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Employed workers leaving the labor force: an analysis of recent trends

This article looks at the large increase in the number of people who moved from employed to not in the labor force during the 2013–14 to 2015–16 period, both overall and for workers ages 25–54. Although some of this increase can be attributed to the business cycle, there has been a greater flow from employment to retirement or to schooling than at the peak of the previous business cycle. Demographic changes explain relatively little of the increase, especially for the 25–54 age group. This movement may reflect long-term changes in the labor market.

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The labor force participation rate—the percentage of the population that is either employed or unemployed (that is, either working or actively seeking work)—has been declining in recent years, from a peak of 67.3 percent in early 2000 to an average of 62.8 percent in 2016.[1] Most of this decline is associated with the Great Recession and its aftermath, as the rate was still 66.0 percent as of 2008. A large part of the decline in labor force participation is due to the aging of the population, as the proportion ages 65 and older increased from about 16 percent in 2008–09 to about 19 percent in December 2016. However, even within the 25–54 age group, the participation rate declined from about 83 percent in 2008 to below 81 percent in 2014–15; the rate had recovered somewhat to 81.5 percent as of December 2016. The decline in the labor force participation rate has given rise to concerns that the postrecession decline in the unemployment rate to below 5 percent may overstate the health of the labor market.[2]

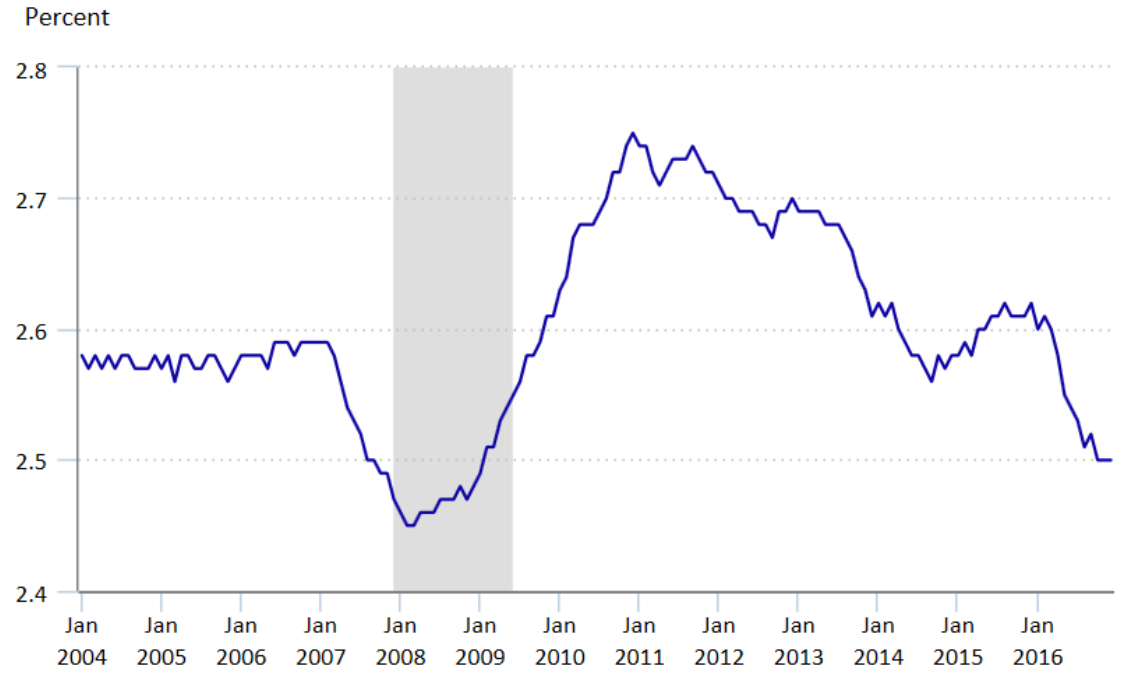
Changes in labor force participation can be analyzed by looking at trends in entering and exiting the labor force. While month-to-month changes in the proportion of the population participating in the labor force are fairly small, each month millions of people enter and exit the labor force, as well as moving into or out of employment or unemployment. The U.S. Bureau of Labor Statistics (BLS) reports estimates of the number of people changing their labor force status from one month to the next.[3]

This article concentrates on exits from the labor force—in particular, trends in labor force exit by the employed. While trends in exits from the labor force for the unemployed may be explained principally by the business cycle, trends in exits from employment are not as clearly influenced by the business cycle and may suggest longer term changes in the desirability of work. Within the article, we sometimes show employment as E, unemployment as U, not in the labor force as NILF, flows from employed to NILF as EN, and flows from unemployed to NILF as UN.

