CMD 505

505- Estimating the Distribution of the Body Mass Index

Researchers: J. A. L. Cranfield - University of Guelph; T. K. M. Beatty - University of British Columbia.

Research Summary

Obesity is the most important issue in food markets. It is common knowledge that over the last half-century obesity levels in North America have increased. While means and order statistics (i.e., quartiles) are easily observed, their use ignores important information contained in the complete distribution of body mass indices (BMI) or other measures of obesity. Completely characterizing the shape of the BMI distribution will be an important first step in constructing policies that directly target obesity. An increase in average BMI could result from a location shift of the distribution or alternatively from change in the shape of the distribution. These different phenomena will yield different policy prescriptions. In addition, previous work has ignored the complete conditional distribution of BMIs over different demographic characteristics. For instance, very little is understood regarding the shape of the distribution of BMIs conditional upon different levels of income or education.

Our study seeks to understand how the distribution of BMI has changed over time. We aim to: 1) develop a methodology to model the complete distribution of BMI and the resulting levels of obesity in the U.S and Canada; 2) examine how the distribution of BMI in the U.S. and in Canada has changed overtime; and 3) compare and contrast the distribution of BMI in Canada and the U.S., overtime, and relate these changes back to agricultural policy. The mandated updates to U.S. agricultural policy facilitate identification of these effects.

Significance of Research

Knowledge of how the distribution of BMI has evolved will profoundly influence the shaping of public policy. Consider, for example, the case when a small segment of the population is found to experience increases in obesity, while other segments experience little or no change. The policies and tools used to counteract obesity will have to be well targeted to that specific group. In contrast, if there appears to be a general increase in obesity levels, then policy tools with a broader reach would be appropriate. However, prior to developing these tools, one must first understand how the location and shape of the distribution of BMIs (which is an accepted measure of the obesity continuum) has changed with various socio-economic factors. Such results can then be used to help inform decison makers regarding the appropriate set of tools to help slow, and perhaps reverse, the rising obesity trend.