



ERS *Report Summary*

Economic Research Service

August 2012

U.S. Department of Agriculture



This is a summary
of an ERS report.

Find the full report at
[www.ers.usda.gov/
publications/tb1934](http://www.ers.usda.gov/publications/tb1934)

Nonresponse Bias Analysis of Body Mass Index Data in the Eating and Health Module

Karen S. Hamrick

What Is the Issue?

ERS collected data on Americans' time-use patterns and food-related information in its Eating and Health Module (EH Module), a supplement to the American Time Use Survey (ATUS). The EH Module also included questions on height and weight so that respondents' Body Mass Index (BMI—a measure of body fat based on height and weight) could be calculated and analyzed with ATUS time-use information. Though the EH Module had a high rate of cooperation among respondents, just under 5 percent of respondents did not report height and/or weight, and ERS could not calculate BMIs for these individuals. This raises concerns of bias in the data due to the missing BMI observations. In this report, ERS examines the BMI data to determine if the missing values hinder the ability of researchers to use the data in future analyses. If respondents who did not report height and/or weight differed significantly in other observable characteristics from the rest of the survey respondents, then time-use estimates may be higher or lower than they would be if BMIs were available for all respondents.

What Did the Study Find?

- Respondents who did not report height and/or weight had disproportionately higher indicators of being reluctant or uncooperative survey participants than other respondents. For example, it took more phone calls over more weeks to obtain a completed interview from these participants. This suggests that for these respondents, the tendency to not report height and/or weight had less to do with sensitivity to height and weight questions and more to do with negative views toward participating in the survey.
- The time-use profiles of the total population and of men with missing BMIs closely resembled the profiles of respondents who were normal weight ($18.5 \leq \text{BMI} < 25.0$).
- The time-use profiles of women with missing BMIs closely resembled the profiles of women who were overweight ($25.0 \leq \text{BMI} < 30.0$).
- These findings suggest that those who did not report height and weight are unlikely to be at either end of the BMI spectrum—underweight ($\text{BMI} < 18.5$) or obese ($\text{BMI} > 30.0$)—mitigating any bias in the data.

Based on these findings, any bias in the EH Module height and weight data stemming from nonresponse appears to be small and would not affect future analyses of correlations between BMI and time use.

ERS is a primary source of economic research and analysis from the U.S. Department of Agriculture, providing timely information on economic and policy issues related to agriculture, food, the environment, and rural America.

www.ers.usda.gov

How Was the Study Conducted?

This study used data from the Bureau of Labor Statistics American Time Use Survey and the ERS Eating and Health Module for 2006-08. Researchers analyzed demographic characteristics, such as gender and age, of respondents who did not provide weight or height information. Data quality measures (e.g., completeness or incompleteness of diary reports recording respondents' activities) served as indicators of respondents' reluctance or uncooperativeness toward participating in the ATUS. Multivariate analysis was performed on respondents' demographic and survey characteristics. A measure of dissimilarity was used to compare time profiles across BMI groups to determine which BMI group most resembled the respondents with missing BMIs in terms of activities reported in the time diaries.