Labor force entrances and exits

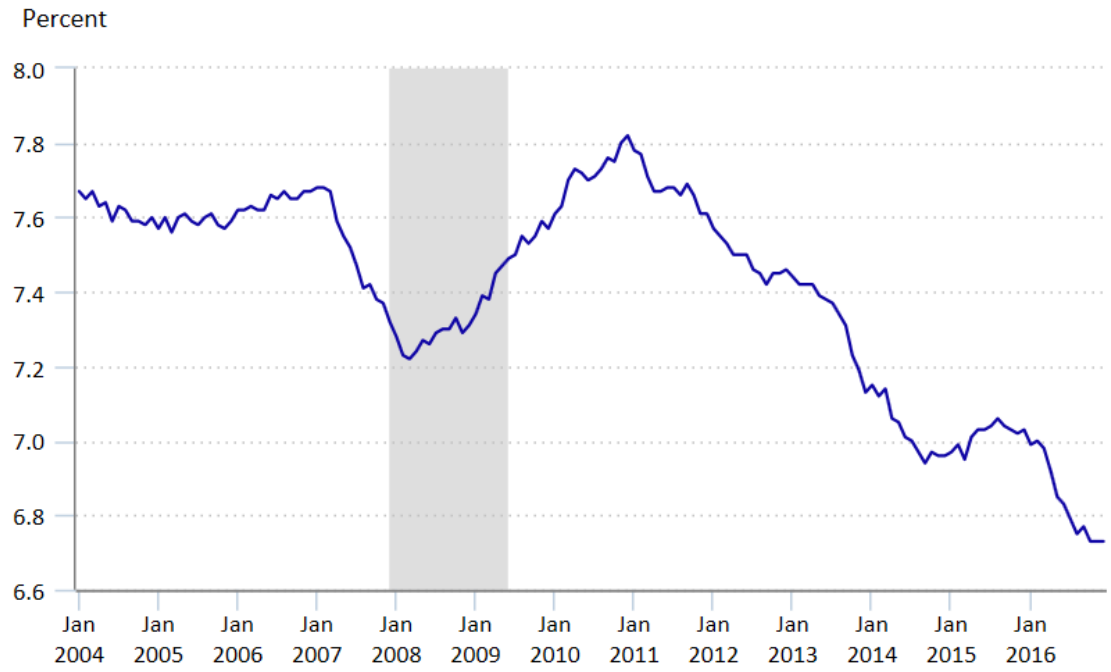
Before turning to labor force exits, we begin by looking briefly at trends in labor force entrances, which are also important in determining labor force participation. Figure 1 shows labor force entrance flows as a percentage of the population from 2004 to the present. The figure shows the sum of flows from not in the labor force to employment and from not in the labor force to unemployment. Entrances as a proportion of the population declined heading into the 2007–2009 recession, climbed in the immediate aftermath, but have decreased in recent years. Figure 2 shows entrance rates as a percentage of people who were NILF the previous month instead of as a percentage of the population; these entrance rates show a much more marked decline in recent years because people who are NILF are an increasing proportion of the population. One should note that the proportion of NILF ages 55 and older has increased over the period from a 12-month average of 53.3 percent in 2004 to 56.8 percent in 2016; this increase would typically depress labor force entrance rates.

Figure 1. Percentage of population entering the labor force, January 2004–December 2016, 12-month moving average



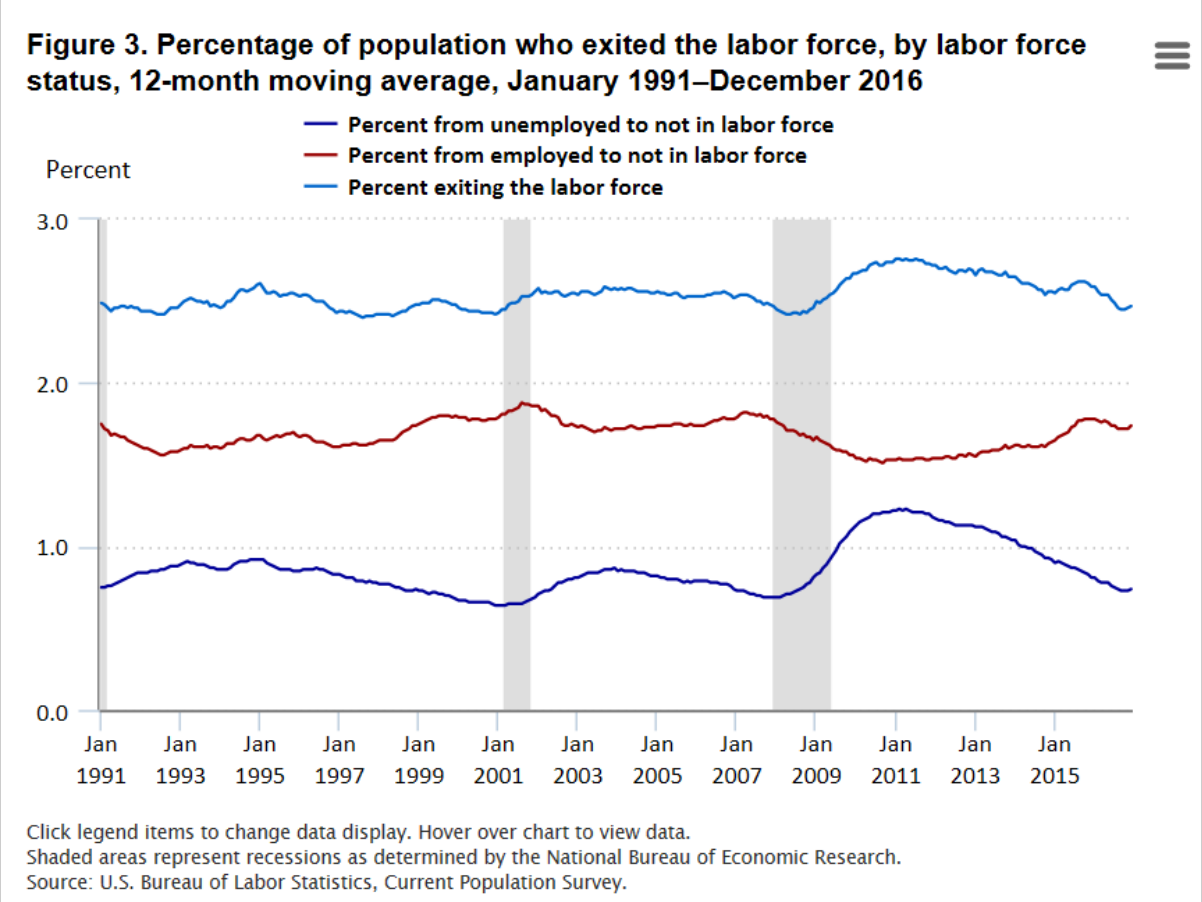
Hover over chart to view data.
Shaded area represents a recession as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

