Obesity From an Economist’s Perspective

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The Economics of Obesity (outline)
- Why the Increase in Obesity Rates
- Adverse Health Consequences
- Why do (or should) we care
- Financial Consequences
- Key Points
- Potential Interventions
- Economic Analysis of a Few Interventions
- Conclusion

Why the Increase In Obesity
- Obesity results from insufficient caloric expenditure and/or excessive caloric intake
- Some evidence suggests that excessive caloric intake is the dominant factor
  - Caloric intake rose from 1,774 kilocalories per day in 1989-91 to 2,002 kcal/d in 1994-1996
  - Largely due to technology, food costs (in terms of both money and time) have been steadily declining
    » Largest declines are for energy dense foods

Why the Increase In Obesity (cont.)
- Also due to technology, non-leisure time physical activity has been declining (although hard to measure)
  - ‘Accidental exercise’ is almost non-existent
  - The ‘cost’ of being inactive has gone down
    » You can accomplish the same activities with less effort (e.g., cell phones, television remote)
  - The opportunity cost of being active has gone up (time away from internet, computer games, DVD’s, …)

Why the Increase In Obesity (cont.)
- Leisure-time physical activity has remained largely unchanged, but at low levels
  - 1 in 4 get no exercise at all
  - Note that 30 minutes per day on the treadmill followed by 8 hours on the computer falls short of CDC’s recommendations

Why the Increase In Obesity (cont.)
- Many other potential factors have been suggested
  - Fast food prevalence (demand or supply driven?)
  - Supersizing (marginal cost pricing)
  - Women in the workplace
  - Reductions in smoking rates
  - Advertising
  - Drug side effects
  - Unsafe neighborhoods
  - and others
Definition of Obesity
- Obesity is defined by Body Mass Index (BMI) – BMI = Weight (kg)/Height(m2)
  - Normal BMI: 18.5 - 25
  - Overweight: 25 - 30
  - Obese: 30 - 40
  - Morbidly Obese: 40+

Increased Prevalence of Obesity
- Obesity has increased 70% over the last decade alone
- Increase occurred for all population subsets, including young and old, rich and poor, black and white, ...
- 2/3 of Americans are now overweight or obese

Adverse Health Consequences
- Obesity increases the likelihood of:
  - type 2 diabetes (majority are obesity-related)
  - cardiovascular diseases (CHD, MI, and stroke)
  - several types of cancer
  - gallbladder disease
  - sleep apnea
  - osteoarthritis
  - perhaps others (e.g., alzheimer’s, depression, back pain)
- Responsible for about 280,000 deaths per year

Key Question
- Does the rise in obesity rates justify government intervention?

Key Question Economists Want to Know
- Where are the market failures?
  - Externalities
    - Financial externalities may be the best argument
    - No second-hand smoke equivalent for obesity
  - Consumer protection (e.g., Restricting vending machine access)
    - From themselves?
    - May work for kids but a tough argument for adults
  - Public Goods (e.g., Food Guide Pyramid)
    - We provide lots of information already
    - How much is enough?
  - Others (e.g., removal of subsidies)?
    - Can they be linked to obesity?

Financial Externalities
- Medical Costs for overweight and obesity are over $90 Billion per year
  - About 9% of aggregate medical spending goes to treating obesity-related diseases
  - Costs now rival those for smoking
  - But we spend more on DVDs?
- Approximately half of obesity-attributable $ paid by Medicare and Medicaid
  - Taxpayers spend about $180 per year on obesity-related medical costs for public sector health plans
- Does this justify government intervention?
Obesity in North Carolina

- Self-reported prevalence of obesity in NC:
  - 22% overall
  - 32% among Medicaid recipients
- Medical Costs for obesity (excluding overweight) in NC:
  - $2.1B overall
  - 6% of adult expenditures
  - 12% of adult Medicaid expenditures

Financial Externalities for Firms

- Obese male employees have between $380 (BMI 30-35) and $1,120 (BMI 35-40) greater average annual medical expenditures than normal weight male employees.
- For female employees, increases in average annual medical expenditures range from $450 (BMI 25-30) to $1,470 (BMI 35-40).
- These expenditures exclude costs for bariatric surgery
  - Estimated at $25,000 for the surgery alone

Financial Externalities for Firms (cont.)

