



# Economic Letter

## America's Missing Workers Are Primarily Middle Educated

by Alan Armen and Tyler Atkinson

**ABSTRACT:** The labor force participation rate has fallen since 2008, partly due to an aging population and despite a more highly educated one. After accounting for aging, those whose highest educational attainment is a high school diploma, some college or an associate degree have primarily driven the participation decrease.

Since the Great Recession, the labor force participation rate—the percent of people employed or looking for work—has fallen roughly 3 percentage points. Declining participation has downside implications for the long-run size of the economy. Policymakers are acutely interested in understanding what is behind the decline and what, if anything, can be done to slow it.

A well-documented explanation for the decline is that the population has gotten older and, therefore, is more likely to be retired. Results from studies of the effect of aging on participation have ranged widely, though aging typically poses a sizable downward impact. A less-often emphasized point, however, is that increases in educational attainment over the same period partially offset the impact of age and put upward pressure on the participation rate.

There is no consensus on what exactly has driven the decline in participation beyond what demographics can explain. Whatever the cause, it appears this decline is concentrated among those who have only a high school degree or some college education, while those with less than a high school education or a bachelor's degree or higher are participating at a normal rate. Policies that

effectively target these middle-education groups by either increasing their participation rates or educational attainment levels could plausibly mitigate the overall labor force participation rate decline.

### Falling Participation

One of the simplest ways to explain declining labor force participation is to examine how the rate changed within demographic groups, specifically combinations of age and educational attainment categories.<sup>1</sup> For example, labor force participation among high school graduates age 35–44 was 81.8 percent in 2008 and 77.1 percent in 2016; the group made up 6.1 percent of the population in 2008 and 4.7 percent in 2016. Changes in the total labor force participation rate can be decomposed into changes in the groups' participation rates and changes in their shares of the population.

Suppose that each demographic group's participation rate had been constant since 2008. Under such a “counterfactual,” all changes in the total participation rate since then would be accounted for by changes in each group's share of the population.

In reality, participation rates within each age group have changed, but the counterfactual is useful nonetheless. In particular, because the population share

**Table 1** Labor Force Participation Rate  
(As a percentage)

	2008	2016	'08 rates, '16 age demographics	Gap in number of workers (thousands)
Men				
Bachelor's degree and higher	82.7	79.7	79.2	-153
Some college or associate degree	78.3	72.0	74.1	552
High school graduate	72.4	67.6	69.4	549
Less than a high school diploma	58.5	58.2	57.3	-102
Women				
Bachelor's degree and higher	74.1	70.9	70.7	-79
Some college or associate degree	66.8	61.6	63.3	531
High school graduate	53.1	47.5	50.3	888
Less than a high school diploma	32.6	34.1	34.1	-2
Total				
Bachelor's degree and higher	78.4	75.1	74.7	-232
Some college or associate degree	72.0	66.3	68.2	1,084
High school graduate	62.4	57.5	59.8	1,437
Less than a high school diploma	45.7	46.3	45.8	-104

NOTES: The "'08 rates, '16 age demographics" column is a counterfactual, where each age group has the same labor force participation rate (LFPR) as in 2008, but the population weights for each age group shift to their 2016 levels. It represents the LFPR that can be explained by age demographics. The "gap in number of workers" column is the gap between the actual and counterfactual 2016 LFPR times the population in 2016. It represents the number of workers that could be added to the labor force to match the 2008 LFPR adjusted for aging.

SOURCES: Annual Social and Economic Supplement (ASEC) of the Current Population Survey, IPUMS-CPS (University of Minnesota, [www.ipums.org](http://www.ipums.org)); authors' calculations.

of older individuals—who participate at a lower rate—has risen, the counterfactual participation rate has also declined since 2008. The magnitude of the decline provides a means of assessing the extent to which changes in age and educational attainment contributed to the fall in the actual participation rate.