Figure 2. Percentage of people not in the labor force who entered the labor force, January 2004–December 2016, 12-month moving average



Hover over chart to view data.
Shaded area represents a recession as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

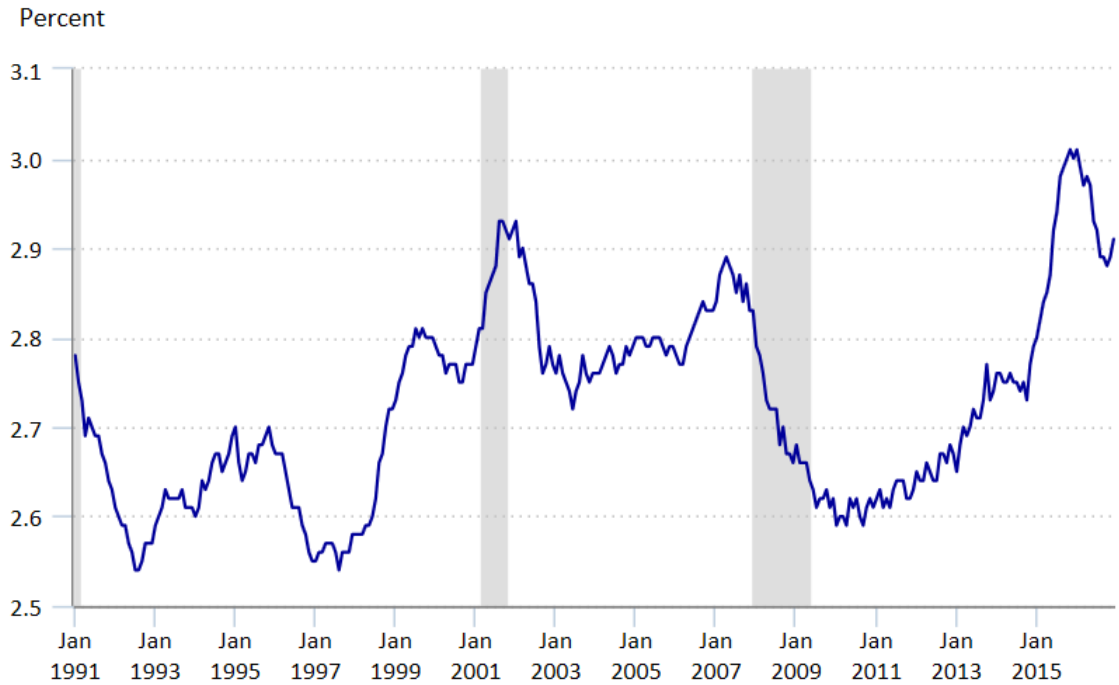
We now turn our attention to labor force exits. Figure 3 shows 12-month moving averages of exits from the labor force, along with its components. The graph shows flows from unemployed to NILF and employed to NILF as a percentage of the population, as well as the total percentage of the population that exited the labor force. The general pattern is for overall exits from the labor force to show less variation over time than the UN and EN components. As a percentage of the population, UN flows increase during recessions but EN flows decline. During the last recession, overall exits from the labor force increased; such exits gradually declined during the recovery. UN flows increased from 2008 to 2010 and then declined. However, the pattern for UN flows is counteracted by an opposite pattern for EN flows: EN flows declined at first, were more or less stable for several years, and increased over the last few years. The increase in EN flows for 2015 is comparatively large and of sufficient magnitude to completely counteract the large decline in UN flows so that total exits stopped decreasing in 2015 before resuming their decline in 2016.