- Overweight and obese women also miss between 0.7 (overweight) and 5.4 (morbidly obese) more days from work per year than normal weight women.
  - No difference by BMI for male employees
- Some evidence that obesity also affects productivity on the job
- But are these externalities?
  - Obese workers earn lower wages

Take-away Points

- Largely due to technology, food is cheap and ‘unintentional’ physical activity is almost non-existent
- Obesity is a side effect of our own success
- Insurance and advances in medicine have reduced the personal cost of obesity but increased the societal cost (financial externality)
- If you look hard enough, market failures are everywhere

Economist’s View of Obesity Interventions

- Interventions that do not change marginal (incremental) costs and/or benefits are unlikely to be successful
  - Explains why most diets fail
  - Explains why joining a gym does not necessarily increase use
- Information provision may have an impact, but likely to be limited
- Interventions that change marginal costs and benefits are likely to be followed by changes in behavior

Evaluating Interventions

- Prior to implementation, need to consider:
  - Is there a justification for the intervention (what’s the market failure)?
  - What are the intended consequences (will it resolve the market failure)?
  - What might be the unintended consequences?
  - How do we know if the intervention is successful?
  - Are there better alternatives?
  - May require cost-effectiveness analysis
  - Is it economically feasible
  - Is it politically feasible
Who’s Going to Help Solve the Problem (stakeholders)?

- Health Insurers
- Providers
- Schools
- Workplaces
- Communities
- Governments
- Individuals

Potential Government Interventions

- Interventions targeted at children (e.g., eliminate soft drink vending machines in schools)
- Targeted taxes and subsidies
- Mandatory food labeling for restaurant food
- Many others

Eliminate Soft Drink Vending Machines in Schools (Motivation)

- Childhood obesity has reached epidemic proportions
- ‘Adult’ diseases are now appearing in kids
- Soft drink consumption has increased dramatically
- Vending machines are in most schools

Eliminate Vending Machines in Schools (cont.)

- Are there better alternatives?
  - Little evidence to suggest it will reduce childhood obesity
  - But relatively low cost and an easier sell than adult interventions
  - Public support for reducing childhood obesity is strong
    » Support drops off quickly for adult interventions
  - Has already been implemented in several states/communities

- Is there a justification?
  - Protect consumers (kids)
  - Reduce consumption of carbonated beverages
  - Improve health and reduce obesity rates in kids
  - Loss of revenue
  - Kids find another way to eat unhealthy food

- Other interventions targeted at youth may also be justified on both economic and political grounds
  - Nutrition guidelines for all foods sold in schools
  - Mandatory physical education
  - Advertising restrictions for children’s programming
  - Others
Targeted Taxes and/or Subsidies (Motivation)
- Consumption of added sugars and added fats exceeds recommendations
- Consumption of fruits and vegetables falls short of recommendations
- Decrease in the price of less healthy energy dense foods is consistent with the relative increase in quantity demanded

Targeted Taxes and/or Subsidies (cont.)
- Raise the price of ‘unhealthy’ food and/or lower the price of ‘healthy’ food
- Is there a justification?
  - Reducing the ‘external’ costs of obesity is probably the best argument but not great

Targeted Taxes and/or Subsidies (cont.)
- What are the intended consequences?
  - Reduce consumption of the taxed food and increase consumption of the subsidized food
- Other intended consequences?
  » Improve health and reduce obesity
  » Raise revenue – Equal to the ‘external’ costs of obesity?

Targeted Taxes and/or Subsidies (cont.)
- What foods get taxed, subsidized?
  - For specific products lots of potential for substitution
  - People can even substitute for fat
- How will demand change due to an X% price change?
  - For whom will demand change?

Targeted Taxes and/or Subsidies (cont.)
- Unintended Consequences
  - Poor people may be disproportionately impacted
  » May increase food insecurity
  - Businesses will be adversely affected
  » Might change product attributes to minimize the impact of the tax

Targeted Taxes and/or Subsidies (cont.)
- Are there better alternatives?
  - Largely depends on the objective
  - If the goal is to reduce obesity then this may be a very costly method:
    » Both monetarily and in decreased utility
    » Especially costly for those who are not currently obese
    » Note that nearly all foods are ‘healthy’ if consumed in moderation
The percentage of food spending on away-from-home foods rose 60% between 1970 and 1995. In 1995, away-from-home foods accounted for:
- 27% of eating occasions
- 34% of total daily energy intakes
Away-from home foods are higher in fat, sugar, and salt than are at-home foods.

Mandatory Food Labeling for Restaurant Food

- Require restaurants to provide information to consumers concerning the health content of meals
- Is there a justification?
  - Forces restaurants to provide information that they might not readily supply on their own
  - Perhaps but some firms (e.g., Subway) provide this information without government intervention
    » May now provide information on carbohydrates

Mandatory Food Labeling for Restaurant Food (cont.)

- What are the intended consequences?
  - Consumers make more informed choices
- Other intended consequences?
  - Alter dietary behavior to decrease consumption of ‘unhealthy’ food
  - Improve health and/or reduce obesity
  - Change the health content of restaurant food

What might be the unintended consequences?

- Suppliers
  » Economic burden
  » Less likely to introduce products, change menus
  » Other supply responses?
- Consumers
  » May not know how to use the information
- Government
  » Burden of implementation, monitoring

Are there better alternatives?

- Depends on the objective
  » What if demand does not change?
  » What if obesity rates do not change?

Obesity is both a personal and a societal issue.

From an economist’s perspective, interventions should resolve market failures.

Interventions that change marginal costs and benefits have the best chance of success.

Conclusion