On the Causes of Declines in the Labor Force Participation Rate[1]

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The unemployment rate stood at 5.0 percent when the Great Recession started in December 2007 but had more than doubled toward the end of 2009, peaking at 10 percent. Since then, however, it has steadily declined. As of the end of 2013, the jobless rate stood at 6.7 percent. While it is still high by historical standards, significant progress has been made. Moreover, the declines were often faster than many had predicted.[2]

One caveat, however, is that, over the period of this faster-than-expected decline in the unemployment rate, the labor force participation rate has also declined. Between October 2009 and December 2013, the participation rate declined 2.2 percentage points, from 65.0 percent to 62.8 percent. A simple argument is that jobless workers, in facing difficulties in finding a job, are becoming discouraged and leaving the labor force, thus pushing down both the unemployment rate and the participation rate. To the extent that this argument is true, unemployment has been declining for the "wrong reason." In this article, I reexamine this argument by putting together new pieces of evidence from the Current Population Survey (CPS).[3] Details of the steps to construct the data used in this article are described in Fujita (2014).

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[2] According to the Survey of Professional Forecasters conducted by the Real-Time Data Research Center of the Federal Reserve Bank of Philadelphia, the median forecast of the unemployment rate for the third quarter of 2013, made one year earlier, was 7.8 percent. But it turned out to be 7.2 percent. The same pattern almost always holds for forecasts made over the past three years: Forecasters' one-year-ahead projections for the unemployment rate have consistently exceeded the realized rate.

[3] The CPS is the official survey from which the unemployment rate and the participation rate are derived.

First, note that the decline in the participation rate started around 2000. Figure 1 plots the unemployment rate, along with the labor force participation rate, starting in 1998, expressed as quarterly averages of the monthly observations. The downward trend in the participation rate since around 2000 is apparent. At the historical peak in the first quarter of 2000, the participation rate stood at 67.3 percent. The change between the first quarter of 2000 and the last quarter of 2013 is more than 4 percentage points.

However, it is important to notice that the declining trend had flattened in the boom years between 2004 and 2007 and then accelerated during and after the Great Recession. It appears therefore that the participation rate has been affected by both some long-run, slow-moving factors and the business cycle condition.

One well-known long-term factor is the aging of the labor force. Because older workers' participation rates are lower, the increase in the share of old workers by itself pushes down the aggregate participation rate. [4] One can conduct an accounting exercise to calculate the contribution of demographic factors on the decline in the aggregate participation rate.[5] However, no matter how one splits the data (say, not just by demographics, but also by education, etc.), the exercise does not answer the question of why the participation rate within each group has changed in a certain manner.

The approach used in this article is extremely simple. I look at the underlying reasons given for nonparticipation that are available in the CPS micro data to present a decomposition of the declining participation rate between 2000 and 2013.

The main findings are summarized as follows.

1. Between the first quarter of 2000 and the final quarter of 2013, the participation rate declined more than 4 percentage points. Roughly 65 percent of the decline is accounted for by retirement and disability. The increase in nonparticipation due to retirement has occurred only after around 2010, while nonparticipation due to disability has been steadily increasing over the past 13 years. Similarly, nonparticipation due to schooling has been steadily increasing and has been another major contributor to the secular decline in the participation rate since 2000.

2. The number of those who did not look for a job (thus being out of the labor force) even though they wanted a job increased significantly between the fourth quarter of 2007 and the end of 2011. This group of "discouraged workers" explains roughly 30

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[4] Another demographic change that readers may be familiar with is the increasing participation of women in the labor force. However, women's participation rate had already peaked in the early 2000s. This trend is thus largely irrelevant for the current analysis.

[5] See, for example, Hotchkiss (2009) for such an analysis.

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percent of the total decline (around 2 percentage points) in the participation rate over the same period. Between the first quarter of 2012 and the fourth quarter of 2013, the participation rate of this group has been roughly flat.

3. Almost all of the decline (80 percent) in the participation rate since the first quarter of 2012 is accounted for by the increase in nonparticipation due to retirement.[6] This implies that the decline in the unemployment rate since 2012 is not due to more discouraged workers dropping out of the labor force.

