Household Income Trends
November 2015

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Note

This report on median household income for November 2015 is based on data derived from the monthly Current Population Survey (CPS), the source of the nation's official statistics on employment and unemployment.

Summary of Findings

According to new data derived from the monthly Current Population Survey (CPS), median annual household income in November 2015 was $56,746, recapturing all of the ground lost since the beginning of the last recession in December 2007 ($56,714). However, the November 2015 median was not statistically different than the October 2015 median of $56,688. The Sentier Household Income Index for November 2015 was 98.9 (January 2000 = 100).

(Income amounts in this report are before-tax money income and have been adjusted for inflation; income amounts are expressed in November 2015 dollars and have been seasonally adjusted, unless otherwise noted.)

Even though the change in this latest monthly reading is not statistically significant, there is a generally upward trend in income that has been evident since the low point in our household income series that occurred in August 2011. Median income in November 2015 ($56,746) was 4.8 percent higher than in November 2014 ($54,172), and 9.4 percent higher than in August 2011 ($51,875). The period since August 2011 has been marked by an uneven, but generally upward trend in the level of real median annual household income. Many of the month-to-month changes in median income during this period have not been statistically significant. However, the cumulative effect of the various month-to-month changes since August 2011 resulted in the income improvement noted above. (See Figure 1 at the back of this report.)

By definition, changes in consumer prices have a direct effect on the measured level of real median annual household income. Monthly variations in the CPI in recent

times have been driven mainly by changes in energy prices, which have been volatile. The month-to-month changes in the CPI since August 2011 span a broad range of values, from a low of -0.7 percent between December 2014 and January 2015, to a high of 0.6 percent between January 2013 and February 2013. Large changes in the monthly CPI, such as those related to the price of energy, can contribute to short-term fluctuations in estimates of real median annual household income, as nominal changes in the median can often be smaller than the change in prices. The CPI did not show a measurable increase between October 2015 and November 2015.

Real median annual household income in November 2015 can be put into broader perspective by comparisons with previous levels of household income since the last recession began and dating back to the start of the last decade. The November 2015 median income of $56,746 is 1.9 percent higher than the median of $55,676 in June 2009, the end of the recent recession and beginning of the "economic recovery." As noted in an earlier report, we have recovered all of the income that was lost during the post-recessionary period. (Since the recession ended consumer prices have increased by 10.9 percent, creating a sizable "headwind" for changes in median annual household income.) The November 2015 median has now surpassed the median of $56,714 in December 2007, the beginning month of the recession that occurred almost eight years ago. And the November 2015 median is now only 1.1 percent lower than the median of $57,388 in January 2000, the beginning of this statistical series. These comparisons demonstrate that median annual household income has recaptured all of the ground lost since the occurrence of the last recession and most of the ground lost since the beginning of the 20th century.

The November reading on the labor market from the U.S. Bureau of Labor Statistics showed some improvement compared to October. The official unemployment rate in November 2015 was 5.0 percent, the same level as October. However, the median duration of unemployment was 10.8 weeks in November 2015, down from 11.2 weeks in October 2015. The broader measure of employment hardship, which includes the unemployed, marginally attached workers (of which discouraged workers are a subset), and persons working part-time for economic reasons, was 9.9 percent in November 2015, not significantly different from October 2015 (9.8 percent).

If we focus on the longer time period since real median annual household income in our series reached the low point, from August 2011 to November 2015, the labor market trends show very significant improvement. The official unemployment rate declined from 9.0 percent in August 2011 to 5.0 percent in November 2015. The median duration of unemployment declined from 22.4 weeks in August 2011 to 10.8 weeks in November 2015. And the broader measure of employment hardship, which includes the unemployed, marginally attached workers (of which discouraged workers are a subset), and persons working part-time for economic reasons, declined from 16.1 percent in August 2011 to 9.9 percent in November 2015.