The actual participation rate for persons age 25 and over, in fact, fell from 67.3 percent in 2008 to 64.5 percent in 2016. The counterfactual participation rate fell to 65.5 percent, implying that demographic effects contributed 1.8 percentage points to the top-line 2.8 percentage-point decline (*Chart 1*).

Because movements in the counterfactual rate are solely due to demographic factors, the gap between the counterfactual and actual gives an estimate of how much nondemographic factors contributed. Hence, the remaining 1.0 percentage point could be driven by people willingly choosing not to work, some sort of labor market dysfunction or other factors.

The fall in the counterfactual is driven by the two opposite forces of aging and a more highly educated population.

If the counterfactual had been created with only age categories, it would have fallen to 64.9 percent by 2016—overstating the decline contributed by demographics. The aging effect is partially offset by the population continuing along its trend of greater educational attainment, as the more highly educated also participate at a higher rate.

Between 2008 and 2016, the fraction of the population age 25 and over with at least some college education increased from 55.3 percent to 60.2 percent. As shown in the blue line in *Chart 1*, if the educational attainment rate of each age group in 2008 hadn't changed, the expected labor force participation rate would have been 0.7 percentage points below the actual.

### Missing Workers

The labor force participation rate has declined relative to 2008 by more than simply changes in age or educational attainment would suggest. Understanding the makeup of these additional nonparticipants provides clues regarding which policies may put upward pressure on participation.

Performing the same counterfactual analysis, but for each educational attainment group on its own and also breaking out groups by gender, reveals that an aging population explains all of the decline in participation for individuals with less than a high school education or a bachelor's degree or higher (*Table 1*). These two groups are even participating more than one would expect, given participation rates in 2008 and the shift in the age composition of the population through 2016. No other explanation, such as greater affinity for leisure pursuits or labor market dysfunction, is necessary to explain why these groups' participation fell, and, thus, it could be difficult to raise their rates beyond current levels.

Meanwhile, for those with a high school education or only some college, participation rates are low relative to 2008, indicating room to rise.

The last column of *Table 1* multiplies the difference between the 2016 actual and counterfactual participation rates for each educational attainment and gender group by the group's population size in 2016. The result equals the number of workers that could be added to (or subtracted from) the workforce by returning to the age-expected rates.

Male and female nonparticipants have roughly the same capacity to join or return to the workforce. This contradicts the often-heard narrative that the decline in participation for lower-skill prime-age men (age 25 to 54) is most problematic. That may still be true over a longer time span (1960s to present) but not for the recession and recovery period.

The total 2.5 million workers obtained by combining the two middle-education groups is roughly 1 percent of the population age 16 and over, implying that their addition to the workforce would raise the headline participation rate by about a full percentage point.

### Policy Implications

These findings suggest that a plausible policy intended to limit declining labor-force participation rates could focus on nonparticipating individuals possessing a high school or some college education, either through higher educational attainment or greater participation within each category.

According to the counterfactual in Chart 1, a more highly educated population would participate at a higher rate.

Some of this education effect is certainly not causal. Many people become educated precisely because they plan to work, and more highly educated individuals who have no intent to enter the labor market would not raise the participation rate.

But at least speculatively, policies that increase the population's education level should also raise participation. For example, if a wage is so low that working would make a household worse off—possibly because earnings wouldn't cover the costs of transportation, child care, etc.—increased education should raise the market wage, increasing the likelihood of workforce entry.

Even if training and education don't occur through traditional high schools and colleges, policy could aim to raise the participation of the middle-education categories back to their 2008 age-adjusted rates.

Many of these middle-educated nonparticipants may be inclined to work but face impediments that have emerged since 2008, such as lack of proficiency in new skills employers require. A mismatch between the skills applicants have and those required is often cited as a principal barrier to hiring. Implementing new vocational training and boosting existing programs to reduce possible skills mismatch between nonparticipants and employers could draw people back into the workforce.

