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The Economics of Obesity

A Report on the Workshop Held at USDA's Economic Research Service

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Abstract

Since the mid-1970s, the prevalence of obesity and overweight has increased dramatically in the United States. The prevalence of overweight has tripled among children and adolescents, and nearly two out of three adult Americans are either overweight or obese. Although high health, social, and economic costs are known to be associated with obesity, the underlying causes of weight gain are less understood. At a basic level, weight gain and obesity are the result of individual choices. Consequently, economics, as a discipline that studies how individuals use limited resources to attain alternative ends, can provide unique insight into the actions and forces that cause individuals to gain excessive weight. In April 2003, USDA's Economic Research Service and the University of Chicago's Irving B. Harris Graduate School of Public Policy Studies and the George J. Stigler Center for the Study of the Economy and the State jointly hosted a workshop on the Economics of Obesity. The purpose was to provide an overview of leading health economics research on the causes and consequences of rising obesity in the United States. Topics included the role of technological change in explaining both the long- and short-term trends in obesity, the role of maternal employment in child obesity, the impact of obesity on wages and health insurance, behavioral economics as applied to obesity, and the challenges in measuring energy intakes and physical activity. The workshop also discussed policy implications and future directions for obesity research. This report presents a summary of the papers and the discussions presented at the workshop.

Keywords: Behavioral economics, energy expenditure, energy intake, fast-food consumption, food consumption, food prices, health insurance, maternal employment, physical activity, technological change, self-control, wages

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Summary

In recent decades, obesity and overweight has dramatically increased among all demographic groups within the U.S. population. Nearly two out of three adult Americans are either overweight or obese. Among children and adolescents, overweight prevalence has tripled from 5 percent in the 1970s to 15 percent in 1999-2000. Although high health, social, and economic costs are known to be associated with obesity, the mechanisms underlying this weight gain are less clear. Recently, economists have begun applying the tools of economics to shed new light on the rise in obesity. The economics approach looks at people's choices within the constraints of the time and resources at their disposal. Since overweight and obesity are the outcome of such constrained choices, economic analysis can provide a unique insight into the actions and forces that cause individuals to gain excessive weight over time. In April 2003, USDA's Economic Research Service and The University of Chicago's Irving B. Harris Graduate School of Public Policy Studies and George J. Stigler Center for the Study of the Economy and the State organized a joint workshop on the Economics of Obesity, with the goal of providing an overview of leading health economics research on the causes and consequences of obesity in the United States. Eight papers covering state-of-the-art health economics research on obesity were presented and discussed in depth. The workshop participants also discussed policy implications and future directions for obesity research. Attendees included health economists and public health experts from academia and the government. This report presents a summary of the papers and discussions presented at the meeting.

Papers presented by Cutler, Glaeser, and Shapiro and by Lakdawalla and Philipson focused on technological change as the preponderant force in the general weight gain among the population. Lakdawalla and Philipson examined weight gain over the past century and argued that technological change has induced weight growth by making work at home and in the office more sedentary and by lowering food prices through agricultural innovation. Physical activity has declined due to a shift from more strenuous to sedentary occupations, and food intake has increased due to lower food prices. An econometric model encompassing such technical change suggests that 40 percent of the recent increase in weight may be due to lower food prices, while 60 percent is due to declining physical activity. Cutler, Glaeser, and Shapiro examined food intake data and time diaries to focus specifically on the rapid weight gain witnessed since the mid-1970s. They contend that, during this period, while calorie consumption increased, physical activity remained flat. The observed increase in calories is primarily attributable to higher consumption of snacks, driven by technological advances in mass-prepared foods. Better technology lowered the fixed and variable costs of meal preparation and led to greater variety and frequency of meals, especially for women, who experienced the largest savings of time and effort and whose average weight grew most rapidly as a result.

