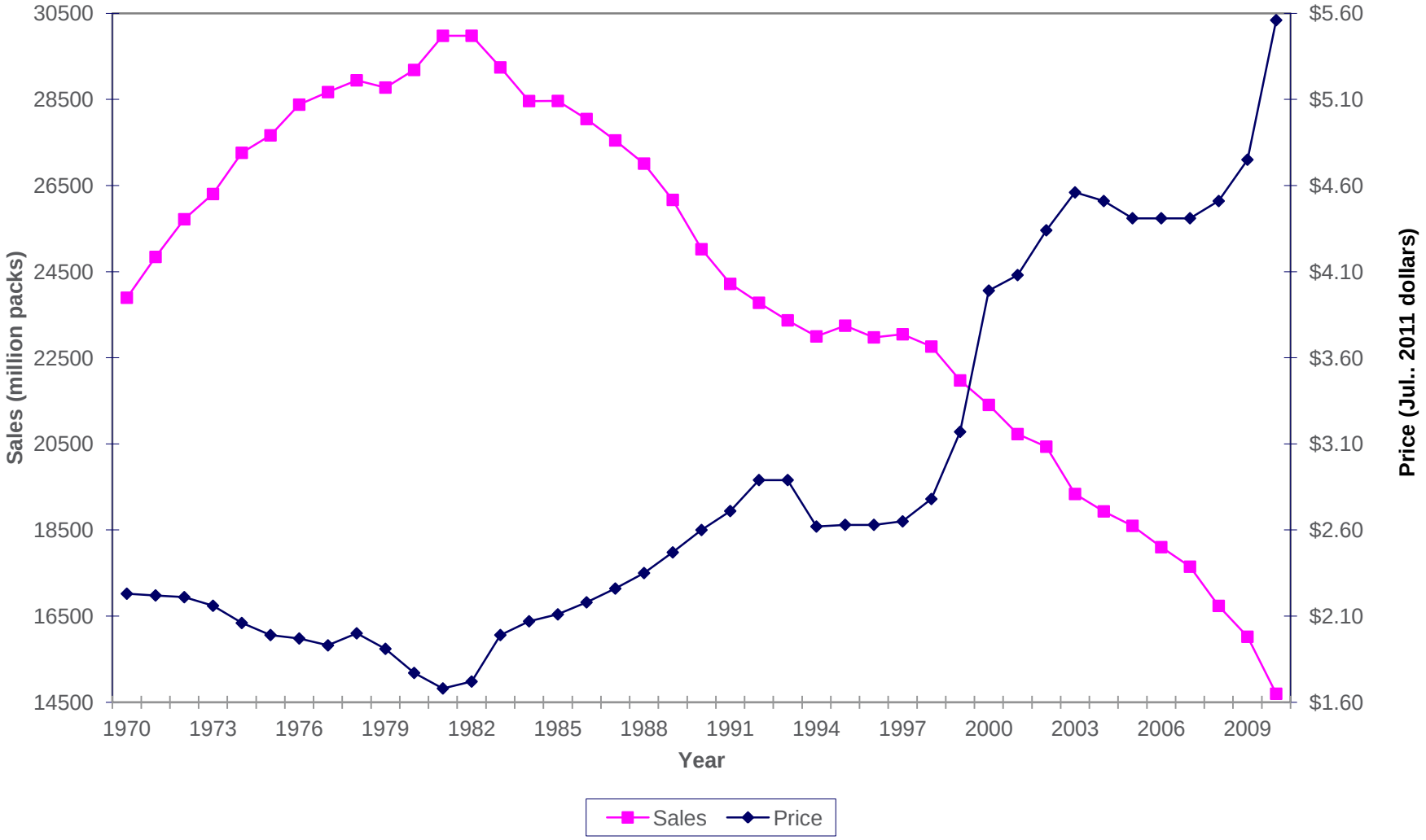
Overview

- 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



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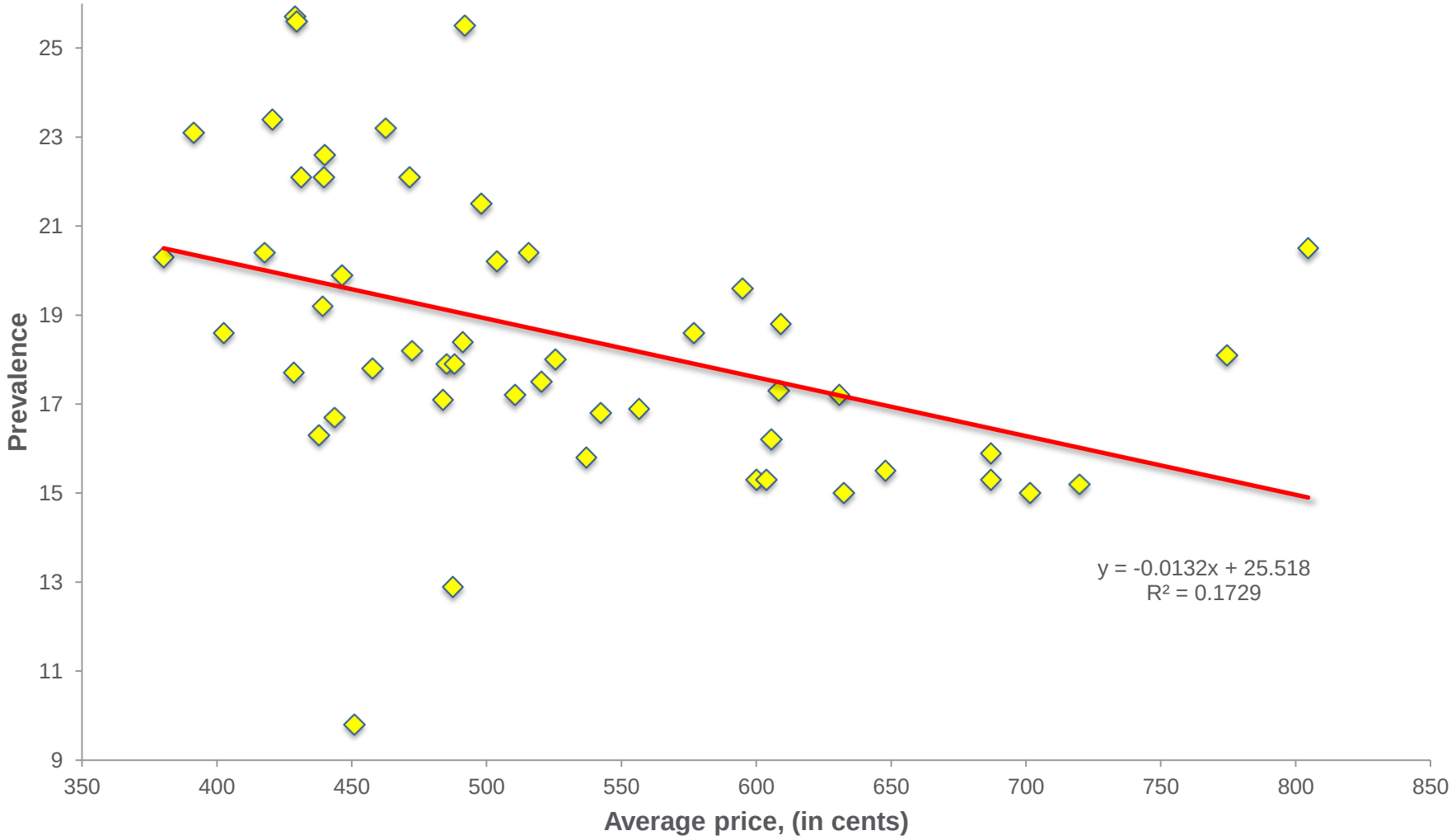
Source: Tax Burden on Tobacco, BLS, and author's calculations