Trends in transitions from employed to not in labor force

The 2015–16 increase in EN flows as a percentage of the population is particularly striking because the employment–population ratio had not recovered to prerecession levels. The ratio went from 62.9 percent in January 2008 to 58.2 percent in June 2011 and only recovered to 59.7 percent by the end of 2016. Figure 4 shows EN flows as a percentage of the previous month's employment rather than as a percentage of the population. This graph shows that the series, which began in 1990, increased to a high in 2015 before declining somewhat in 2016. The magnitude of the increase is substantial. If EN flows as a percentage of the employed had remained at the levels of the previous cyclical peak of 2005–07 during 2015–16, with no changes in other flows, the employment–population ratio and labor force participation rate would both have been about 2 percentage points higher by the end of 2016.

Figure 4. Percentage of the employed who exited the labor force, 12-month moving average, January 1991–December 2016

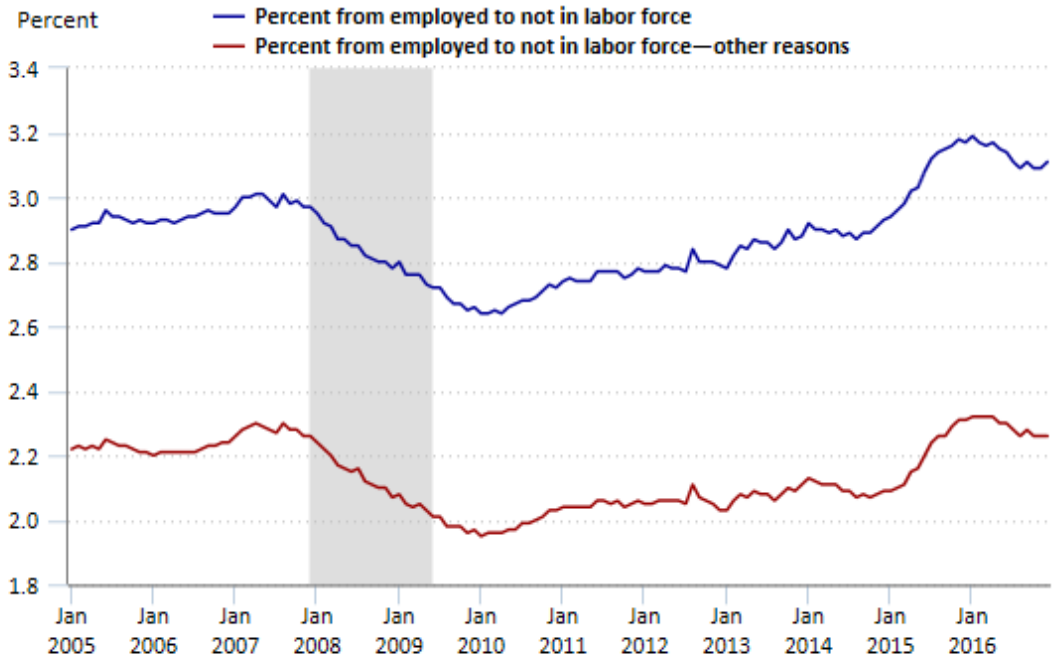


Hover over chart to view data.
Shaded areas represent recessions as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

The flows shown in figures 1 through 4 are from the official BLS flows series, which are adjusted so that total flows correspond to the change in levels for each labor force state each month.[4] These flows are only available at the aggregate level, not for specific subcategories of labor force states or for specific demographic groups aside from men and women. In what follows, flows that were not adjusted to match labor market levels were used so that we can look at data for various demographic groups. While unadjusted EN flows are higher on average than adjusted ones, the correlation between EN flows as a percentage of the previous month's employment is 0.98, so it seems reasonable to use the unadjusted series without being concerned that its properties are different from the adjusted series.

