What Do We Know About Transitions into and out of Obesity?

Extended Abstract

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Obesity is becoming an important public health issue in the United States. According to the Centers for Disease Control, the prevalence of obesity has risen significantly over the past few decades; currently, approximately 30 percent of adults ages 20 and over are classified as being obese (defined as having a body mass index of 30 or over). Obesity has been shown to be associated with serious medical conditions such as cardiovascular disease and diabetes; moreover, there is ample evidence that the costs associated with obesity are high and growing. Not surprisingly, public health officials and policymakers are increasingly concerned about finding mechanisms to reverse these trends.

In this paper, we investigate patterns of obesity over a twelve year period of time in order to determine the factors that are correlated with transitions into and out of obesity. Using the first seven waves of the Health and Retirement Study (HRS) (1992 - 2004), we specify a model that enables us to model the dynamics of obesity. We focus on the HRS sample of near elderly individuals because they face substantially higher hazards of being obese. The HRS also affords us the opportunity to use a long panel to investigate the dynamics of obesity.

We assume that the factors that affect entry into obesity may differ from the factors that affect exit out of obesity. Our model consists of three equations: the first two equations, account for entry into obesity among those who are not obese and entry out of obesity for those who are obese on a wave-by-wave basis. The third equation is incorporated to address initial conditions, i.e., the likelihood that someone is obese in the first wave. The model allows for unobserved heterogeneity across individuals through random effects. Apart from incorporating unobserved heterogeneity, the main virtue of our estimation approach is that we have a specification that explicitly recognizes that the determinants of entry and exit may differ substantially. Given differences in the likelihood of individuals gaining or losing weight, this feature seems to be an important feature for models aimed at understanding the dynamics of obesity.

Preliminary model estimates indicate that while there are some factors that affect entry and exit similarly, there are other factors that affect entry into and exit out of obesity very differently. Factors can also affect obesity transitions quite differently for men and women. For example, exercise is associated with significantly reducing the likelihood of entry into obesity and increasing the likelihood of exit from obesity for both men and women. In contrast, consistent with the literature on the beneficial effects of marriage particularly for men, we find that men who are partnered are less likely to remain obese and are more likely to exit from obesity; on the other hand, while partnered women are less likely to enter obesity, being partnered does not affect exits from obesity for women. Being

partnered also reduces the likelihood of being obese initially for women but has no effect on the likelihood of men being obese. Moreover, income reduces the hazard of entering obesity for women but has no effect for men.

Overall, our results also indicate that obesity appears to be an absorbing state as obesity rates increase consistently across time. Also, the observable factors that we include in our analysis do a much better job of predicting entry into obesity rather than exit out of obesity. Given the difficulties associated with losing weight and maintaining weight loss, these patterns are not surprising.

In additional work, we intend to embellish our research by simulating changes in obesity rates as a function of observable characteristics. Our hope is that by studying the dynamics of obesity, we will be able to determine the hazard associated with entering and continuing in the state of obesity and that we will be able to determine the group of individuals most at risk of becoming and staying obese. Ideally, further analysis will also enable us to identify factors that may protect individuals from obesity. Such information is essential if we are interested in containing health care costs and controlling the obesity epidemic.