Cigarette Prices & Adult Smoking Prevalence

2009



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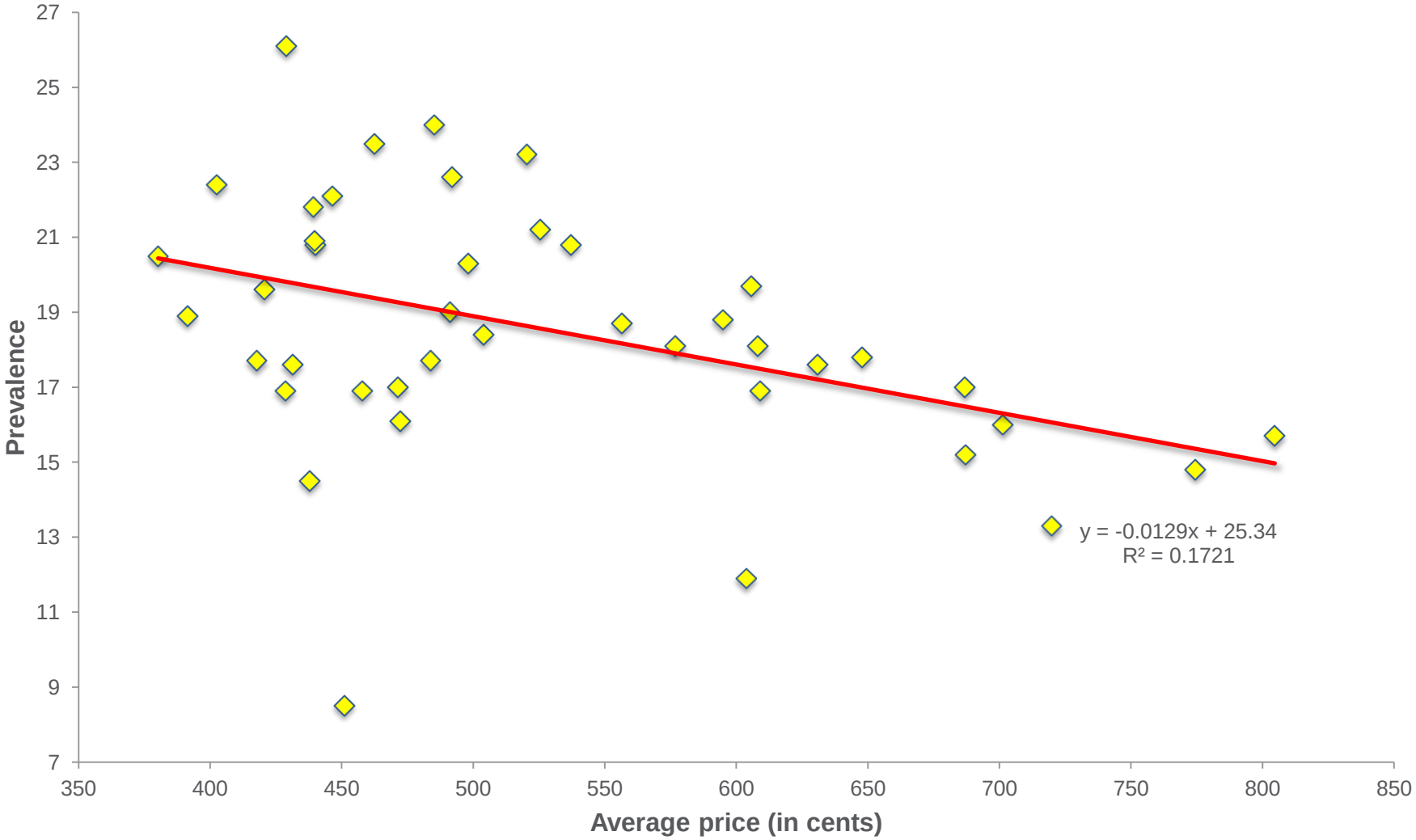
Source: Tax Burden on Tobacco, BRFSS, and author's calculations