## Not Participating but Interested

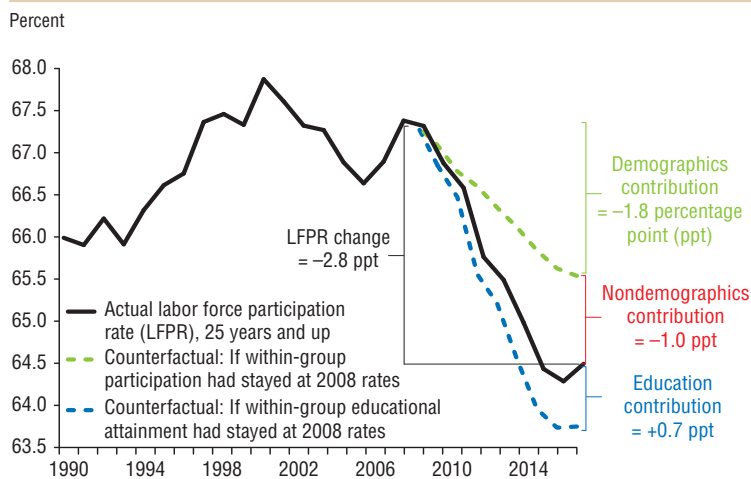
If the decline in participation by these middle-education groups were a matter of choice—such as deciding to take care of family members or a greater preference for leisure—a policy to increase their participation would at best be ineffective and possibly make people worse off, even if it increased the size of the economy.

One study's findings add weight to this premise, showing that all of the decline in the prime-age participation rate can be accounted for by individuals in households whose income is above the median.<sup>2</sup> If these individuals chose nonparticipation because their families could afford for them to do so, education or training programs would be unlikely to draw them into the workforce.

The Current Population Survey asks those not in the labor force (defined as those who haven't sought work in the prior four weeks) if they want a job. Analyzing the share of these “interested

nonparticipants” in the population by education group shows broadly similar patterns as the earlier analysis using the labor force participation rate (*Table 2*).<sup>3</sup> The largest increases relative to 2008 were

**Chart 1** Demographic Changes Only Account for Part of Participation Rate's Decline Since 2008



NOTES: The green dashed counterfactual line holds the LFPR constant to its 2008 value for each age and education group but lets the share of the group's population with a certain level of education and the share of the group in the U.S. population vary. The blue dashed counterfactual line holds the share of each group's population with a certain level of education constant to its 2008 value, but lets each group's LFPR and the share of the group in the U.S. population vary.

SOURCE: Annual Social and Economic Supplement (ASEC) of the Current Population Survey, IPUMS-CPS (University of Minnesota, [www.ipums.org](http://www.ipums.org)); authors' calculations.

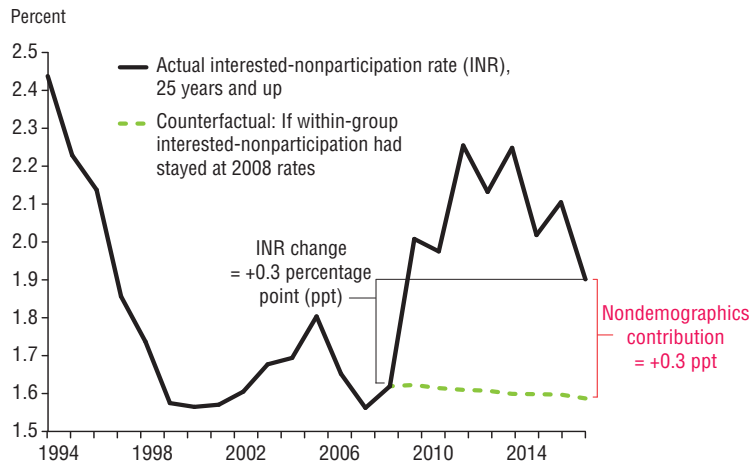
**Table 2** Interested-Nonparticipation Rate (As a percentage)

