Obesity is Bad for Your Health and Costs A Lot

- Lifetime medical costs related to diabetes, heart disease, high cholesterol, hypertension, and stroke are $10,000 higher among the obese

- $31 billion (in Year 2000 $) spent during 1996 for adult overweight/obesity-related CVD treatments alone

- Among the overweight, lifetime medical costs can be reduced by $2,200 - $5,300 following a 10 percent reduction in body weight

- Health care costs in excess of $76 billion were incurred due to physical inactivity in the year 2000
Key Question: Who Pays for Obesity?

- If you pay **all** the costs of decisions about your weight, there is little place for intervention by others who do not pay these costs.

- But if others pay the costs there may be a (Pigouvian) justification for intervention.
Obesity Externalities

- Health insurance costs
- Disability, morbidity, and mortality costs
- Family and friends externalities
Obesity and Health Insurance: Two Stories

- Splitting the bill
- Insurance without moral hazard
Obesity and Private Insurance
The Social Loss from the Obesity-Health Insurance Externality

- Need two things for there to be a social loss:
  - Pooled insurance – obese people must pay less (on average) for health insurance than their expected medical expenditures
  - Moral hazard – health insurance must make you fat
Policy Implications of the Framework

- If there is no health insurance pooling:
  - There is no social harm through this mechanism
  - No case for Pigouvian taxes

- If there is pooling, but no moral hazard:
  - Insurance induces a progressive, costless transfer
Is There Pooling In Private Insurance?
Wages and Obesity

- Obese workers earn less than thinner workers with equivalent job experience and education.
- Some have argued that this is evidence of labor market discrimination against the obese.
Wages of Workers with Employer Provided Health Insurance


Obese Non-Obese
Wages of Workers without Employer Provided Health Insurance

![Graph showing wages of workers over years for obese and non-obese categories.](chart.png)
## No Obesity Differences for Other Benefits

Table 4: Difference in difference estimates of the effect of incidence of other benefits on wages

<table>
<thead>
<tr>
<th>Fringe Benefit</th>
<th>Unadjusted</th>
<th>Adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Life Insurance</td>
<td>32643</td>
<td>-0.079</td>
</tr>
<tr>
<td>Dental Insurance</td>
<td>32915</td>
<td>-0.518</td>
</tr>
<tr>
<td>Maternity Benefits</td>
<td>30801</td>
<td>-0.305</td>
</tr>
<tr>
<td>Retirement</td>
<td>32518</td>
<td>-0.121</td>
</tr>
<tr>
<td>Profit Sharing</td>
<td>32637</td>
<td>-0.602</td>
</tr>
<tr>
<td>Training/Education</td>
<td>32506</td>
<td>-0.300</td>
</tr>
<tr>
<td>Childcare</td>
<td>32292</td>
<td>0.888</td>
</tr>
<tr>
<td>Flexible Working Hours</td>
<td>32985</td>
<td>-0.638</td>
</tr>
</tbody>
</table>

*** 1%, ** 5%, * 10% stat sig

Note: Standard errors adjusted for clustering within individual. We estimate these models on the sample of workers employed full-time in each year either with employer sponsored coverage or uninsured and present both unadjusted and adjusted estimates. The table entries show the coefficients and standard errors from the interaction terms between obesity and fringe benefits offered from employers. Each table entry represents a different regression. Full regression results are available in Appendix A4.
Who Pays for Obesity In Working Age Populations?

- Obese workers at firms providing health insurance pay for their higher health insurance costs through lower wages.

- Obese workers at firms without health insurance earn the same as their thinner colleagues.
Medicare and Obesity

- There is no mechanism in Medicare financing to charge higher premiums to the obese
- Obese individuals pay less for Medicare...
  - They earn lower wages
- ...and get more
  - They are unhealthier when they turn 65
Does Medicare Induce a Social Loss?

- It depends upon the incentives created by the transfer to obese individuals induced by Medicare.

- If the transfer does not change eating and exercise incentives, then there is no social loss.
Does More Generous Health Insurance Make You Fat?
RAND Health Insurance Experiment

- Experiment run in the late 1970s to mid-1980s
- Families stayed in experiment for ~5 years
Random Assignment to Insurance

- Free plan (no out of pocket costs of health care)
- 25% coinsurance (families paid 25% of health care costs)
- 50% coinsurance
- 95% coinsurance
Goal: measure the insurance elasticity of body weight

If insurance induces moral hazard, we should expect the greatest gain in weight among people assigned to the most generous insurance (free plan)
% Obese in the RAND HIE at Entry and Exit of the Experiment

- Free
- 25%
- 50%
- 95%

Entry
Exit
Unintended Consequences of Price Interventions
Unintended Consequences of Food Taxes

- Ideally, a food tax should be assessed on the 2500th calorie (and above) eaten during the day, not on the 1st

- Political economy problems:
  - Is granola junk food? Who decides?

- Tax may cause undue hardship for the poor
Food Prices and the Nutritional Status of Poor Children

- Anemia is a common condition among poor children in the U.S.
  - 10% prevalence
- Dietary iron intake can prevent some forms of anemia.
- Cities with a higher price of ground beef have a higher prevalence of anemia among poor children.
  - 10% difference in price leads to a 1.6 percentage point increase in anemia prevalence
### Effect of Food Prices on Serum Nutrient Deficiencies

<table>
<thead>
<tr>
<th>Dependent variable (mean)</th>
<th>All Ages</th>
<th>All Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vitamin A deficiency (7%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price of Peaches</td>
<td>0.035</td>
<td>-0.013</td>
</tr>
<tr>
<td></td>
<td>(0.036)</td>
<td>(0.017)</td>
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<tr>
<td>Price of Milk</td>
<td>0.056</td>
<td>0.075**</td>
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<tr>
<td></td>
<td>(0.046)</td>
<td>(0.024)</td>
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<tr>
<td><strong>Vitamin C deficiency (12%)</strong></td>
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<td></td>
</tr>
<tr>
<td>Price of Peaches</td>
<td><strong>0.181</strong></td>
<td>0.212**</td>
</tr>
<tr>
<td></td>
<td>(0.050)</td>
<td>(0.063)</td>
</tr>
<tr>
<td>Price of Orange Juice</td>
<td><strong>0.064</strong></td>
<td>0.078*</td>
</tr>
<tr>
<td></td>
<td>(0.036)</td>
<td>(0.044)</td>
</tr>
<tr>
<td><strong>Folate deficiency (16%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price of Orange Juice</td>
<td><strong>0.138</strong></td>
<td><strong>0.196</strong></td>
</tr>
<tr>
<td></td>
<td>(0.055)</td>
<td>(0.072)</td>
</tr>
<tr>
<td>Price of Bread</td>
<td>0.195</td>
<td>0.258</td>
</tr>
<tr>
<td></td>
<td>(0.122)</td>
<td>(0.165)</td>
</tr>
<tr>
<td><strong>Anemia (10%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price of Ground Beef</td>
<td><strong>0.106</strong></td>
<td>0.063</td>
</tr>
<tr>
<td></td>
<td>(0.051)</td>
<td>(0.048)</td>
</tr>
</tbody>
</table>

Evidence from the National Health and Nutrition Examination Survey III