The Sentier Household Income Index (HII) shows the value of real median annual household income in any given month as a percent of the base value at the beginning of the last decade (January 2000 = 100.0 percent). The Sentier HII for November 2015 stood at 98.9, about the same level as December 2007 (98.8 percent) when the "great recession" began, and 97.0 in June 2009, when the "economic recovery"

subsequently began. The Sentier HII in August 2011 was 90.4 compared to 98.9 in November 2015. The Sentier HII had increased steadily from August 2011 (the low point) to December 2011: 90.4 in August, 90.9 in September, 91.5 in October, 91.8 in November, and 92.7 in December.

Three employment hardship measures—the unemployment rate, the median duration of unemployment, and a broad measure of employment hardship that groups the unemployed, marginally attached workers, and part-time workers who want full-time work—are contrasted against the Sentier HII in Figures 1, 2, and 3 below, located at the back of this report. In the discussion that follows, we highlight trends in these three employment hardship measures for five important time periods: January 2000 (the beginning of our household income statistical series), December 2007 (the beginning of the great recession), June 2009 (the beginning of the economic recovery), August 2011 (when the Sentier HII reached its lowest level), and November 2015 (the latest reading).

As shown in Figure 1, the official unemployment rate in January 2000 was 4.0 percent, rose to 5.0 percent in December 2007, continued to rise to 9.5 percent in June 2009, fell to 9.0 percent in August 2011, and stood at 5.0 percent in November 2015.

As shown in Figure 2, the median duration of unemployment in January 2000 was 5.8 weeks, rose to 8.4 weeks in December 2007, continued to rise to 17.2 weeks in June 2009, rose to 22.4 weeks in August 2011, and stood at 10.8 weeks in November 2015.

As shown in Figure 3, the broad measure of employment hardship in January 2000 was 7.1 percent, rose to 8.8 percent in December 2007, continued to rise to 16.5 percent in June 2009, fell to 16.1 percent in August 2011, and stood at 9.9 percent in November 2015.

Other economic factors, such as average weekly earnings, have also had an effect on household income levels. (Average weekly earnings are affected by changes in average hourly earnings and average hours worked per week.) At the start of the recession in December 2007, the average weekly earnings (expressed in November 2015 dollars) for all private employees were $827. After taking inflation into account during the recession and the economic recovery, average weekly earnings increased to $871 by November 2015. (All figures are seasonally adjusted from the U.S. Bureau of Labor Statistics based on the Current Employment Statistics survey).

The Nation's official estimates of household income and poverty are released once a year by the U.S. Census Bureau. Official data derived from the 2015 Current Population Survey Annual Social and Economic Supplement (CPS ASEC) that relate to annual income received during calendar year 2014 were released by the U.S. Census Bureau on September 16, 2015. These are the most recent statistics on annual income that are currently available from the U.S Census Bureau. While the U.S. Census Bureau provides the most accurate measures of both the level and change in household income, the new series presented in this report provides an interim measure that tracks income changes on a monthly basis, an attribute that is especially important during periods of economic instability, such as those we have experienced. As demonstrated in this and our previous reports, the new monthly series has the ability to track household income changes during the specific months of important economic events, such as the recession and

the economic recovery, that do not coincide neatly with calendar year boundaries.

Data Sources and Estimation Methods

This study is based on data collected in the Current Population Survey (CPS), the same household survey used to derive the official monthly unemployment rate. Data have been compiled from each monthly survey taken since January 2000 (as of November 2015, 191 surveys in total). Each of these surveys collected data for a nationally representative sample of more than 50,000 interviewed households and their respective members (approximately 135,000 per month). The survey collects the detailed information needed to determine the employment characteristics of all civilians age 16 years old and over and to compute the official unemployment rate. It also collects key demographic and social characteristics for all household members, including children. Some of these are as follows:

- Age
- Gender
- Relationship to householder (i.e. spouse, own child, grandchild, nonrelative, etc.)
- Race and ethnicity
- Educational attainment
- Veteran's status (era of past membership in the armed forces)
- Presence of disabilities
- Citizenship
- Country of birth

Estimates of household income from the survey are based on a single question that asks respondents to report the total money income received by the household during the previous 12-month period. The definition of income used in the survey includes the following:

- Wages and salary
- Nonfarm self-employment income
- Farm self-employment income
- Social Security and Supplemental Security Income
- Interest, dividends, net rental income, and royalties
- Cash public assistance (federal and state)
- Unemployment compensation and workers' compensation
- Retirement income from pensions, annuities, other retirement plans
- Veterans' pensions and compensation
- Child support and alimony
- Other cash income **excluding** capital gains or lump sum, one-time amounts

The total amount of household income before taxes is recorded in one of 16 categories as shown below:

- Under $5,000
- $5,000 to $7,499
- $7,500 to $9,999
- $10,000 to $12,499
- $12,500 to $14,999
- $15,000 to $19,999
- $20,000 to $24,999
- $25,000 to $29,999
- $30,000 to $34,999
- $35,000 to $39,999
- $40,000 to $49,999
- $50,000 to $59,999
- $60,000 to $74,999
- $75,000 to $99,999
- $100,000 to $149,999
- $150,000 and over

The total household income estimates in this report are based on a composite moving average. Each month 25 percent of the sample households are new while 75 percent

were also interviewed in the previous month. As the household income question is asked only for the "new" households each month, statistics derived from the full sample represent a moving average covering the 4-month period prior to the interview month. The household income estimates in this report reflect all sample households. We have determined that estimates based solely on the 25-percent sample entering in a single month exhibit an unacceptable level of sampling variability.

The raw data collected for each household member in the survey must be aggregated and summarized at the household level in order to generate the household statistics underlying this analysis. Householders are identified in order to compute statistics that relate to characteristics of the householder. Counts of the number of household members, number of children, and number of earners are computed by examining each household member's detailed information. Missing responses to the question on household income are imputed using statistical matching techniques in order to adjust for any nonresponse bias. Procedures for imputing missing responses are based on the same methodology used by the U.S. Census Bureau for the Annual Social and Economic Supplement (CPS ASEC), the source for official estimates of annual income, poverty, and health insurance coverage. There are some reporting differences when asking for total household income as compared to using the CPS ASEC supplemental questionnaire, which asks a detailed series of questions on the receipt of income during the previous calendar year. We have made adjustments to correct for bias caused by these differences. The U.S. Census Bureau's income estimates for calendar year 2014 were released on September 16, 2015. That release does not include monthly trend data, and therefore does not report on any income developments during 2015.

All statistics shown in this analysis are based on weighted sample data. The survey for each month includes a sample weight for each household. The sum of these weights across all sample households provides a national estimate of the total number of households existing for that month. When summed these weights also provide estimates of the number of households by characteristics such as race, age, gender, presence of unemployed, etc.

Estimates shown in this report may differ from actual values because of both sampling variability and nonsampling error. Sampling variability occurs because responses are obtained from a sample of the population (50,000 interviewed households) rather than from a full census. Nonsampling error can occur from a variety of factors. Households may report incorrect information when answering questions about the total amount of household income received during the past 12 months prior to the interview. When a respondent forgets the exact dates for a sequence of events this can result in a known survey bias called "telescoping," in which the reporting of the events is telescoped either forward or backward.

The telescoping phenomenon may be especially relevant in situations where household members become unemployed or find a job after a significant period of unemployment. For example, a respondent who recently found a job following a long period of unemployment may erroneously include the annual salary from the new job when responding to the household income question in the CPS that should be restricted only to income received during the 12-month period prior to the survey month. Similarly, respondents with Social Security

income may use their current monthly Social Security benefit to compute annual household income during the previous 12-month period even though the current monthly amount reflects the first month following a cost-of-living adjustment.

The Consumer Price Index (CPI-U) for all urban consumers has been used to make adjustment for changes in prices where noted in the tables and text of the report. We have used the seasonally adjusted CPI to make these adjustments.