	2008	2016	'08 rates, '16 age demographics	Gap in number of workers (thousands)
Men				
Bachelor's degree and higher	1.0	1.1	1.0	23
Some college or associate degree	1.5	2.0	1.6	99
High school graduate	1.7	2.1	1.7	113
Less than a high school diploma	2.2	2.1	2.2	-1
Women				
Bachelor's degree and higher	1.2	1.4	1.2	54
Some college or associate degree	1.7	2.2	1.7	172
High school graduate	1.9	2.3	1.8	161
Less than a high school diploma	2.6	3.0	2.6	50
Total				
Bachelor's degree and higher	1.1	1.2	1.1	77
Some college or associate degree	1.6	2.1	1.6	271
High school graduate	1.8	2.2	1.8	275
Less than a high school diploma	2.4	2.6	2.4	49

NOTES: The interested-nonparticipation rate (INR) is defined as those not in the labor force who report wanting a job, as a share of population. The "'08 rates, '16 age demographics" column is a counterfactual, where each age group has the same INR as in 2008, but the population weights for each age group shift to their 2016 levels. It represents the INR that can be explained by age demographics. The "gap in number of workers" column is the gap between the actual and counterfactual 2016 INR times the population in 2016. It represents the number of workers that could be added to the labor force to match the 2008 INR adjusted for aging.

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**Chart 2** Changes in Interested-Nonparticipation Rate Since 2008 Not Demographics Driven



NOTES: The interested-nonparticipation rate (INR) is defined as those not in the labor force who report wanting a job, as a share of population. The green dashed counterfactual line holds the INR constant to its 2008 value for each age and education group but lets the share of the group's population with a certain level of education and the share of the group in the U.S. population vary.

SOURCE: Annual Social and Economic Supplement (ASEC) of the Current Population Survey, IPUMS-CPS (University of Minnesota, [www.ipums.org](http://www.ipums.org)); authors' calculations.

concentrated in the middle-income education groups, although the rate is slightly higher for the other education groups as well. Aging demographics have very little effect on this rate, so the counterfactual is essentially constant (*Chart 2*).

This suggests that some of the decline in participation rates was involuntary, especially for the middle-education groups. However, the capacity for additional workers in the last column of Table 2 is also noticeably smaller than its counterpart from Table 1. The above-normal rate of interested nonparticipants only accounts for about 20 percent of the unusually lower labor force participation rate for the middle-education groups.

This could mean 80 percent of the missing workers are unwilling or unable to join the workforce. It might also mean that those who answer they don't want a job implicitly incorporate current job prospects into their response, which could change with circumstances.

Depending on how you slice it, there are many different explanations for the recent fall in labor force participation and characterizations of the unexplained component. Educational attainment is one of those characterizations, because only those with a high school diploma or some college education are less likely to be in the workforce than one would have expected in 2008. This speaks to

what segments of the population have most felt the lasting damage of the Great Recession. It also hints at what sort of policies might boost labor force participation as the population continues to age.

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### Notes

<sup>1</sup> Specifically, age categories of 25–34, 35–44, 45–54, 55–59, 60–64, 65–69, 70–74 and 75+, and highest educational attainment categories of less than a high school diploma, high school graduate with no college, some college or associate degree, and bachelor's degree and higher. Only those age 25 and older are used because lack of employment among younger people is driven by education rather than lower education leading to lower likelihood of employment. Data are from the Current Population Survey Annual Social and Economic Supplement, by Sarah Flood, Miriam King, Steven Ruggles and J. Robert Warren, *Integrated Public Use Microdata Series, Current Population Survey: Version 4.0*. [dataset], Minneapolis: University of Minnesota, 2015.

<sup>2</sup> "Changes in Labor Participation and Household Income," by Robert Hall and Nicolas Petrosky-Nadeau, Federal Reserve Bank of San Francisco *FRBSF Economic Letter*, no. 2, 2016.

<sup>3</sup> Note that this is slightly different from the usual definition of "discouraged workers," who want a job, haven't looked for one in the last four weeks, but have in the last 12 months.



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