Cigarette Prices & Youth Smoking Prevalence

2009



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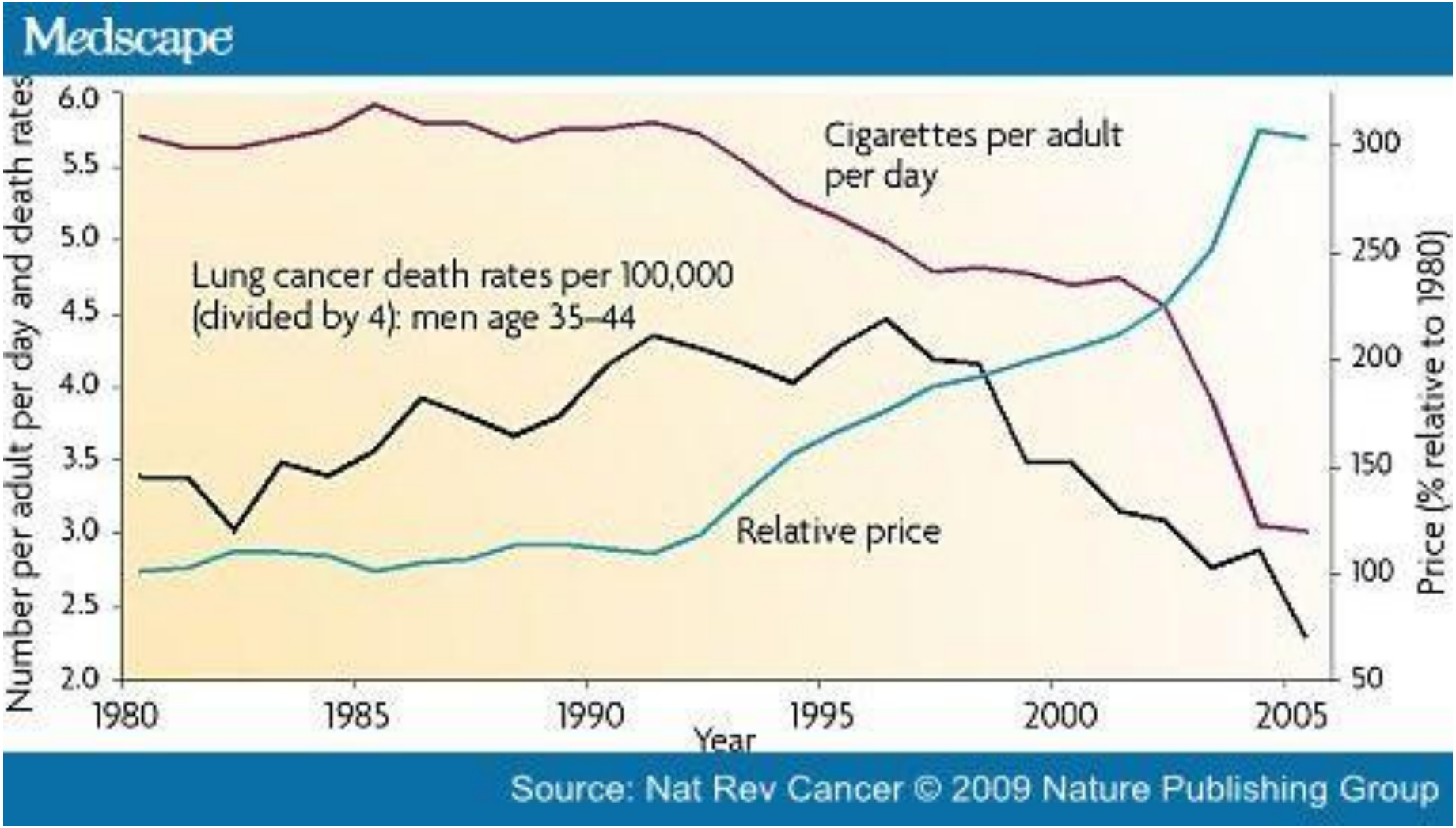
Source: Tax Burden on Tobacco, YRBS, and author's calculations

Cigarette Prices, Cigarette Sales & Lung Cancer

1980-2006, Inflation Adjusted



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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

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Selected Food Price & Obesity Trends

