



**Household Income Trends  
December 2016**

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S E N T I E R  
R E S E A R C H

## Household Income Trends December 2016

### Source

This report on median household income for December 2016 is based on data derived from the monthly Current Population Survey (CPS), the source of the nation's official statistics on employment and unemployment. The sample underlying the estimates contained in this report included 53,014 interviewed households from across the country.

### Summary of Findings

According to new data derived from the monthly Current Population Survey (CPS), median annual household income in December 2016 was \$57,827, \$558 (or 1.0 percent) lower than the November 2016 median of \$58,385. Median household income at the beginning of the great recession in December 2007 was \$57,886. The Sentier Household Income Index (HII) for December 2016 was 98.7, significantly lower than the November reading of 99.7 (January 2000 = 100). The level of real median annual household income in January 2000 was \$58,574, which marks the beginning of this statistical series.

(Income amounts in this report are before-tax money income and have been adjusted for inflation; income amounts are expressed in December 2016 dollars and have been seasonally adjusted, unless otherwise noted.)

The December decline in median annual household income wipes out most of the increase in income that had been evident since May 2016, and returns it to a level of income that is not significantly different than that at the beginning of the great recession (\$57,886). More broadly, there has been a general upward trend in median household income since the post-recession low point reached in August 2011. This upward trend was initially marked by monthly movements, both up and down. Many monthly changes were not statistically significant. By the summer of 2014 however, that uneven trend became dominated by a series of significant monthly increases. However, the median income figures that we have reported for the past several months have flattened out this trend.

(See Figure 1 at the back of this report.)

Median annual household income in December 2016 (\$57,827) was 0.9 percent lower than in December 2015 (\$58,356), but 9.1 percent higher than in August 2011 (\$53,019). This general upward trend since August 2011 reflects, in part, the low level of inflation as measured by the CPI for all items used in this series, as opposed to the CPI less food and energy. However, energy prices recently have been on an upswing, contributing to the 0.3 percent increase in the CPI for all items between November 2016 and December 2016, and playing a significant role in the reported decline in median income this month.

Real median annual household income in December 2016 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 December 2016 median income of \$57,827 is 1.8 percent higher than the median of \$56,827 in June 2009, the end of the recent recession and beginning of the “economic recovery.” The December 2016 median is not significantly different than the median of \$57,886 in December 2007, the beginning month of the recession that occurred nine years ago. And the December 2016 median is now 1.3 percent lower than the median of \$58,574 in January 2000, the beginning of this statistical series. These comparisons demonstrate that we are still at a level of median annual household income that is not significantly different than the level that existed at the beginning of the great recession nine years ago and also lower than the level at the start of the last decade more than sixteen years ago.

The December reading on the labor market from the U.S. Bureau of Labor Statistics shows a situation that is not that much different than November. The official

unemployment rate in December 2016 was 4.7 percent, not significantly different than the November 2016 rate (4.6 percent). However, the median duration of unemployment was 10.3 weeks in December 2016, slightly higher than November 2016 (10.1 weeks). 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 9.2 percent in December 2016, not significantly different than the November 2016 reading (9.3 percent).

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 stood at 98.7 in December 2016, about the same as December 2007 (98.8) when the “great recession” began, but higher than June 2009 (97.0), when the “economic recovery” subsequently began. The Sentier HII was 90.5 in August 2011, the low point in our household income series, compared to 98.7 in December 2016.

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 this 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 December 2016 (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 4.7 percent in December 2016.

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 10.3 weeks in December 2016.

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 9.2 percent in December 2016.

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 December 2016 dollars) for all private employees were \$837.

After taking inflation into account during the recession and the economic recovery, average weekly earnings increased to \$892 by December 2016. (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 2016 Current Population Survey Annual Social and Economic Supplement (CPS ASEC) that relate to annual income received during calendar year 2015 were released by the U.S. Census Bureau on September 13, 2016. 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 December 2016, 204 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 2015 were released on September 13, 2016. That release does not include monthly trend data, and therefore

does not report on any income developments during 2016.

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.