4. The likelihood of those who left the labor force due to retirement or disability rejoining the labor force is small and has been largely insensitive to business cycle conditions in the past, suggesting that the decision to leave the labor force for those two reasons is more or less permanent.

REASONS FOR NONPARTICIPATION

The CPS divides nonparticipants into three broad categories: disabled, retired, and other. The last category includes nonparticipation due to "discouragement." I will break down this third category further below. Let me first focus on the three broad categories.[7]

Figure 2 presents the breakdown of the nonparticipation rate into the three categories. Nonparticipation rates are calculated by the number of individuals who report each reason as a fraction of the working-age population.[8] Adding up these three lines therefore equals the total nonparticipation rate, i.e., 100 minus the participation rate. As of 2013, roughly 5 percent to 6 percent of individuals in the working-age population are out of the labor force because of disability, 16 percent to 17 percent are out of the labor force because of retirement, and the rest have left the labor force for other reasons.

To see how each of the three components contributed to the increase in the nonparticipation rate (and, therefore, to the decline in the participation rate), Figure 3 presents the

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[6] In the first version of this article, in which the most recent data were for the second quarter of 2013, I noted that the decline in the participation rate since the first quarter of 2012 was entirely explained by increases in nonparticipation due to retirement. However, when the data were extended to include more recent observations, this conclusion changed somewhat because of a rather significant increase in the contribution of disability.

[7] Note that the CPS defines disability fairly strictly. It excludes disabilities that are expected to last for less than six months. The condition needs to prevent the worker from doing any kind of work, not just the type of work he or she had been performing at the time of the disability, for the next six months. (See page B3-3 of the Current Population Survey Interview Manual.) Note also that disabled workers in the CPS are not the same as recipients of Social Security Disability Insurance, although the trend in the CPS conforms to the increase in Social Security disability rolls. See, for example, Autor and Duggan (2006).

[8] Note that the tabulated data in Figure 2 are not available in the monthly release of the CPS. The results are based on my own tabulation from the micro data. See Fujita (2014) for the data construction details.

cumulative differences for each reason from its level in the first quarter of 2000, when the participation rate peaked. Again, adding up these three lines equals the total increase in the nonparticipation rate over this period. Figure 4 repeats the same calculation, now starting from the fourth quarter of 2007 in order to focus on the period during and after the Great Recession. Despite their simplicity, these figures reveal a lot about the underlying causes of changes in the participation rate.

1. Between the first quarter of 2000 and the end of 2011, nonparticipation due to disability has been steadily going up, raising the overall nonparticipation rate by 1.3 percentage points. While a bit subtle, some countercyclical movements around the upward trend can be observed, flattening right before the Great Recession and accelerating during and after the Great Recession until around 2011. From then, it had been roughly flat until mid-2013 but increased significantly in the second half of 2013.

2. Nonparticipation due to retirement did not rise until the end of the Great Recession but started to increase significantly in 2010. Since the start of 2012, it has been the most important contributor to the increase in the overall nonparticipation rate.

3. Nonparticipation due to other reasons has risen roughly 1.5 percentage points between the first quarter of 2000 and the fourth quarter of 2013. There is also a countercyclical movement around the upward trend. This countercyclicality is not surprising given that this group includes those who left the labor force due to discouragement. But an important observation is that, in the past one to two years, the participation of this group as a whole has been roughly flat, thus being neutral in its effect on the overall participation rate.

The significant rise in retirement in the past three years is clearly related to the retirement of baby boomers. Remember that the first cohort of baby boomers was born in 1946. Importantly, this wave of retirements could have started earlier than three years ago. However, a plausible conjecture is that the 2008 financial crisis and associated loss of wealth might have had the effect of delaying their retirement age, while the subsequent recovery of financial wealth has allowed more of them to retire in the past few years. Although further careful analysis would be required to verify this conjecture, it highlights the difficulty of separating "cyclical" from "structural" forces in the sense that the wave of the retirements, which creates a downward trend in the participation rate, is also affected by cyclical forces.