The Sentier Household Income Index (HII) has been seasonally adjusted to reduce seasonal differences in the reporting of household income. Various factors may contribute to seasonal difference in the way households report their incomes in the CPS. Earlier studies by the U.S. Census Bureau have shown that reports of household income tend to rise as the survey month approaches the April tax-filing period. This trend, while apparent in surveys of the 1980's and early 1990's, is less pronounced in more recent years. Seasonal adjustments are made using the X-12-ARIMA software. This software was developed by the U.S. Census Bureau and is the same software used to create adjustment factors for monthly employment and unemployment series released by the U.S. Bureau of Labor Statistics.

The household income estimates in this report reflect modifications made as part of annual benchmarking adjustments that were implemented in January 2015, which improve the methods used for estimating the level of household income and update the factors used for making seasonal adjustments to the time series data. In addition, beginning with January 2013 we have been using the seasonally adjusted Consumer Price Index for all urban consumers (CPI-U) to make adjustments for changes in prices throughout the entire household income data series back to January 2000. (All estimates prior to January 2013 were based on the not seasonally adjusted CPI-U.) These various adjustments result in a trend line in real median annual household income, and the corresponding Sentier Household Income Index (HII), that closely resembles the previously published trend line. Similar benchmarking adjustments will be made in January of each year as part of an effort to introduce continuous improvements into the household income data series.

The estimates in this report reflect population controls based on the 2010 Decennial Census results. These controls are used to "weight" the survey observations so that they reflect the population by detailed demographic subgroups. Introduction of the new survey weights to reflect the latest Census results is standard operating procedure for the CPS. Traditionally their introduction has had only very minor effects on comparisons of median incomes but may have some small effects on estimated numbers of households. The new population controls were introduced in January 2012 for the CPS.

Each January the U.S. Census Bureau makes additional adjustments to the population controls in the Current Population Survey. This means the sample weights are revised so that estimates from the CPS agree with pre-specified national population totals by age, sex, race, and Hispanic origin and with state level totals by age, sex, and race. The estimates in this report reflect those adjustments.