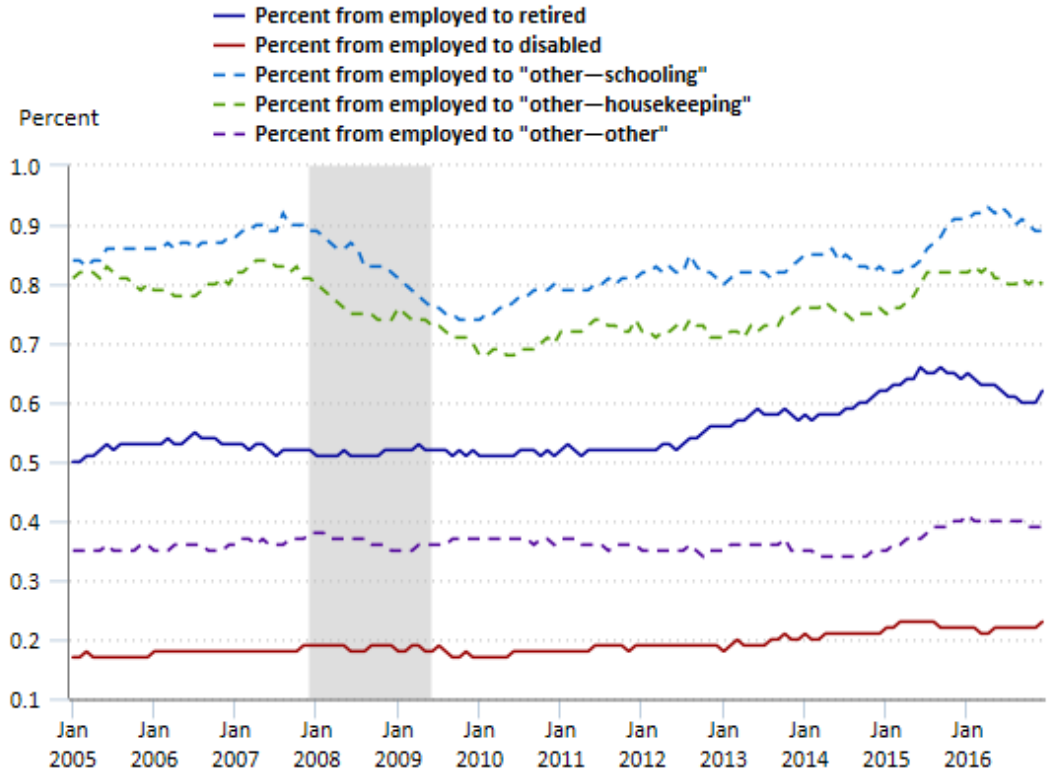
The NILF category is divided into three subcategories: retired, disabled, and other. In addition, respondents who are less than 50 years old or who state that they are not retired are asked, "What best describes your situation at this time? For example, are you disabled, ill, in school, taking care of house or family, or something else?" Trends in EN flows are divided into selected components in figures 5 and 6 (for ages 16 and older) and figures 7 and 8 (for ages 25 to 54) from 2004 through early 2016. For respondents in the "NILF-other" category, we examine the three most common answers to this question: "in school," "taking care of house or family," and "other."

Figure 5. Flows from employed to not in the labor force as a percentage of previous month's employed, total and selected component, 12-month moving averages, January 2005–December 2016



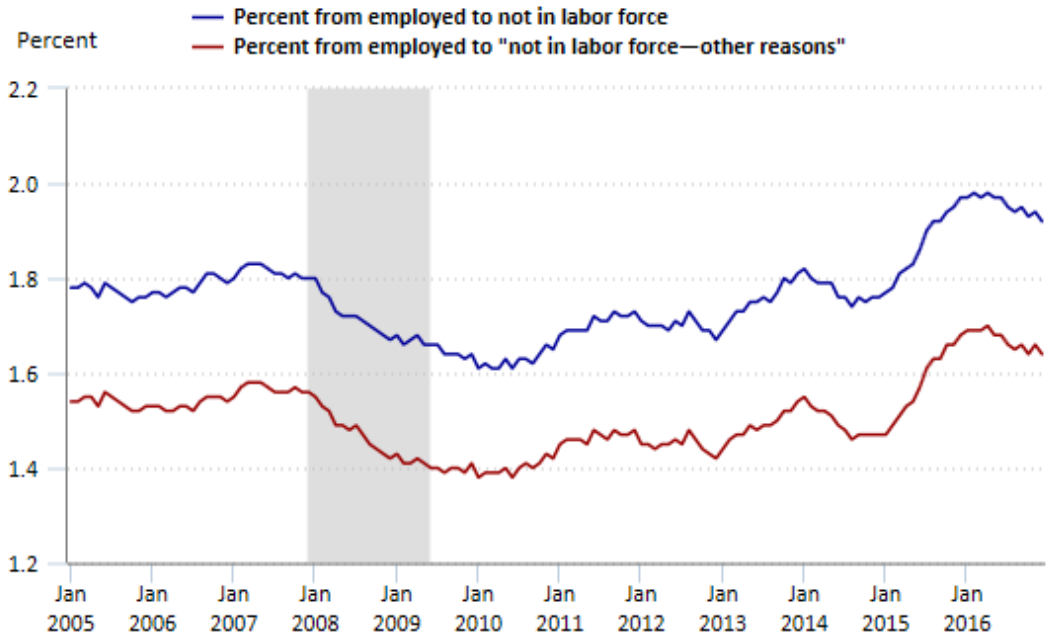
Click legend items to change data display. Hover over chart to view data.
Shaded area represents a recession as determined by the National Bureau of Economic Research.
Note: Series are not adjusted to match labor market levels and do not match published series.
"Not in labor force—other reasons" is a labor force subcategory that does not include "retired" or "disabled."
However, this subcategory includes a small number of respondents who responded "disabled" to the question,
"What best describes your situation at this time?"
Source: U.S. Bureau of Labor Statistics, Current Population Survey.