Next, let me split the "other" group into two subgroups: those who want a job and those who do not. Note that people in the former group are out of the labor force (thus, not searching

for work) even though they want to work. I call them *discouraged workers*.[9] Those who do not want a job are further split into those who are in school and those who are not in school.[10]

Figure 5 plots the number of these three subgroups, again normalized by the working-age population. This figure shows that the "other" group consists mostly of individuals who do not want a job (the sum of those in school and those not in school). Remember that this "other" group as a whole increased 1.5 percentage points between 2000 and 2013 (Figure 3). Between the beginning of the Great Recession and the fourth quarter of 2013, it increased 0.9 percentage point (Figure 4). Figure 6 plots the cumulative differences in nonparticipation in the three subgroups since the first quarter of 2000. One can summarize Figure 6 as follows.

1. There is a clear increase in the number of discouraged workers during the Great Recession. It continued to increase in the aftermath of the recession, but this later increase was relatively modest compared with the one during the recession. In the past few quarters, the upward trend appears to have reversed.

2. Relative to the first quarter of 2000, much of the increase in the nonparticipation rate for reasons other than disability and retirement comes from the increase in those who do not want a job because they are in school. Relative to the beginning of the Great Recession, the contributions from discouragement and school enrollment are roughly comparable.

3. Nonparticipation by those who do not want a job and are not in school has contributed negatively to the overall increase in the nonparticipation rate since around mid-2006. The decline in the number of these individuals has contributed to raising the participation rate over this period.

We can make several inferences from the time-series patterns of these three groups. First, it is true that there were more discouraged workers during the post-Great Recession period than

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[9] These people are actually asked to provide more specific reasons as to why they are not looking even though they want a job. Their answers are the basis of so-called "alternative measures of labor underutilization." For example, the U-4 series adds discouraged workers to the official unemployment rate. But the discouraged workers in the U-4 series are not the same as the discouraged workers in my analysis here. In the U-4 series, workers need to select reasons for not looking for a job that are specifically related to the job-market condition. Moreover, there are other qualifications that the worker needs to satisfy to be part of U-4. See the CPS official release for more details. The want-a-job individuals (thus my definition of discouraged workers) include those who choose a noneconomic reason (such as family responsibilities) as their main reason for not participating. However, I treat this entire group as discouraged workers because it is often the case that nonparticipation due to economic reasons and noneconomic reasons are strongly negatively correlated, suggesting that they cannot be treated separately. Fujita (2014) includes further analysis on this issue.

[10] The sample of school enrollment in my calculation is restricted to those who are 16 to 24 years old. However, this sample restriction is likely to have only a minor impact on my final tabulation. See Fujita (2014) for details.

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before the recession (roughly 0.5 percentage point more in terms of the working-age population). However, the size of this group has been roughly flat since 2011. In this sense, it is misleading to attribute the decline in the unemployment rate in the past few years to discouragement. As I pointed out above, the decline in the participation rate since the beginning of 2012 is mostly due to retirement.

Next, it is conceivable that discouraged workers will start looking for a job as the economy improves further. What would be the impact on the unemployment rate? Suppose that nonparticipation declines 0.5 percentage point (a complete reversal of the increase that has occurred since the Great Recession).[11] Given the current unemployment and participation rates, this will raise the unemployment rate by about 0.7 percentage point with everything else held constant. This is significant but may be smaller than some researchers have implicitly suggested.[12]

Another striking result here is the secular increase in nonparticipation due to enrollment in school. One can think of scenarios in which the increase in nonparticipation due to school enrollment is driven by poor economic conditions. However, it is difficult to see any clear cyclical pattern in this series. Rather, it is a secular upward trend. Moreover, when these individuals eventually join the labor force, they are presumably equipped with a higher level of human capital. Thus, it appears more plausible to treat this trend as a positive development in the labor market.