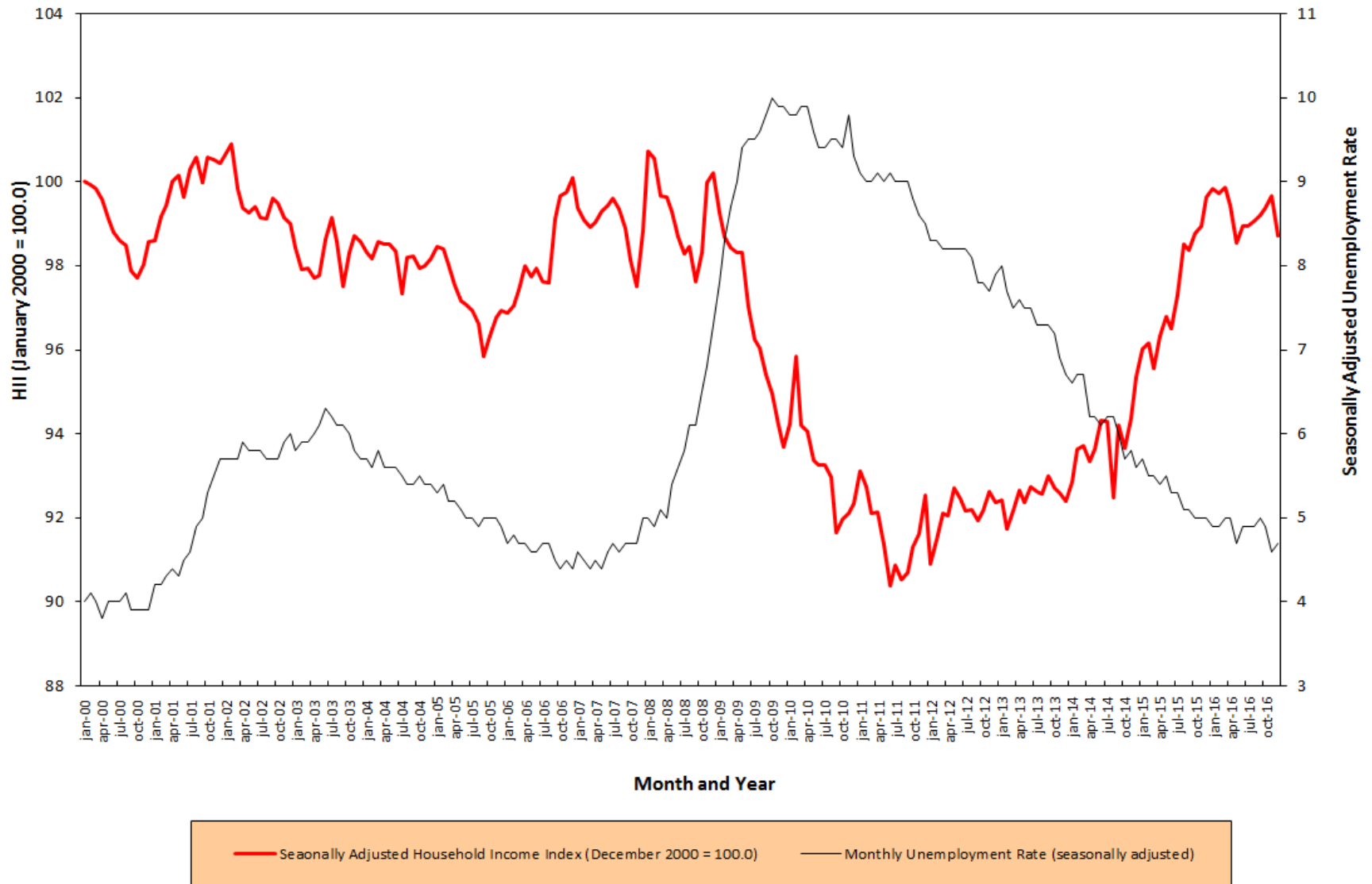
The household income estimates in this report reflect modifications made as part of annual benchmarking adjustments that were implemented in January 2016, which improve the methods used for estimating the level of household income and update the factors used for making seasonal adjustments to the time 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.