1961-2009, Inflation Adjusted

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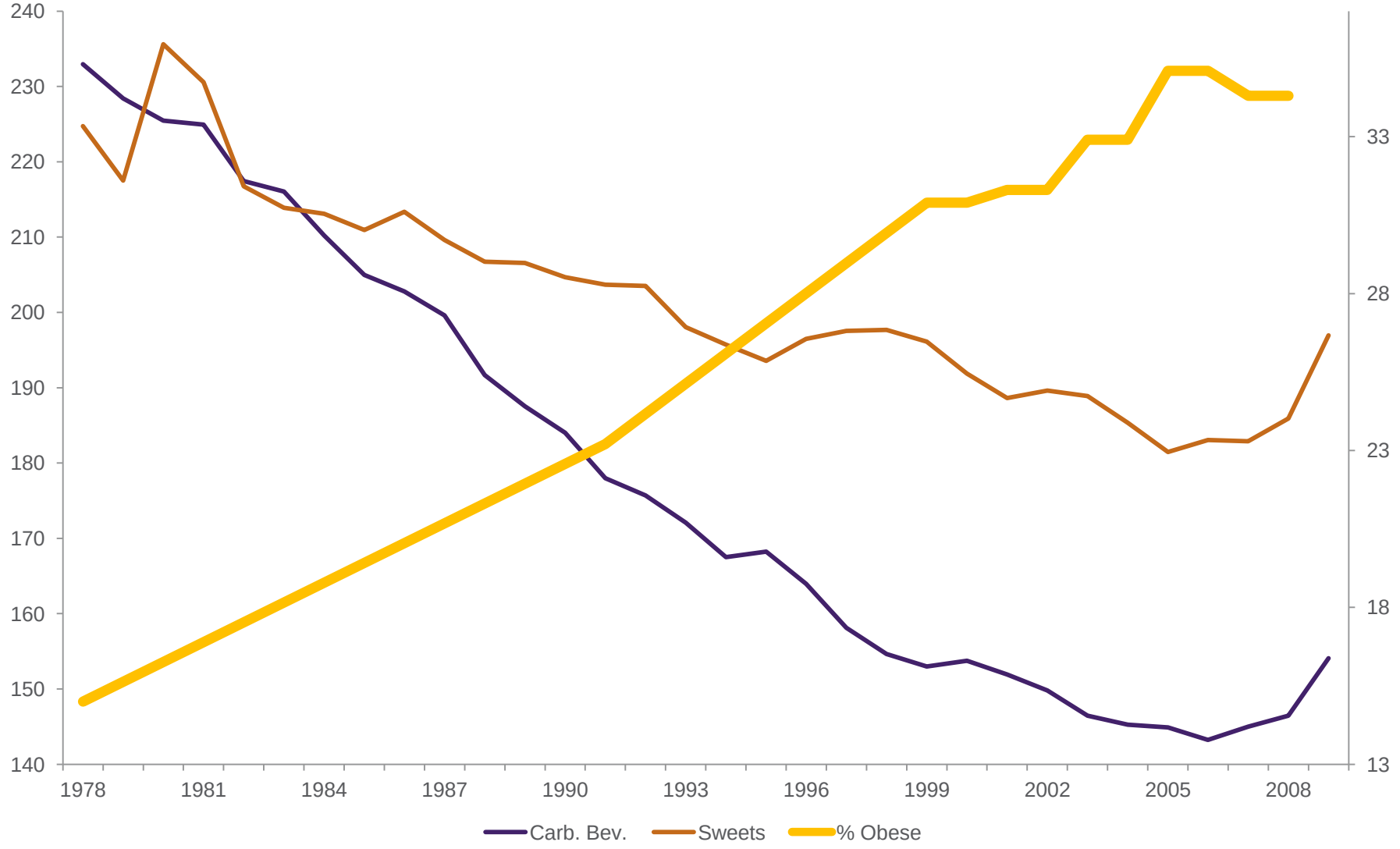
Source: BLS; NHES-I 1960-62; NHANES, 1971-74, 1976-80, 1988-94, 1999-2000, 2001-02, 2003-04, 2005-06

Selected Food Price & Obesity Trends

1978-2009, Inflation Adjusted



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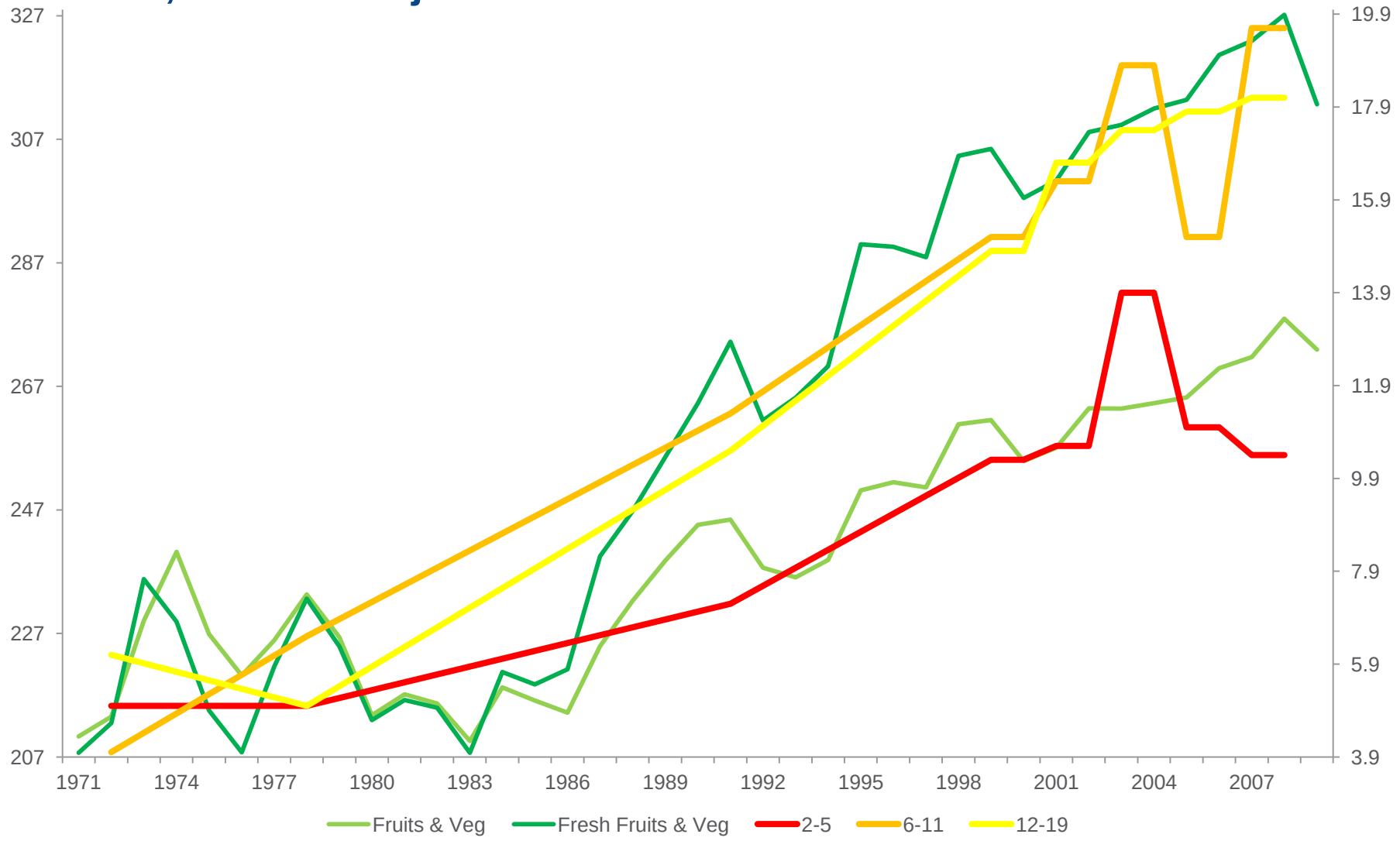
Source: BLS; NHES-I 1960-62; NHANES, 1971-74, 1976-80, 1988-94, 1999-2000, 2001-02, 2003-04, 2005-06