PROBABILITY OF REJOINING THE LABOR FORCE

An important finding in the previous section is that the increase in the nonparticipation rate in the past one-and-a-half years was largely due to retirement. It is ex ante plausible that once a worker has retired, the likelihood of his or her coming back to the labor force (in particular by rejoining the unemployment pool) is small. But this is ultimately an empirical question. The same is true for those who dropped out of the labor force because of disability. Here I calculate the probabilities that those who have retired or become disabled rejoin the labor force by becoming either employed or unemployed. [13] Figures 7 and 8, respectively, present those transition

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[11] Note that the nonparticipation rate of the "want-a-job" group increased somewhat less than 0.5 percentage point between the fourth quarter of 2007 and the fourth quarter of 2013.
[12] For example, Erceg and Levin (2013) argue that "cyclical factors account for the bulk of the recent decline in the labor force participation rate." The participation rate has declined roughly 2.7 percentage points since the start of the Great Recession, and thus 0.7 percent is roughly one-quarter of the total. However, their "cyclical" factors may include other factors.
[13] This calculation requires using the CPS matched data that track each worker's labor market status over the adjacent two months. See Fujita and Ramey (2009) for construction of the matched data.

probabilities for retired and disabled individuals. These probabilities are calculated by first taking the number of individuals who made the transition from nonparticipation due to retirement (or disability) to either unemployment or employment from one month to the next, and then divide each flow by the stock of nonparticipants due to retirement (or disability) in the initial month.

According to Figure 7, roughly 1.5 percent of those retired workers are employed in the following month. An important finding here is that this transition rate does not show strong business cycle fluctuations. (One can see a small amount of procyclicality in the series, but the variation of the series is small.) The probability of a transition into unemployment is on average 0.4 percent per month, small enough to justify the idea that once retired, these workers are unlikely to rejoin the unemployment pool. Moreover, there is little cyclical variation in this series. More precisely, it increased during the Great Recession, but again, the increase was small. Even if we suppose that this transition rate doubles in the near future (for whatever reason), it would not have a significant impact on the unemployment rate.[14]

Disabled workers' probabilities of rejoining the labor force are equally low. Roughly 1.5 percent to 2 percent of disabled workers resume working in the following month, whereas 0.3 percent to 0.5 percent of those workers start looking for a job every month. The cyclicality of these two series is similar to that of the retired: There is a small amount of procyclicality in the transition probability into employment and a small amount of countercyclicality in the transition probability into unemployment. Overall, however, the business cycle fluctuations of these transition rates are modest.

CONCLUSION

Analyzing people's reasons for not participating in the labor force provides a relatively clear idea of the causes of declines in the labor force participation rate. The number of disabled persons has been steadily rising; retirement had not played much of a role until around 2010, at which point it started to make a large impact on the overall participation rate. In particular, the decline in the participation rate in the past one-and-a-half years (when the unemployment rate declined faster than expected) is mostly due to retirement. Furthermore, nonparticipation due to enrollment in school has been another significant contributor to the secular decline in the participation rate since 2000.

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[14] As Figure 2 indicates, roughly 16 percent of the population is out of the labor force due to retirement. If their transition rate into unemployment increases by 0.5 percentage point (roughly double the current rate), there would be 0.08 percent more unemployed workers, assuming that all other transition rates stay the same. The unemployment rate increases a bit more (because it is scaled not by population but by the labor force), but the impact is still small.

There is no question that more workers dropped out of the labor force due to discouragement during and after the Great Recession and that there are more discouraged workers now than before the recession. These facts clearly reflect the continued weakness of the U.S. labor market. However, it is not clear whether the overall participation rate will increase any time soon, given that the underlying downward trend due to retirement is likely to continue.

Several studies try to separate "cyclical" factors from "structural" factors when explaining the behavior of the participation rate.[15] However, the foregoing analysis casts some doubt on the usefulness of such labeling. For example, the label "cyclical" often implies — whether implicitly or explicitly — that declines in the participation rate explained by "cyclical" factors will reverse as the economy improves. However, this presumption may not hold. In particular, the decision to retire is clearly affected by cyclical factors, but this decision is unlikely to be reversed.

