

# Changes to the 2004 and 2005 Consumer Expenditure Survey published tables and selected highlights

## Income imputation in the Consumer Expenditure Survey

**N**onresponse is a common problem in household surveys, particularly for questions regarding income. Nonresponse means that the respondent either does not know, or refuses to provide, the information requested. Prior to publication of the 2004 tables, the Consumer Expenditure Survey (CE) handled nonresponse to income questions by publishing income data for complete income reporters only. To be classified as a complete income reporter, the respondent had to provide a value for at least one major source of income for the consumer unit. However, not all complete reporters provided a full accounting of income for all sources for which receipt was reported. This problem was reduced, but not eliminated, with the collection of bracketed income data starting in 2001. However, even bracketed data only provide a range in which income falls, rather than a precise value for that income.

In a continuing effort to produce high quality data, the Consumer Expenditure Survey implemented multiple imputation of income data starting with the publication of the 2004 tables. Multiple imputation allows income values to be estimated when they are not reported. In multiple imputation, several estimates are made for the same consumer unit, and the average of these estimates is published. When the respondent provides no information other than receipt of the income source, these estimates are made based on characteristics of the member or consumer unit for which receipt is reported. However, when the respondent reports a bracket, the estimates are computed using methods that ensure each of these estimates falls within the range the bracket describes.

The introduction of multiply imputed income data affects the CE published tables in several ways, because income data are now published for all consumer units, instead of complete reporters only, within each demographic group. The most obvious result of this change is seen on the tables showing expenditures categorized by income before taxes, including by quintile. Starting in 2004, columns describing income, expenditures, and characteristics for Total complete reporting and Incomplete reporting of income no longer appear in these tables, and the column entitled, All consumer units appears on all income tables. This occurs because income quintiles and

income ranges are no longer defined using only data collected from complete income reporters, but instead are defined using the average of the multiply imputed values for each consumer unit. Also, in the tables showing expenditures by demographic characteristic, such as age of reference person, the footnote indicating that Income before taxes refers to Components of income... derived from 'complete reporters only' no longer appears.

Because of the implementation of income imputation, data for 2004 and subsequent years are not strictly comparable to those of prior years, especially for the income tables. In the 2003 CE tables, for example, nearly 16 percent of all consumer units are defined to be incomplete reporters. Income imputation allows expenditure data for these consumer units to be included in income categories from which they were previously excluded. To the extent that the incomplete reporters have different demographic characteristics, such as age of reference person, or different expenditure patterns than the complete income reporters who were previously assigned to these categories, averages for demographic characteristics and annual expenditures will change. In addition, some complete income reporters who do not provide values for all sources of income for which they reported receipt may be classified in different income categories (ranges or quintiles) after imputation estimates these missing values. Again, to the extent that their demographic characteristics or expenditure patterns differ from the complete reporters previously assigned to these categories, the data in the tables change. Furthermore, certain expenditures, such as pensions and Social Security, are computed using income data. As a result of imputation, average annual values for these expenditures may be substantially different in the 2004 and 2005 CE tables than in tables for previous years.

In addition, multiply imputed microdata require special methods for analysis. Users of the public-use microdata will find guidance in the 2004 and 2005 Public Use Microdata Documentation for both the Interview and Diary Surveys. Included in these documents is a description of the method used to obtain proper variance estimates for multiply imputed data. These procedures are also used to produce estimates of standard errors and coefficients of variation for multiply imputed income data in the published standard error tables available online at [www.bls.gov/cex/tables.htm](http://www.bls.gov/cex/tables.htm).

### **New, user-friendly Diary**

In 2005, a new, more user-friendly Diary Survey form was introduced. The new form was a major change and departure from previous Diary Survey forms. Its purpose is to make reporting expenditures in the Diary Survey more straightforward, thus creating a less burdensome experience for the respondent, as well as to improve participation and obtain improved reporting of items. The Diary Survey form is organized by day, and by expenditure type. The expenditure types in the diary are food and drinks away from home; food and drinks for home consumption; clothing, shoes, jewelry, and accessories; and all other products, services, and expenses. There are five distinguishing features of the new diary.

- The form layout was redesigned and is smaller and in portrait format. There is one page for each of the expenditure types for each day of the diary. This feature simplifies the organization of the diary.

- All sub-categories within the expenditure types were eliminated.

- Checkboxes are used to obtain the necessary detail for certain types of expenditures, such as vendor type for meals away from home, and gender and age information for clothing expenditures.

- Instructions on keeping the diary were clarified. All important instructions are highlighted, more examples are provided, and a “Frequently Asked Questions” section is included on the form.

- Graphics on the new diary were modernized. Photographs and greater use of color are included in the design.

An electronic version of the new Diary Survey form can be found on the CE Web site at [www.bls.gov/cex/csx801p.pdf](http://www.bls.gov/cex/csx801p.pdf).