Selected Food Prices & Youth Obesity Trends

1971-2009, Inflation Adjusted



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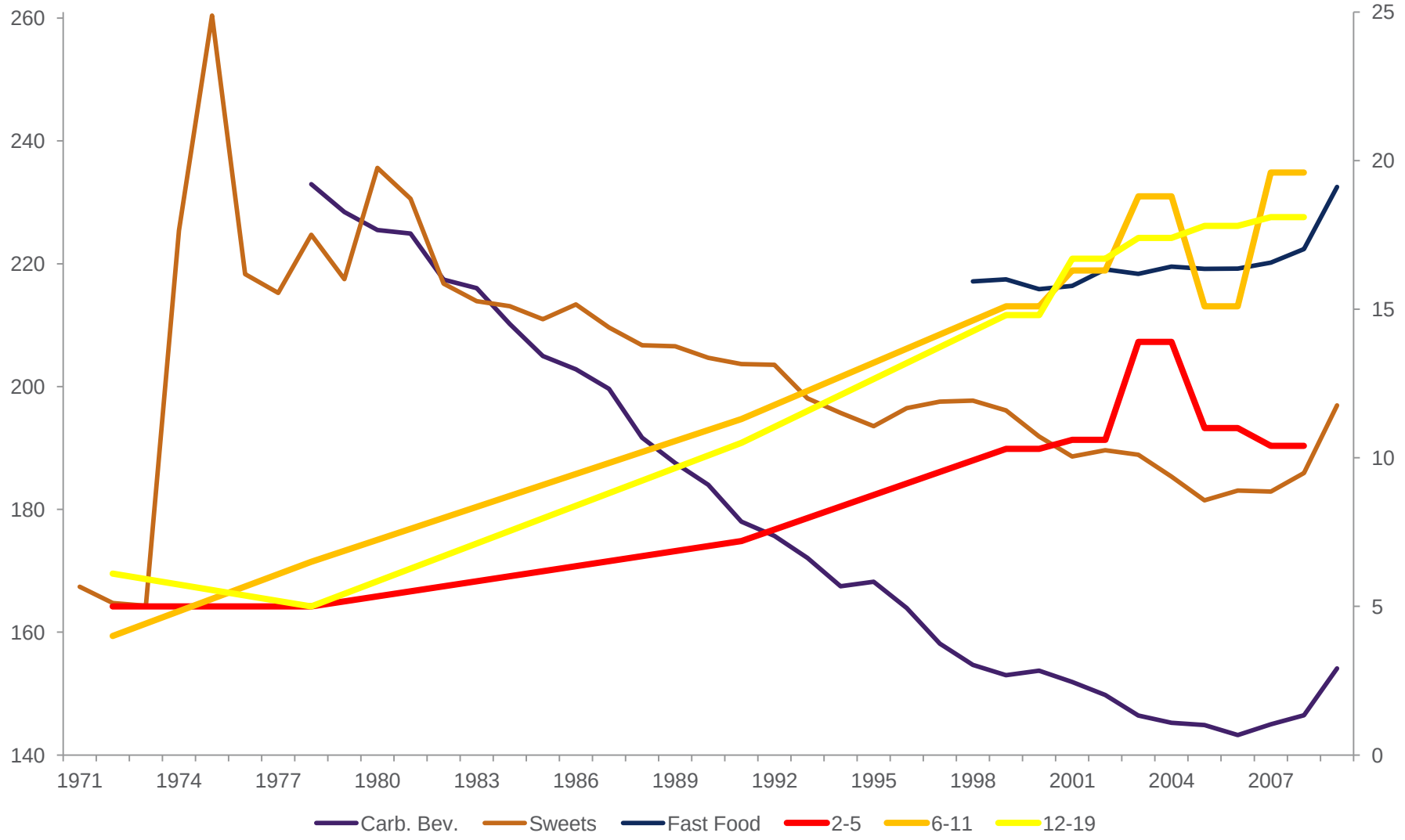
Source: BLS; NHANES, 1971-74, 1976-80, 1988-94, 1999-2000, 2001-02, 2003-04, 2005-06

Selected Food Prices & Youth Obesity Trends

1971-2009, Inflation Adjusted



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Source: BLS; NHANES, 1971-74, 1976-80, 1988-94, 1999-2000, 2001-02, 2003-04, 2005-06

Food Prices, Consumption and Obesity

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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%

Source: Andreyeva, T, M Long, and K. D. Brownell, "The impact of food prices on consumption: a systematic review of research on price elasticity of demand for food." *American Journal of Public Health.* 100 (2010): 216-222.