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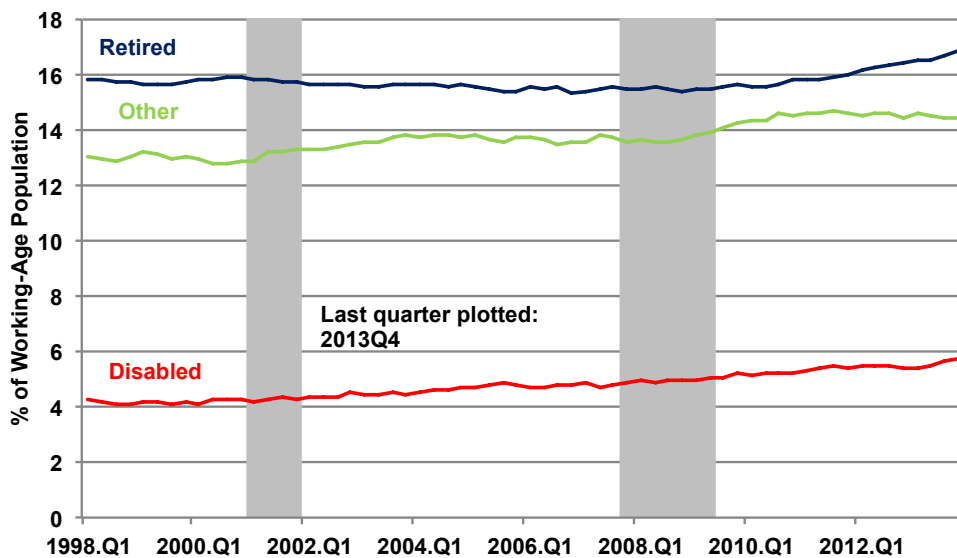
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[15] See for example Aaronson et al. (2012), Erceg and Levin (2013), and Bengali et al. (2013).

Figure 1
**Labor Force Participation Rate & Unemployment Rate**
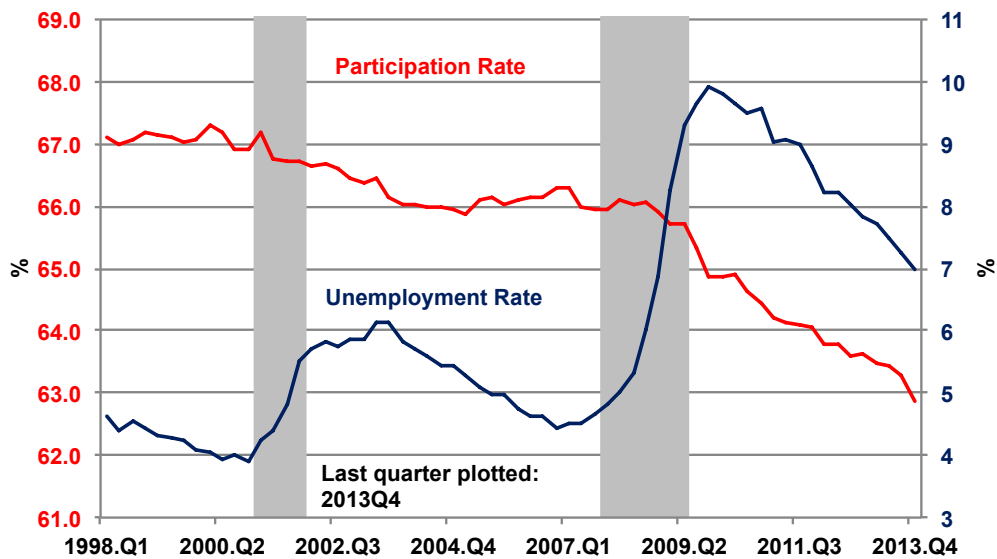
Source: BLS via Haver.