Figure 6: Flows from employed to not in the labor force as a percentage of previous month's employed, selected components, 12-month moving averages, January 2005–December 2016



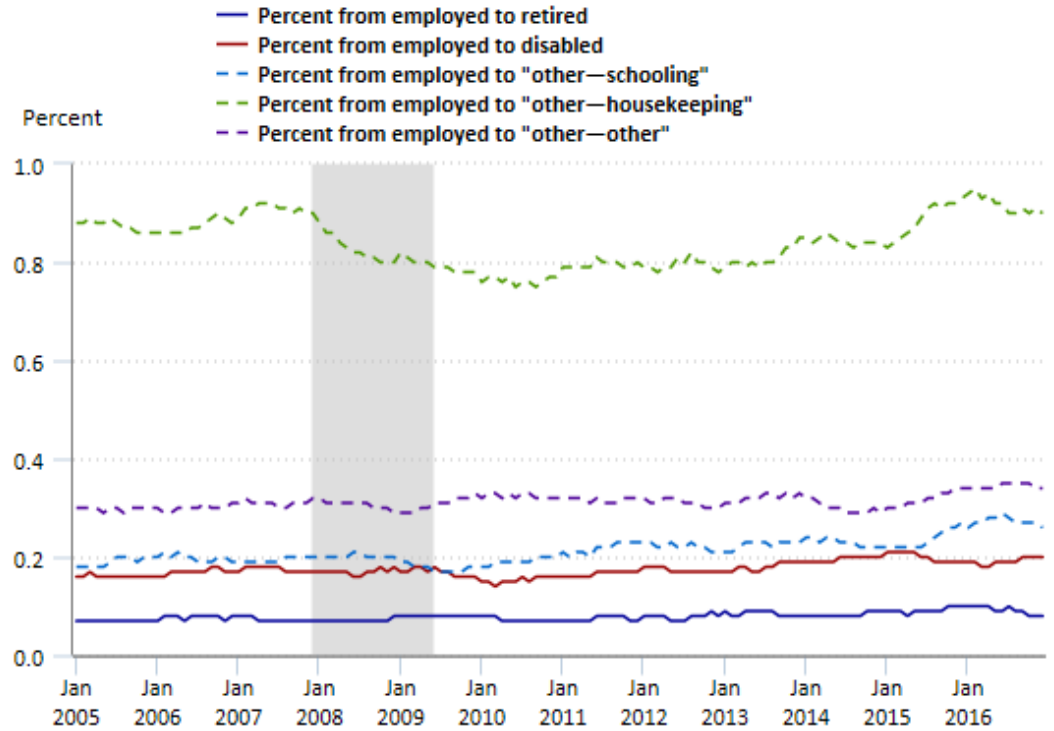
Click legend items to change data display. Hover over chart to view data.
Shaded area represents a recession as determined by the National Bureau of Economic Research.
Note: Series are not adjusted to match labor market levels and do not match published series.
"Not in labor force "other–other" is a labor force subcategory that includes people who gave an answer other than "disabled," "in retirement", "in school," "taking care of house or family," or "ill" to the question, "What best describes your situation at this time?" and who were not classified as retired or disabled on the basis of their response to other questions about their labor market activity.
Source: U.S. Bureau of Labor Statistics, Current Population Survey.

Figure 7. Flows from employed to not in the labor force as a percentage of previous month's employed, total and selected component, 12-month moving averages, ages 25–54, January 2005–December 2016



Click legend items to change data display. Hover over chart to view data.
Shaded area represents a recession as determined by the National Bureau of Economic Research.
Note: Series are not adjusted to match labor market levels and do not match published series.
"Not in labor force—other reasons" includes schooling, housekeeping, and reasons aside from retirement or disability.
Source: U.S. Bureau of Labor Statistics, Current Population Survey.

Figure 8. Flows from employed to not in the labor force as a percentage of previous month's employed, selected components, 12-month moving averages, ages 25–54, January 2005–December 2016



Click legend items to change data display. Hover over chart to view data.
Shaded area represents a recession as determined by the National Bureau of Economic Research.
Note: Series are not adjusted to match labor market levels and do not match published series.
"Not in labor force other—other" is a labor force subcategory that includes people who gave an answer other than "disabled," "in retirement", "in school," "taking care of house or family," or "ill" to the question, "What best describes your situation at this time?" and who were not classified as retired or disabled on the basis of their response to other questions about their labor market activity.
Source: U.S. Bureau of Labor Statistics, Current Population Survey.

Figures 5 and 6 show that within EN flows for ages 16 and older, the “other” category and its largest subcomponents—housekeeping and school—exhibit a pronounced cyclical pattern, with levels in 2015–16 roughly equal to those before the recession. Overall flows are higher in 2015–16 because of upward trends in exits to retired and, to some extent, to disabled and “other-other.” For EN flows for ages 25–54 (figures 7 and 8), exits to retired and disabled are not as prominent as exits to housekeeping and school. In this age group, most components show some upward trend over the period, especially exits to school.

Can the increase in EN flows be explained?

Can we explain the increase over time in EN flows? I examined five possible factors: (1) the age and gender composition of the employed, (2) workers’ full-time or part-time status, (3) the percentage of workers who are self-employed, (4) the percentage of workers who are married, and (5) the composition of educational attainment among the employed. I examined changes in the composition of the workforce and whether increases in EN flows were associated with particular groups.

The age composition of the labor force has obvious implications for the probability of labor force exit: older workers are more likely to retire or become disabled, while younger workers are more likely to exit for schooling or because of family responsibilities, leaving middle-aged workers as the most stable group. The data confirm that the other variables are also associated with the likelihood of exiting employment to NILF. Part-time status and self-employment are associated with a higher probability of exit, whereas marriage and higher levels of education are associated with lower probability.