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%

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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 90th percentile, fast food price impact 4 times larger than average effect for full sample*
    - *Above 95th 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*

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Source: Auld and Powell, *Economica, 2009*

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

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Source: Epstein LH, Dearing KK, Roba LG, Finkelstein E (2010). The influence of taxes and subsidies on energy purchased in an experimental purchasing study. *Psychological Science* 21(3):406-414.

Sugar Sweetened Beverage Taxes and Obesity

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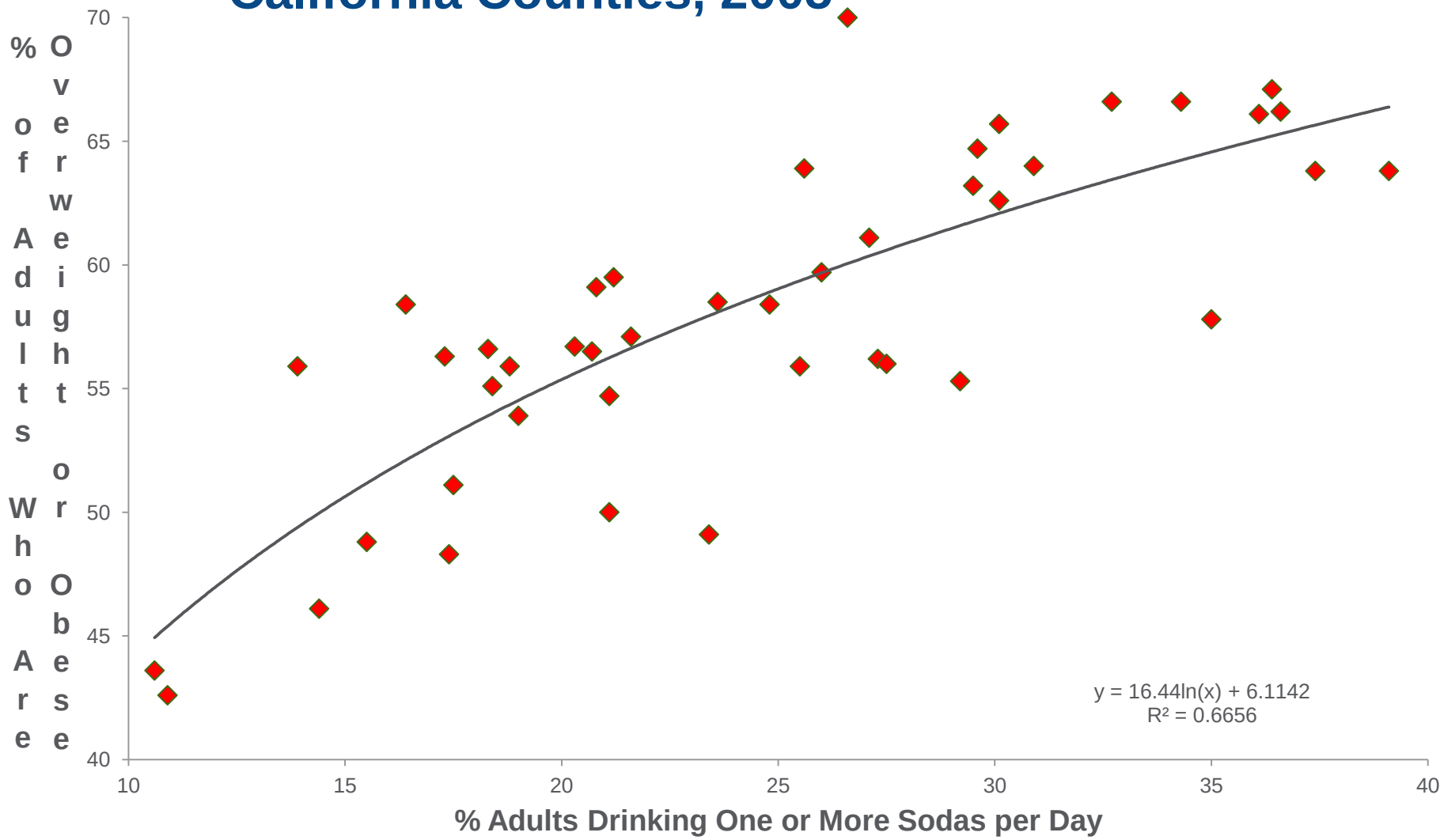
Soda Consumption and Weight Outcomes
California Counties, 2005