Figure 2
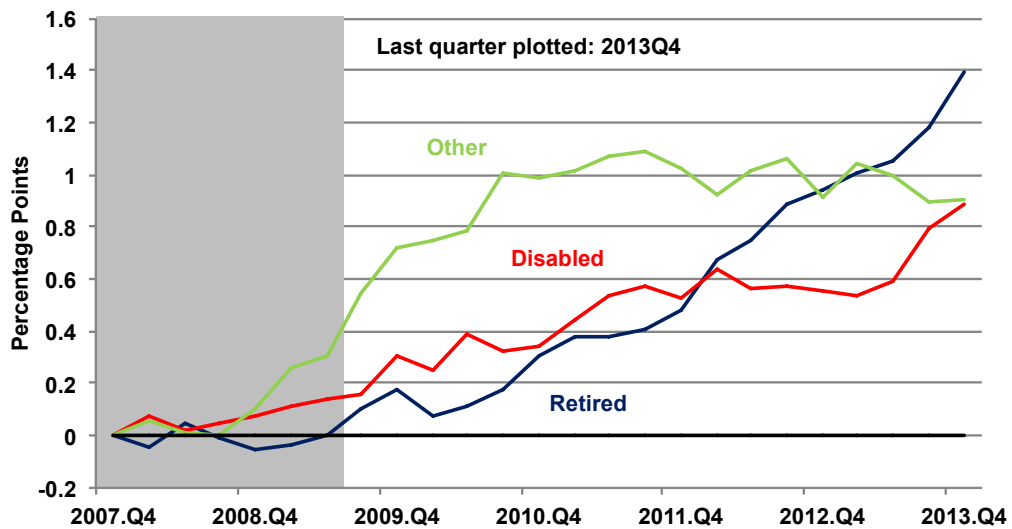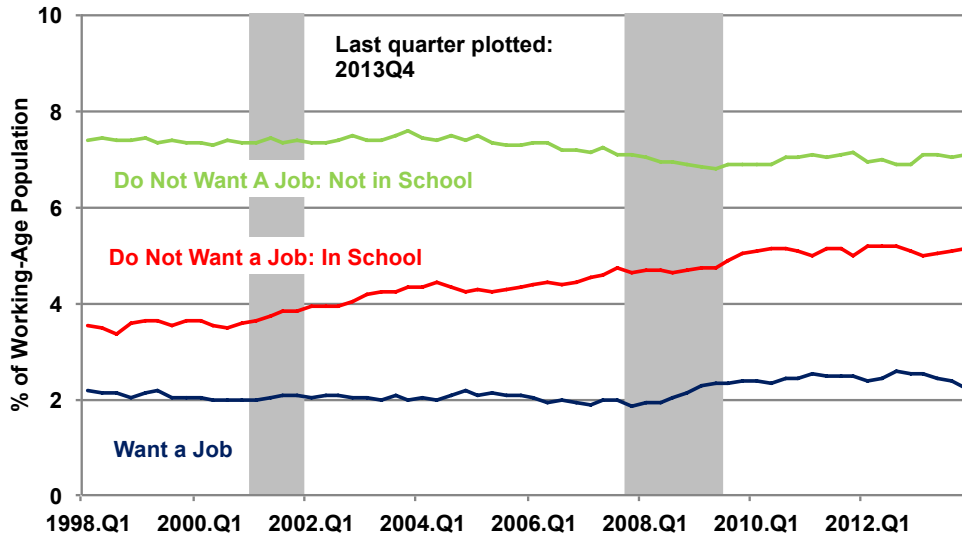**Three Broad Reasons for Nonparticipation**

Source: BLS. Author's calculation from the CPS micro data. See Fujita (2014) for data construction details. Shaded areas indicate the NBER recession dates.