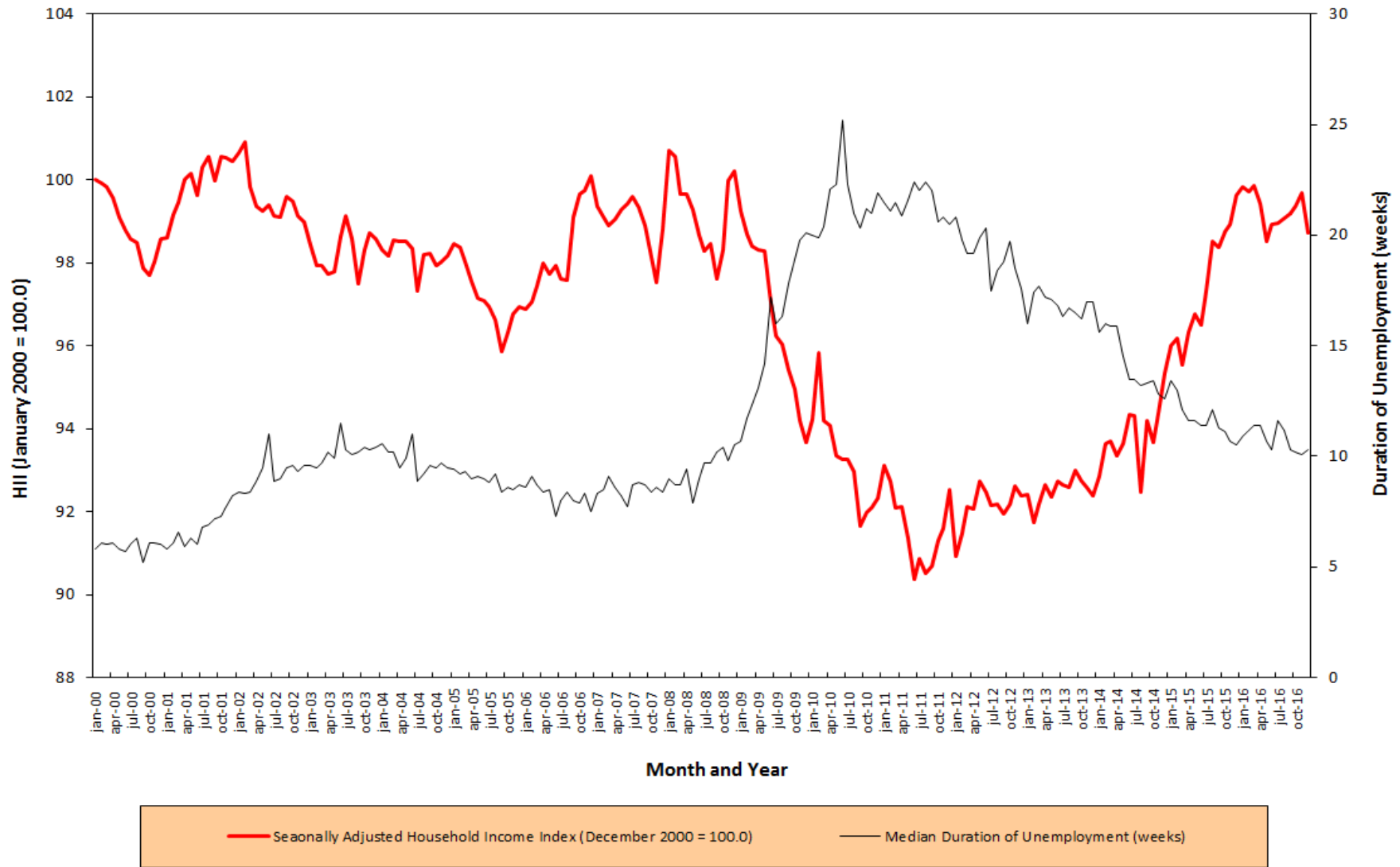
**Figure 1.**  
**Median Household Income Index (HII) and Unemployment Rate by Month: January 2000 to December 2016**



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.