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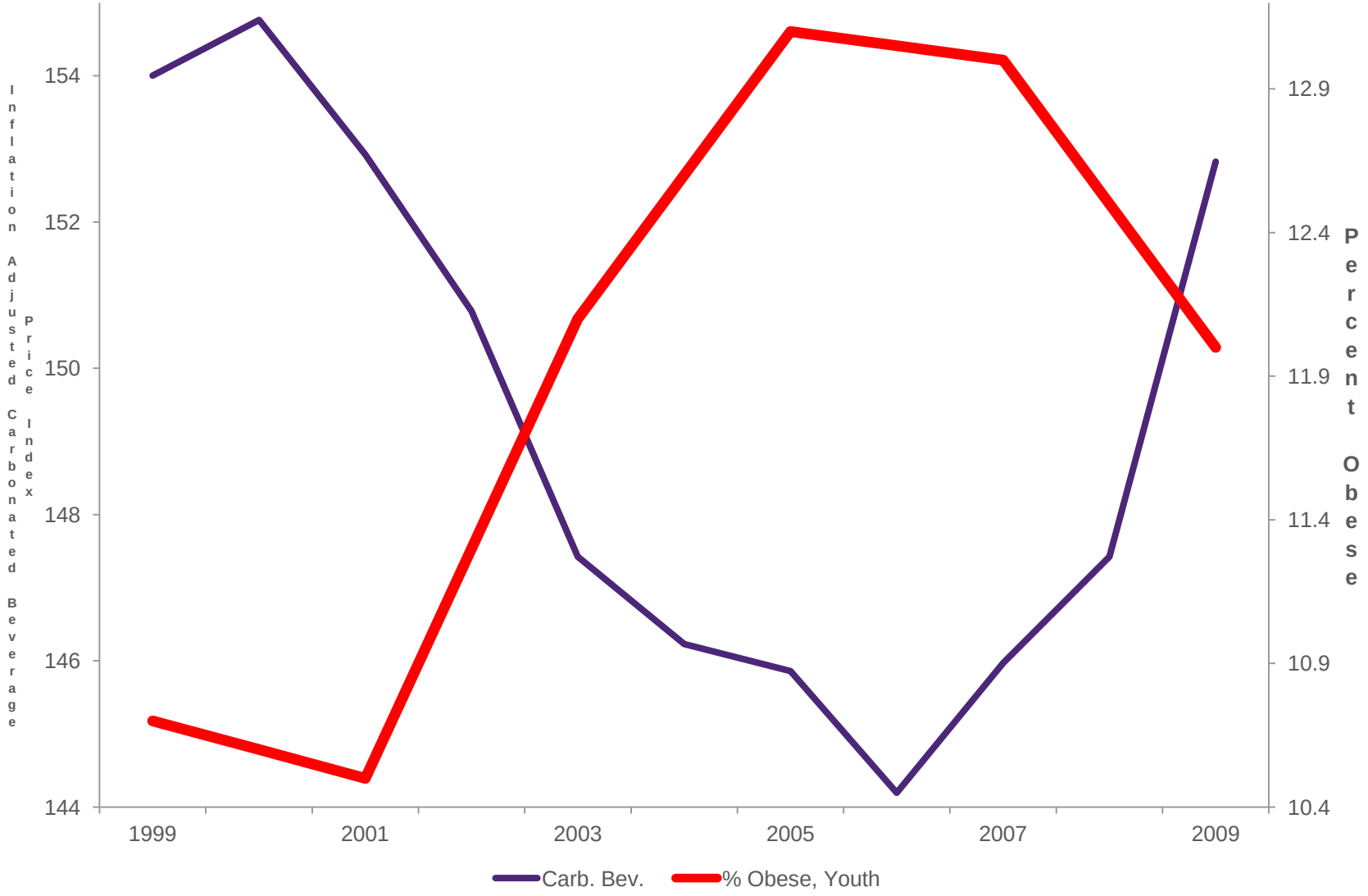
Source: CA Center for Public Health Advocacy & UCLA Center for Health Policy Research 2009

Carbonated Beverage Prices & Youth Obesity Prevalence

1999-2009, Inflation Adjusted



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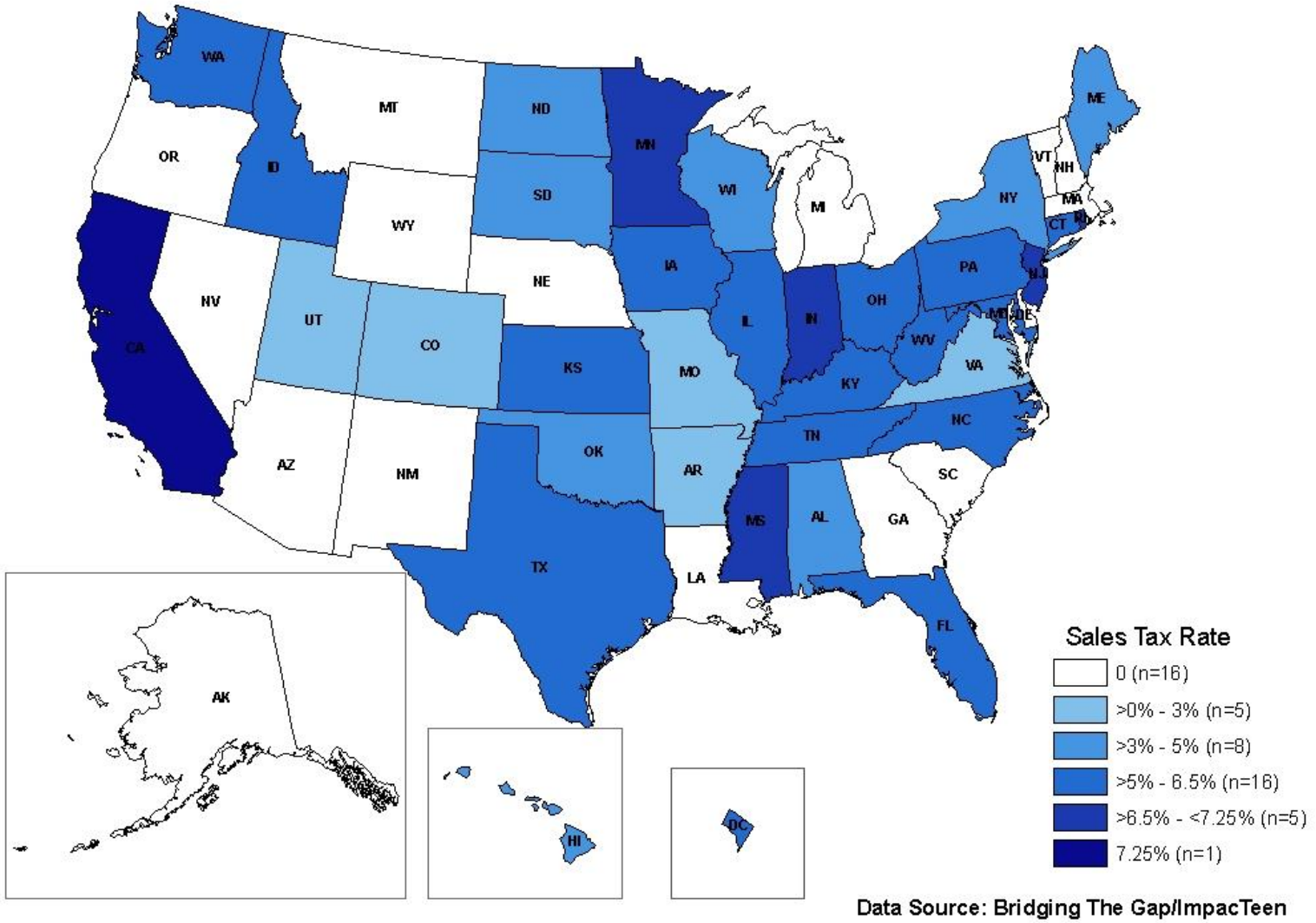
Sources: Bureau of Labor Statistics, Youth Risk Behavior Surveillance System on-line, and authors' calculations