Figure 3
Cumulative Differences of Nonparticipation by Three Broad Reasons
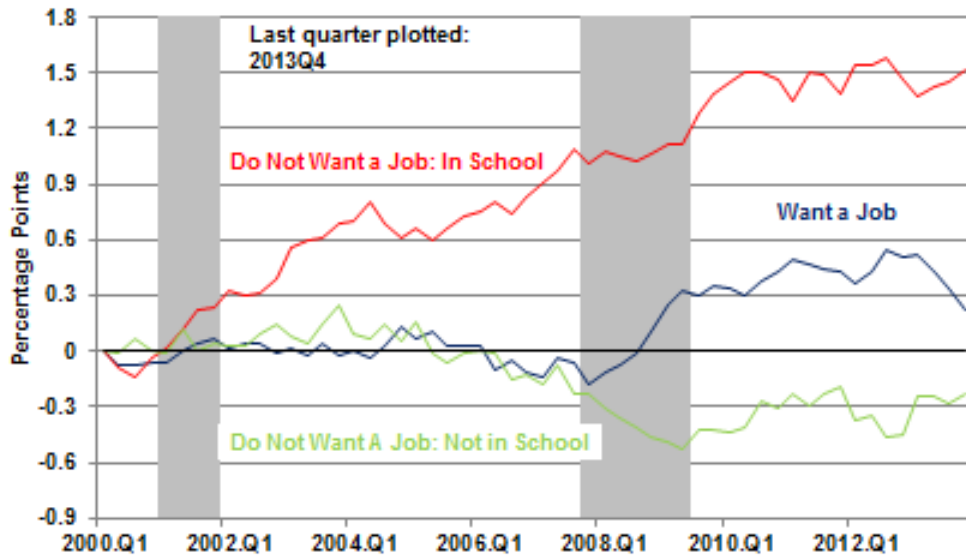**(Relative to 2000Q1)**
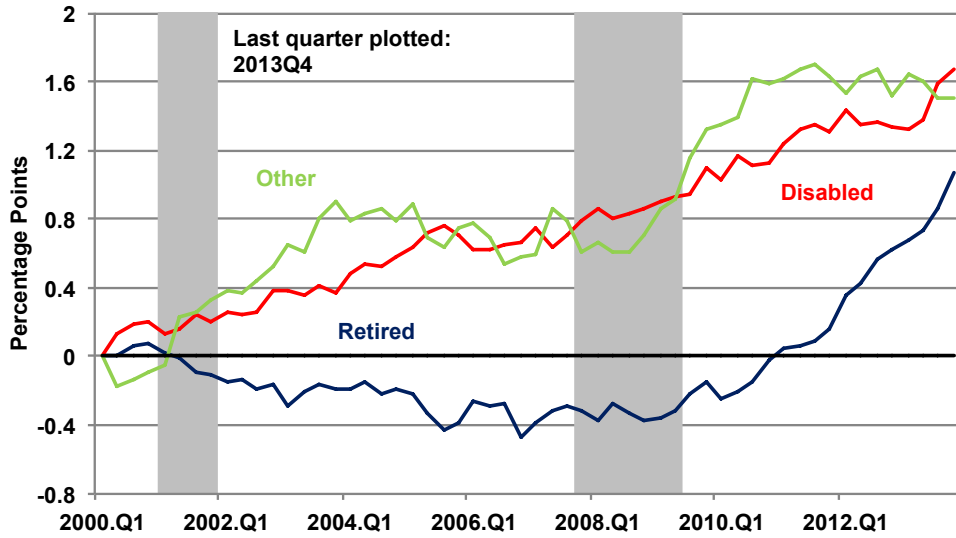
Source: BLS. Author's calculation from the CPS micro data. See Fujita (2014) for data construction details. Shaded areas indicate the NBER recession dates.

Figure 4
Cumulative Differences of Nonparticipation by Three Broad Reasons
**(Relative to 2007Q4)**

Source: BLS. Author's calculation from the CPS micro data. See Fujita (2014) for data construction details. Shaded areas indicate the NBER recession dates.

Figure 5
Breakdown of Nonparticipation by "Other" Reasons

Source: BLS. Author's calculation from the CPS micro data. See Fujita (2014) for data construction details. Shaded areas indicate the NBER recession dates.