Table 1 shows how the composition of the employed has changed between the three sets of years 2005–07, 2013–14, and 2015–16, with respect to the characteristics mentioned in the last paragraph. In addition, table 1 shows EN flows as a percentage of the previous month's employment for subgroups with these characteristics. The years 2005–07 were chosen as the period leading to the peak of the previous business cycle, while 2013–14 was chosen to determine whether the current dramatic increase in EN flows was associated with particular groups. Comparing 2015–16 with the other two sets of reference years, we see that EN flows increased for most groups shown in the table, so the increase is not associated with just one group. Changes in the composition of the labor force over the relatively brief period from 2013–14 to 2015–16 have (not surprisingly) been small, so I instead discuss the trends over the longer period from 2005–07 to 2015–16.

Table 1. Demographic composition of employed and employed-to-not-in-labor-force (EN) flows as a percentage of previous month's employed, by demographic group, selected years

Category	Percent distribution of employed sample			EN as a percent of previous month's employed		
	2005–07	2013–14	2015–16	2005–07	2013–14	2015–16
By age						
Ages 16 and over	100.0	100.0	100.0	2.9	2.9	3.1
Ages 16–24	13.4	12.2	12.2	7.4	7.3	7.8
Ages 25–54	69.1	65.3	64.6	1.8	1.8	1.9
Ages 55 and over	17.6	22.5	23.2	4.1	3.7	4.0
By gender						
Male	53.5	53.0	53.2	2.4	2.4	2.7
Female	46.5	47.0	46.8	3.6	3.5	3.7
By full-time or part-time status						
Full time	81.5	79.9	81.7	1.8	1.8	2.2
Part time for economic reasons	2.9	5.2	4.1	4.8	3.9	4.5
Part time for noneconomic reasons	15.5	14.9	14.2	8.9	8.6	8.2
By wage and salary worker or self-employed						
Wage and salary	92.6	93.5	93.6	2.8	2.7	3.0
Self-employed	7.4	6.5	6.4	5.2	5.6	5.9
By marital status						
Married	57.4	55.1	54.3	2.2	2.2	2.4
Other	42.6	44.9	45.4	3.9	3.7	4.0
By educational attainment						
Less than high school	11.2	8.7	8.7	6.3	6.0	6.7
High school graduate	29.4	26.8	26.0	2.9	3.1	3.4
Some college or associate's degree	28.8	29.5	29.0	2.9	3.1	3.3
Bachelor's degree or higher	30.5	35.1	36.3	1.8	1.9	2.0

See footnotes at end of table.

Source: U.S. Bureau of Labor Statistics, Current Population Survey.

Changes in the age composition of the labor force and in marital status over the approximately decade-long period would be expected to increase EN flows. The proportion of the employed who were ages 55 and over during this period rose substantially, from 17.6 percent to 23.2 percent, and the proportion ages 25 to 54 registered a corresponding decline. Because the older group consistently exits the labor force at greater than twice the rate of workers ages 25 to 54, the aging of the population would be expected to increase the EN flow rate. With regard to marital status, the percentage of workers who were married with spouse present decreased over the period from 57.4 percent to 54.3 percent. As EN flows for married workers are smaller than for unmarried workers, the decline in the proportion of workers who are married would also be expected to increase EN flows.

However, changes in other characteristics imply that EN flows should have decreased. The percentage working part time for noneconomic reasons declined over the 2005-to-2016 period; workers in this category exited the labor force at a rate of over 8 percent in each of the three subperiods in table 1, compared with rates close to 2 percent for full-time workers and 4–5 percent for workers employed part-time for economic reasons. Self-employment, which is also associated with a high rate of labor force withdrawal, declined over the period. Higher levels of education are associated with lower rates of labor force exit. The educational attainment of workers increased over the period; in particular, the percentage of workers with a bachelor's degree or higher increased from 30.5 percent to 36.3 percent.

When all of these characteristics are combined, to what extent does the changing composition of the labor force account for the increase in EN flows? To answer this question, I used data from 2005–07 and regressed a 0–1 variable for EN flows on these characteristics; I used a cubic in age and otherwise used indicator variables for the categories shown in table 1. (For purposes of the regression, age is topcoded at 80 years.[5]) All variables are interacted with an indicator for female, so that I am in essence running separate regressions for men and women. The sample comprises all the employed who are present in both a given month's and the previous month's Current Population Survey sample. I run separate regressions for each calendar month, pooling the sample across the years 2005–07. I then use the coefficients from these regressions to predict 2015–16 EN flows. These predicted flows show how EN flows would have changed if employed people with given characteristics had left the labor force at the same rate as in 2005–07 and if the change in the overall rate of withdrawal were solely due to changes in the composition of the employed. I average results over the 12 calendar months.

Table 2 shows that the changing composition of the labor force accounts for only 18 percent of the increase in EN flows from 2005–07 to 2015–16. This small amount is predominantly due to the countervailing effects of age and education. The aging of the labor force would be expected to increase EN flows by 0.12 percentage point per month, about two-thirds of the increase observed over the period. However, the increase in workers' education levels would be expected to decrease EN flows by 0.09 percentage point, largely negating the effect of the increase in age. Other variables have only small effects, and the effects of changes in part-time status and the gender composition of the workforce are not statistically significant.