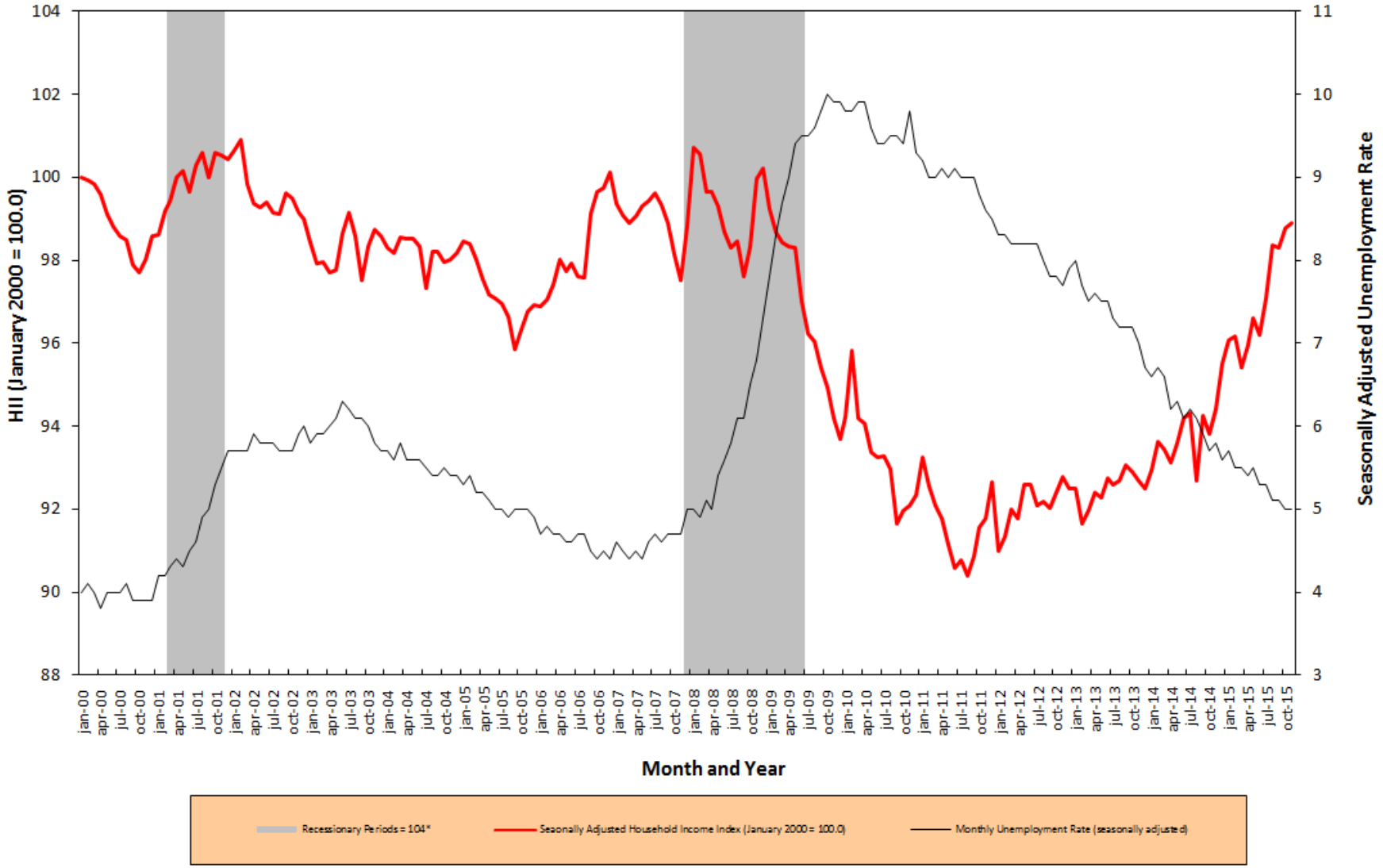
About the Authors

Gordon Green is a former Chief of the Governments Division at the U.S. Census Bureau and a member of the Senior Executive Service (SES). For many years at the U.S. Census Bureau, he directed work on the Nation's official income and poverty statistics program. He received a Ph.D. in economics from The George Washington University in 1984. He is author of the book, *Making Your Education Work for You* (Forge, 2010), which shows students how to make top grades in high school and college and engage in effective job planning. He is also author of the books, *How to Get Straight A's in School and Have Fun at the Same Time* (Forge, 1999), which is intended for younger students, and *Getting Straight A's* (Lyle Stuart, 1985).

John Coder is a former Chief of the Income Statistics Branch at the U.S. Census Bureau. While at the U.S. Census Bureau he directed collection and processing of income and related data collected in the March Current Population Survey (CPS) and was instrumental in developing new methods for imputing missing survey responses. He also was founder of the U.S. Census Bureau's Small Area Income and Poverty Estimates Program. He played a key role in developing the Luxembourg Income Study, which is a data center for making cross-national comparisons, available at the website: www.lisdatacenter.org