Figure 6
Cumulative Differences of Nonparticipation by "Other" Reasons
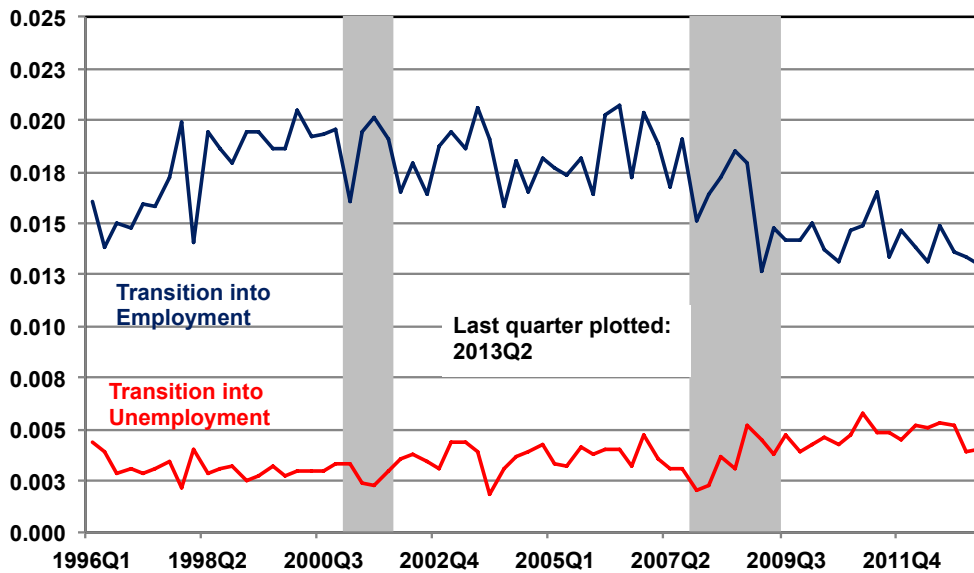**(Relative to 2000Q1)**

Source: BLS. Author's calculation from the CPS micro data. See Fujita (2014) for data construction details. Shaded areas indicate the NBER recession dates.

Figure 7
Probabilities of Joining the Labor Force: Retired
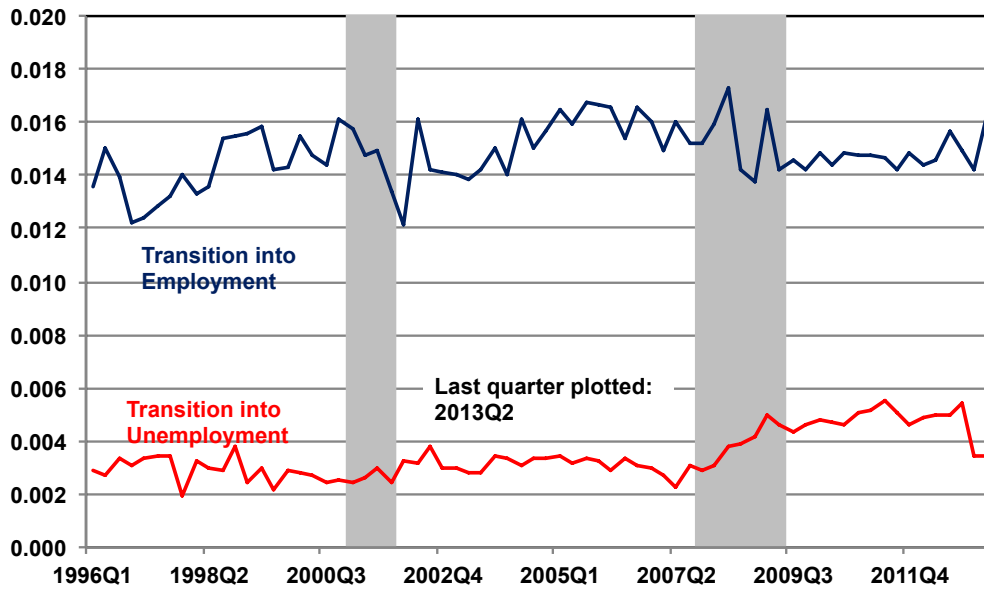
Source: BLS. Author's calculation from the CPS micro data available at
http://thedataweb.rm.census.gov/ftp/cps_ftp.html.

Figure 8
Probabilities of Joining the Labor Force: Disabled

Source: BLS. Author's calculation from the CPS micro data available at
http://thedataweb.rm.census.gov/ftp/cps_ftp.html.