State Regular, Regular Soda Sales Tax Rates (as of January 1, 2011)



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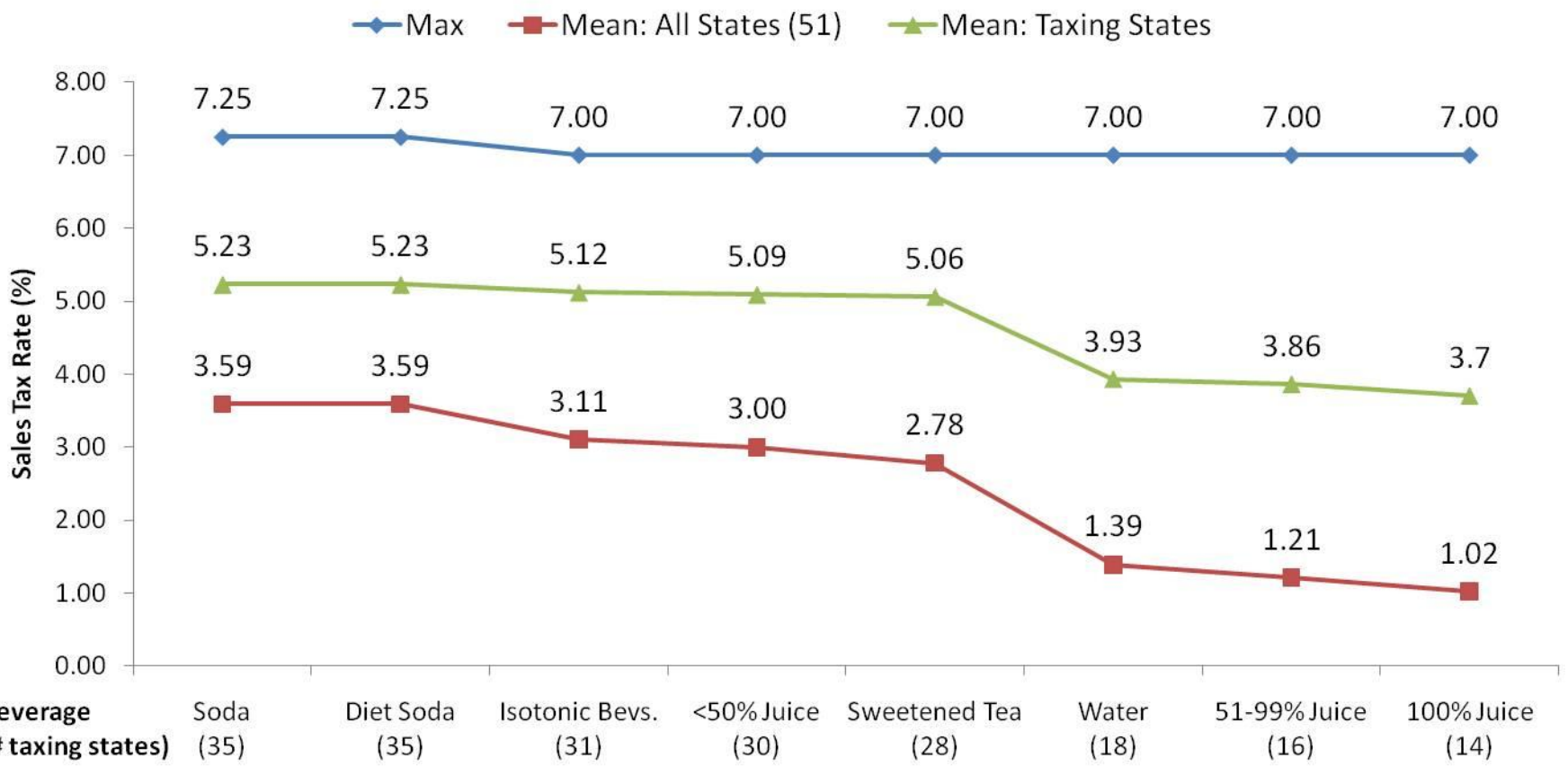
Note: Three states also impose a mandatory statewide local tax that is not reflected in the above data: CA (1%), UT (1.25%), VA (1%).

State sales taxes on selected beverages, January 1, 2011



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%).

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%

Source: Smith, T. A., B.-H. Lin, and J-Y Lee. Taxing caloric sweetened beverages: Potential effects on beverage consumption, calorie intake, and obesity. Economic Research Report Number 100. 2010. United States Department of Agriculture, Economic Research Service.

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 measureable 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

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Source: von Tigerstrom B, Larre T, Sauder JA (2011). Using the tax system to promote physical activity: critical analysis of Canadian initiatives. *American Journal of Public Health*, 101(8):e10-e16/

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

Source: von Tigerstrom B, Larre T, Sauder JA (2011). Using the tax system to promote physical activity: critical analysis of Canadian initiatives. *American Journal of Public Health*, 101(8):e10-e16/

Summary & Conclusions

Summary & Conclusions

- 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

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http://www.impacteen.org

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