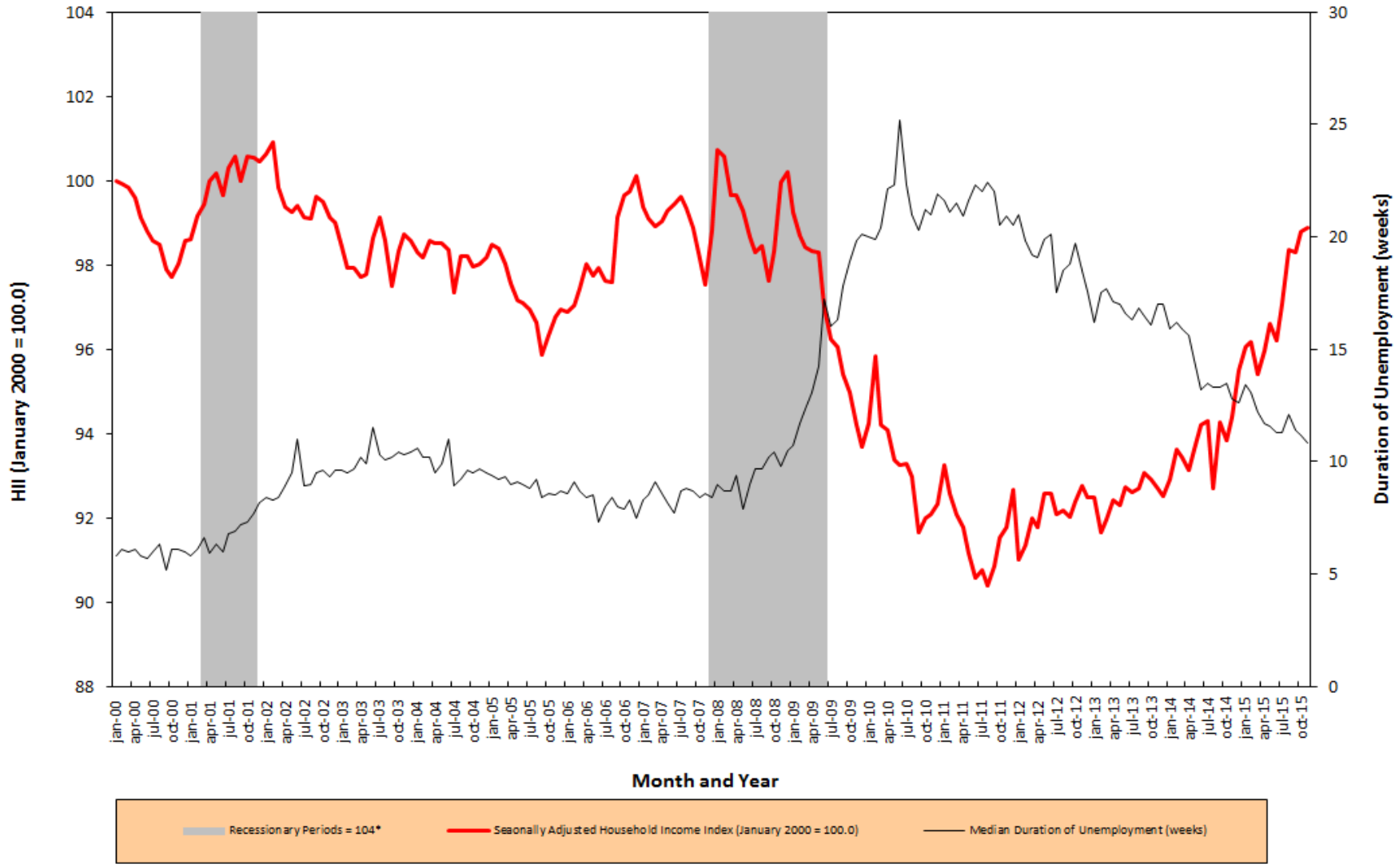
The authors gratefully acknowledge the valuable assistance provided by Anne Fengyan Shi in preparing this report. She received a Ph.D. in government from Georgetown University in 1999, and has been a social science researcher ever since.

Figure 1.
Median Household Income Index (HII) and Unemployment Rate by Month: January 2000 to November 2015



Sources: For income data: Sentier Research, LLC estimates of annual household income derived from the monthly Current Population Survey (CPS) conducted by the U.S. Census Bureau; for the unemployment rate and the CPI-U: the U.S. Bureau of Labor Statistics.

