

Methodology

Supplement to "[US unemployment remains worse than it seems as millions still out of the labor force](#)," Jason Furman (PIIE) and Wilson Powell III (Harvard Kennedy School), March 5, 2021, *RealTime Economic Issues Watch* blog, Peterson Institute for International Economics, Washington.

Realistic Unemployment Rate

The realistic unemployment rate adjusts for the unusual circumstances of the pandemic labor market. First, it adjusts for the unusually large number of individuals who report being employed but not at work for “other reasons.” Analysis by the [Bureau of Labor Statistics](#) indicates that many of these workers were more appropriately classified as unemployed on temporary layoff. Consistent with this finding, our realistic unemployment rate reclassifies the “excess” number of workers not at work for “other reasons,” the increase over the average in the corresponding calendar month from the four years before the pandemic, as unemployed.

Second, it adjusts for the unusually large increase in the number of workers who dropped out of the labor force. Historically, when the unemployment rate is elevated, some individuals stop looking for work entirely, leading to declines in both the unemployment rate and the labor force participation rate. During the previous recession, the unemployment rate rose 5.6 percentage points from March 2007 to October 2009 while the labor force participation rate fell by 1.2 percentage point. Over this same period, the aging of the population would have been expected to reduce the labor force participation rate by 0.4 percentage point, leaving a 0.8 percentage point decline not due to aging, or a 0.14 percentage point decline in the aging-adjusted labor force participation rate per percentage point increase in the unemployment rate. The effect of aging on the labor force participation rate follows the same methodology used in [prior work](#), effectively assuming that participation rates are unchanged within each of 30 age-sex groups.

The 0.14 adjustment factor used here is slightly smaller than the 0.22 adjustment factor that the Council of Economic Advisers [found](#) for the three preceding recessions. A larger adjustment factor would treat more of the decline in labor force participation associated with the downturn as “normal,” resulting in a correspondingly smaller increase in the realistic unemployment rate.

The realistic unemployment rate is an estimate of the unemployment rate if the relationship observed in the 2007–09 financial crisis between the change in the aging-adjusted labor force participation rate and the change in the unemployment rate held. It is calculated by simultaneously solving equations (1) and (2) for $\Delta UR_{Realistic}$ and $LFPR_{Realistic}$, where $\Delta UR_{Realistic}$ is the change in the realistic unemployment rate from February 2020 ($UR_{Realistic}$ is our realistic unemployment rate), $LFPR_{Realistic}$ is the labor force participation rate associated with our realistic unemployment rate, $\Delta LFPR_{Aging}$ is the effect of population aging on the labor force participation rate since February 2020, $Unemployed_{Misclassification}$ is the “excess” number of workers not at work for “other reasons,” and Pop is the adult civilian noninstitutional population.

Equation 1 Labor force participation rate (LFPR): if LFPR followed historical relationship between LFPR and unemployment rate (UR) observed during Great Recession (adjusted for aging)

$$LFPR_{Realistic} = \Delta UR_{Realistic} * \frac{\Delta LFPR}{\Delta UR_{Great\ Recession}} + LFPR_{Feb.2020} + \Delta LFPR_{Aging}$$

Equation 2 Unemployment rate after some nonparticipants reclassified as unemployed:

$$UR_{Realistic} = \Delta UR_{Realistic} + UR_{Feb.2020}$$

$$= \frac{Unemployed_{Official} + Unemployed_{Misclassification} + (LFPR_{Realistic} - LFPR_{Actual}) * Pop}{LFPR_{Realistic} * Pop}$$

Fixed Participation Rate Unemployment Rate

Like the realistic unemployment rate, the fixed participation unemployment rate reclassifies the “excess” number of workers not at work for “other reasons” as unemployed. It also assumes that the labor force participation rate is unchanged from its February 2020 value of 63.3 percent, with the entire decline in labor force participation reclassified as unemployment.

$$UR_{Fixed\ Participation} = \frac{LFPR_{Feb.2020} * Pop - Employed + Unemployed_{Misclassification}}{LFPR_{Feb.2020} * Pop}$$