Overview of My Research on the Economics of Obesity

John Cawley

Cornell University
and National Bureau of Economic Research

January 9, 2014
Usefulness of Economics in Studying Obesity

• Offers widely-accepted theoretical framework for human behavior (constrained maximization)
  – Economists ask different questions, generate different predictions

• Useful for calculating economic consequences of obesity (direct medical costs as well as indirect labor market costs)

• Offers clearly-defined rationales for policy intervention
  – Fix market failures

• Offers useful methods for estimating causal effects, not just correlations
  – Determining causes and consequences of obesity
  – Measuring the effectiveness of interventions and policies
  – Determining which policies work best: cost-effectiveness analysis
Overviews of the Economics of Obesity

• Explanations of economic models of diet and physical activity

• Overviews of the economics of childhood obesity and policies to prevent or reduce it:
Broader Related Overviews

• Overview of the various social science approaches to studying obesity:

• Comprehensive review of the economic approach to studying risky health behaviors:
Research on the Economic Causes of Obesity

- Additional income has no detectable effect on weight of the elderly
  - Exploits natural policy experiment (Social Security benefits notch) to estimate causal effects; find no detectable impact of extra income on weight or obesity
  - Does not support claim of WHO that rising obesity due to rising incomes

- Maternal employment associated with significant reductions in time spent shopping for food, cooking, eating with children, playing with children; husbands offset little of this decrease

- Currently studying the impact of advertising of specific branded food items on consumption of those same branded food items (for children, teens, and adults)
  - With Rosemary Avery, Don Kenkel and Alan Mathios
Research on the Economic Consequences of Obesity (I)

• Direct medical care costs of obesity:
  – Historically, studies report correlation of obesity with health care costs
    • But that correlation could be due to unobserved heterogeneity between the obese and non-obese
  – Use model of instrumental variables to estimate the causal effect of obesity on health care costs
    • Preliminary estimates show much higher than previously estimated:
      – $2,741 higher annual health care costs per obese adult
      – Aggregate national costs per year: $190 billion (20.6% of US national health expenditures)
Predicted Medical Expenditures by BMI – Men

Predicted Medical Expenditures by BMI – Women

Research on the Economic Consequences of Obesity (II)

- Labor market consequences of obesity:
  - Lower wages: e.g. 11.2% lower for obese white females
  - Higher job absenteeism: $4.3 billion annually in U.S.
  - Impairs transition from welfare to work for white, but not African-American, women
  - Can’t reject null hypothesis of no effect of obesity on employment disability
Research on
Consequences of Obesity (III)

• Threat to military readiness
  – In 2007-08, 5.7 million men and 16.5 million women exceeded the standards and thus ineligible to enlist

• Delayed skill attainment in children as young as 3 years old

• Teen girls (but not boys) who are obese are more likely to initiate smoking
Research on Consequences of Obesity (IV)

• Obese teens are less likely to date

• Obese young adults are less likely to match with a physically attractive romantic partner
Methods of Preventing and Treating Obesity (I)

• Complications after bariatric surgery

• Demand for anti-obesity drugs (e.g. much greater for women than men)

• FDA’s removal of anti-obesity drugs from the market had negative spillovers to other anti-obesity drugs still on market
Methods of Preventing and Treating Obesity (II)

• Physical education:
  – For elementary school students, PE increases physical activity and lowers BMI for boys
  – For high school students, PE modestly increases physical activity but has no impact on weight

• HealthCorps, an intervention in high schools, reduces soda pop consumption, increases physical activity and increases health knowledge
Methods of Preventing and Treating Obesity (III)

- Evaluation of a workplace intervention that offers financial rewards for weight loss: attrition very high, weight loss modest

- Nutrition guidance systems for supermarket shelves
  - Evaluating impact of Guiding Stars on purchases in Hannaford supermarket chain with Nudging Nutrition team

- Taxes on soda pop and other energy-dense foods:
  - Nudging Nutrition field experiment with Cornell colleagues: Brian Wansink, David Just, Harry Kaiser, Bill Schultze, Jeff Sobal, Elaine Wethington
Methods of Preventing and Treating Obesity (IV)

• **Determinants of state legislative action on childhood obesity**

• **Voters’ willingness to pay higher taxes to reduce childhood obesity**

• **Cost effectiveness of various methods of prevention and treatment**
Measurement of Obesity

• Value of more accurate measures of fatness than body mass index (BMI) for social science research
  – e.g. BMI overstates obesity among African-Americans, muscular individuals

• Analysis of skinfold trends reveals obesity began rising 1-2 decades before it is visible in BMI

• We urge that social science datasets collect and include more accurate measures of fatness than BMI based on self-reported weight and height
Relevant Appointments

• Co-Director, Institute on Health Economics, Health Behaviors and Disparities, Cornell University, 2011 – present
• Visiting Professor, Charles Perkins Centre, University of Sydney (Australia), 2013 - present
• Scientific Advisory Board of the Behaviour and Health Research Unit, Cambridge University (UK), 2011 – present
• Prevention Committee, American Diabetes Association, 2010 – 2011
• Expert Panel, Heart and Stroke Foundation of Canada (HSFC) funded review of the international research related to economic policies, obesity and health. 2009-2010
• Board of Directors, Shaping America's Health, the strategic obesity prevention initiative of the American Diabetes Association, 2008 – 2009
• Co-chair, National Institutes of Health conference “Feeding Families: Bridging Social Sciences and Social Epidemiology Approaches to Obesity Research” 2008
• Centers for Disease Control and Prevention Expert Panel “The Role of Schools in Addressing Childhood Overweight.” 2005
• Centers for Disease Control and Prevention Advisory Committee “Project MOVE: Measurements of the Value of Exercise,” 2003 – 2004
• Institute of Medicine Committee “Prevention of Obesity in Children and Youth,” 2003 – 2004
To get copies of papers or for more information:

- Email me: johncawley@cornell.edu

- Web:
  www.economicsofobesity.com
  or
  www.johncawley.com