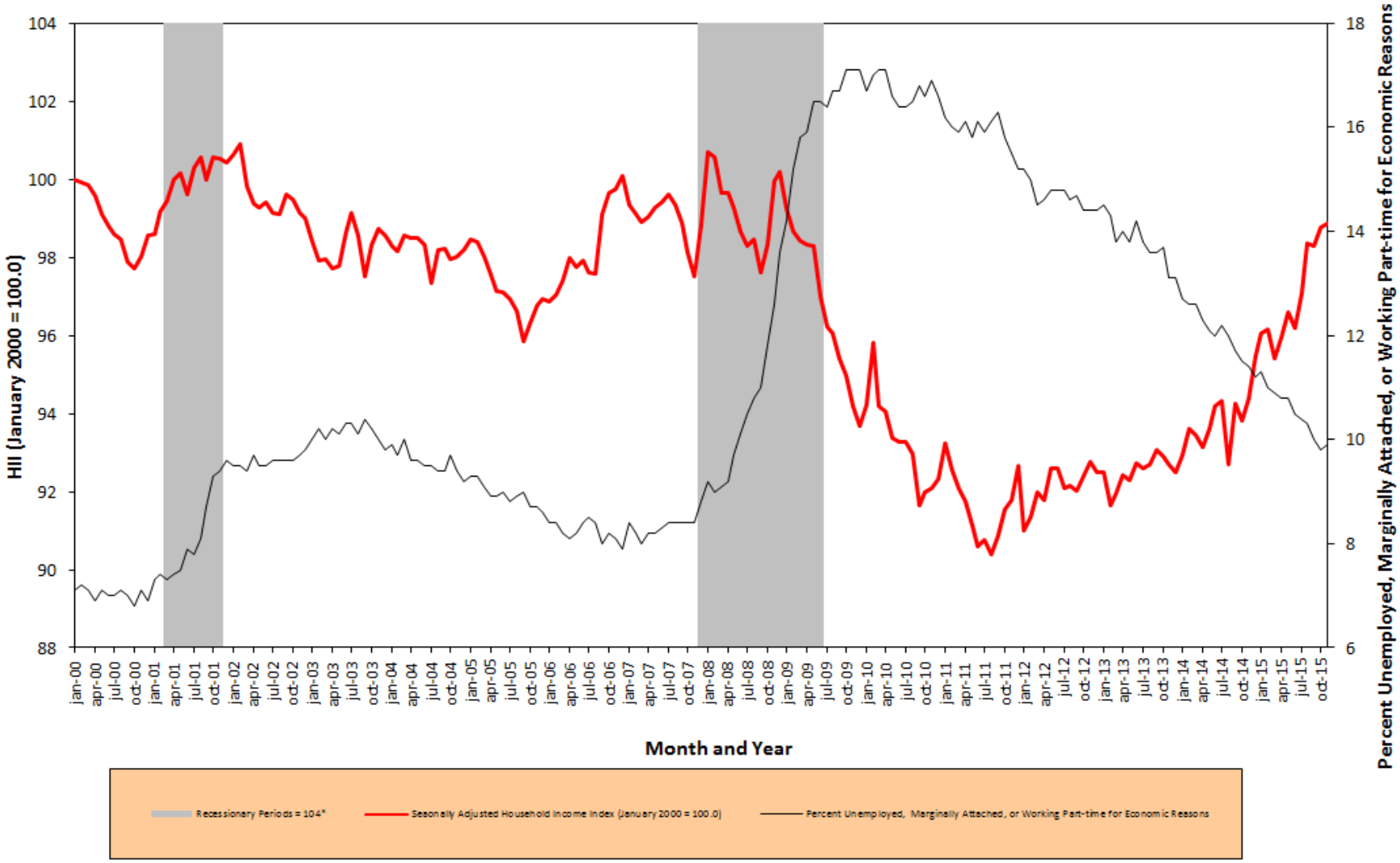
Figure 2.
Median Household Income Index (HII) and Median Duration of Unemployment by Month, January 2000 to November 2015



Sources: For income data: Sentier Research, LLC estimates of annual household income derived from the monthly Current Population Survey (CPS) conducted by the U.S. Census Bureau; for the median duration of unemployment and the CPI-U: the U.S. Bureau of Labor Statistics.

Figure 3.

Median Household Income Index (HII) and Percent Unemployed, Marginally Attached, or Working Part-time for Economic Reasons by Month, January 2000 to November 2015



Sources: For income data: Sentier Research, LLC estimates of annual household income derived from the monthly Current Population Survey (CPS) conducted by the U.S. Census Bureau; for the percent unemployed, marginally attached, or working part-time for economic reasons and the CPI-U: the U.S. Bureau of Labor Statistics.