Table 2. Predicted 2015–16 employed-to-not-in-labor-force (EN) flows as a percentage of previous month's employed using regression coefficients from 2005–07

Category	EN flow percentage		
	2005–07	2015–16	Percent of the difference from 2005–07 explained
Ages 16 and over			
Actual	2.94	3.14	18
Predicted using 2005–07 coefficients	–	2.98	–
2005–07 to 2015–16 change due to changes in mean			
Age	–	0.12**	61
Married	–	0.01**	3
Part time	–	0.01	7
Self-employed	–	-0.02**	-9
Education	–	-0.09**	-48
Gender	–	0.01	4
Total	–	0.03	18
Ages 25–54			
Actual	1.78	1.95	–
Predicted using 2005–07 coefficients	–	1.75	–
2005–07 to 2015–16 change due to changes in mean			
Age	–	0.01	4
Married	–	0.02**	11
Part time	–	0.01	6
Self-employed	–	0.02**	-11
Education	–	-0.07**	-44
Gender	–	0.02	10
Total	–	-0.04**	-24

** Significantly different from 0 at 1-percent level.

Note: Dash means not applicable.

Source: U.S. Bureau of Labor Statistics, Current Population Survey and author's calculations.

For workers ages 25 to 54, results for an analogous regression are shown in the bottom panel of table 2. Rather than predicting the substantial increases that occurred, the regression predicts small decreases in EN flows because of changes in labor force composition. If we use the 2005–07 coefficients, changes in education levels between 2005–07 and 2015–16 by themselves would imply a (statistically significant) reduction in EN flows of 0.07 percentage point per month. The effect of the other variables mitigates the reduction in flows to 0.04 percentage point, though out of these variables only the effects of the change in the percent married and percent self-employed are statistically significant.[6]

Conclusion

In summary, we have observed a large increase in the number of people who transition from employed to not in the labor force over the last 2 years, both overall and for workers ages 25–54. To some extent, this increase can be attributed to a cyclical recovery consistent with a pattern we see in earlier business cycles. However, EN flows

have increased beyond levels seen at similar points in previous business cycles. For workers ages 16 and over, retirement makes up a large portion of the increase, while for workers ages 25–54, many categories—especially exits to schooling—contribute to the increase.

I have been unable to identify why the increase in EN flows has occurred. The aging of the population would be expected to increase labor force exits, but the increase in the education level of the labor force would be expected to decrease it. For workers ages 25–54, increases in education would similarly be predicted to lead to a decrease in exits (with little effect caused by aging within this group) instead of resulting in the substantial increase we observe. This increase may point to longer term changes in the desirability of work. This explanation is consistent with the analysis by Federal Reserve researchers that persistent declines in participation for some demographic groups are not cyclical but "appear to have their roots in longer run changes in the labor market."[7]

SUGGESTED CITATION

Harley Frazis, "Employed workers leaving the labor force: an analysis of recent trends," *Monthly Labor Review,* U.S. Bureau of Labor Statistics, May 2017, https://doi.org/10.21916/mlr.2017.16.

NOTES

1 For a discussion of this trend, see Steven F. Hipple, "Labor force participation: what has happened since the peak?" *Monthly Labor Review*, September 2016, https://doi.org/10.21916/mlr.2016.43.

2 For example, see Patricia Cohen, "Slower growth in jobs report may give Fed pause on interest rates," *New York Times*, September 2, 2016, https://www.nytimes.com/2016/09/03/business/economy/jobs-report-hiring-unemployment-wages-fed-interest-rates.html?_r=0: "Jonas Prising, chairman and chief executive of the ManpowerGroup, one of the largest recruiters in the United States, agreed that low participation rates were troubling, despite the improving labor market. 'It may look like full employment,' he said, 'but it's not full employment.' "

3 Estimates and links to a fuller explanation of the methods employed in generating the published series are available at https://www.bls.gov/cps/cps_flows.htm.

4 See Harley J. Frazis, Martha A. Duff, Thomas D. Evans, and Edwin L. Robison, "Estimating gross flows consistent with stocks in the Current Population Survey," *Monthly Labor Review*, September 2005.

5 Regressions using dummy variables for individual years of age give very similar results.

6 One can argue that the negative association between education and employment exit is more of a reflection of differences in people who acquire different amounts of education than of a causal effect of education itself. In that case, the changing composition of education groups as education increases might cause exit rates to increase for each education group without causing an increase in exit rates as a whole. In response to this argument, I ran regressions similar to those underlying the text but excluding education. The results still indicate a substantial unexplained component to the increase in EN flows—over one-third of the increase for EN flows for workers ages 16 and over and almost 80 percent for workers ages 25–54.

7 See Stephanie Aaronson, Tomaz Cajner, Bruce Fallick, Felix Galbis-Reig, Christopher Smith, and William Wascher, "Labor force participation: recent developments and future prospects," *Brookings Papers on Economic Activity*, Fall 2014, pp. 197–255. Note that their data predate the jump in EN flows considered here.

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