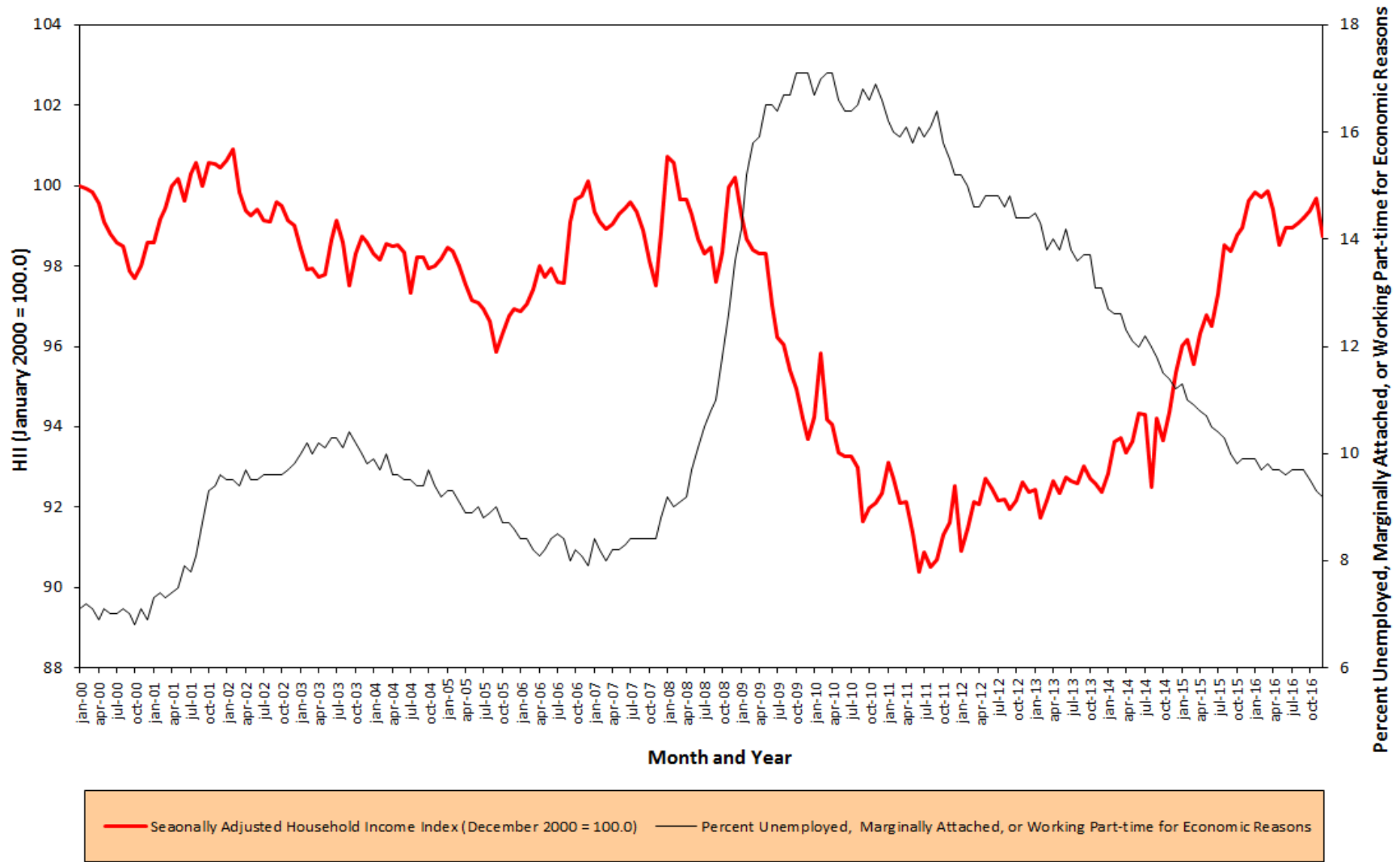


**Figure 2.**  
**Median Household Income Index (HII) and Median Duration of Unemployment by Month, January 2000 to December 2016**



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 December 2016**



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.