Three other trends over the past several decades have been implicated in the rise in obesity: the increase in foods eaten away from home, the decline in smoking, and the increased labor force participation by women. Chou, Grossman, and Saffer examined the first two, while Anderson, Butcher, and Levine investigated the third. Since 1984, the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System (BRFSS) has

been tracking State-level obesity prevalence by collecting data from large samples of individuals. Chou, Grossman, and Saffer combined 1984-99 BRFSS data with several State-level measures to examine increased consumption of food away from home and the reduction of smoking, as well as other factors, as the causes of the escalation of obesity. They found that body weight and obesity prevalence increase significantly as the per capita number of restaurants and the real price of cigarettes go up, suggesting that more eating out and less smoking may have contributed to the rise in obesity.

Anderson, Butcher, and Levine used matched mother-child data from the National Longitudinal Survey of Youth (NLSY) to investigate whether a mother's employment status influences the likelihood of her child's being overweight. Their results suggest that the intensity of a mother's work over a child's lifetime has a positive effect on a child's likelihood of being overweight—between 1 and 4 percentage points—if the child is in a high-income family, with a well-educated or White mother.

One consequence of obesity could be lower wages for the obese individuals. Other things being equal, does obesity lower a person's wage? Cawley investigated this question using panel data from the NLSY from 1981 to 2000. In answering this question, one should recognize that factors that are not measured or observed by the researcher might cause a person to have lower wages as well as higher body weight. After carefully controlling for such effects, Cawley found that increased body weight lowers wages for White females, while no wage effects were found for other gender or ethnic groups.

Due to their higher risk for chronic diseases, obese and overweight people with health insurance impose significant costs on healthy-weight people in the same insurance pool. This "externality" arises because weight-based underwriting of health insurance premiums is not practiced. Bhattacharya and Sood compared how people respond under alternative weight-based health insurance underwriting regimes. With full insurance coverage, there is no incentive for weight loss when underwriting on weight is not allowed. However, if it is allowed, consumers benefit because weight loss decreases their own premiums. Changes in copayments also provide a mechanism to influence weight-loss incentives.

Standard economic models study people's choices under the assumption that people make choices rationally—that is, in their own best interests. But laboratory and experimental evidence suggests this may not always be the case. For example, research shows that people eat more when they are offered bigger portion sizes. Smith discussed the potential causes of such "irrational" behavior and its implications for obesity and economic theory. Based on his model, as well as evidence from a variety of fields, such as behavioral endocrinology, nutritional anthropology, and behavioral ecology, Smith concluded that overeating (and the consequent weight gain) results from a fundamental mismatch between the feast-or-famine environments faced by human ancestors—in which eating preferences evolved—and modern environments in which food is ubiquitous and cheap.

Accurate and reliable data on diets and physical activity are essential for research into the causes and consequences of obesity. Forshee reviewed current methods for assessing diets and physical activity and discussed their

limitations. Methods to measure diet include the 24-hour dietary recall, one of the most common methods in surveys to assess diet, and the Food Frequency Questionnaire, which attempts to record usual intake. All the survey measures represent short-term measures of diet and physical activity, while the phenomenon of overweight and obesity is the result of a long-term imbalance between energy intake and expenditure. Longitudinal data about diet quality and physical activity is required to better understand the links between overweight and obesity and chronic disease risks.

Several questions on the causes and consequences of obesity remain open for future research, as follows:

- (1) Research is needed to clarify the effects on the rise in obesity of food assistance programs, such as the food stamp and the school lunch programs, smoking cessation campaigns, advances in medicine, and continuing technological refinement of mass-prepared meals.
- (2) The ways in which consumers absorb and act upon new information about nutrition, exercise, and health needs to be studied.
- (3) Insights from the field of behavioral economics, which studies people's choices under relaxed assumptions about rationality, may be useful for understanding the importance of self-discipline or self-control in determining body weight.
- (4) The rationale for government intervention, including theoretical and empirical evidence on the existence of market failures and externalities, is needed.
- (5) Future research could clarify the potential efficiencies and effectiveness of alternative public policy interventions to reduce the prevalence of obesity. In particular, more attention needs to be focused on the evaluation of policy measures that stimulate innovation in food technology and in the pharmacological treatment of obesity and overeating.