

# Secular Stagnation \*

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The disappointing post-crisis performance of the U.S. economy and even more disappointing performance of continental Europe and Japan have revived interest in the possibility of secular stagnation. Under stagnation, real incomes fail to grow or even shrink, and the economy's output falls farther and farther below its earlier upward trend. Rising unemployment may also occur.

One important factor in stagnations is the inability or reluctance of the central bank to lower interest rates as low as would seem to be appropriate, given the ability of low rates to stimulate output and employment. The Federal Reserve and the Bank of Japan have kept rates slightly positive since the crisis, while the European Central Bank did the same until recently, when it pushed the rate just slightly negative. All three economies had combinations of high unemployment and substandard inflation that unambiguously called for lower rates, according to standard principles of modern monetary economics.

Extreme slack persists in continental Europe and Japan, but in the United States, several labor-market indicators, such as low short-term unemployment and high levels of unfilled job openings, indicate the end of the period of slack that followed the crisis, while others, such as long-term unemployment and involuntary part-time work, still show slack but are

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\*Complete backup for all of the calculations is available from my website, stanford.edu/~rehall

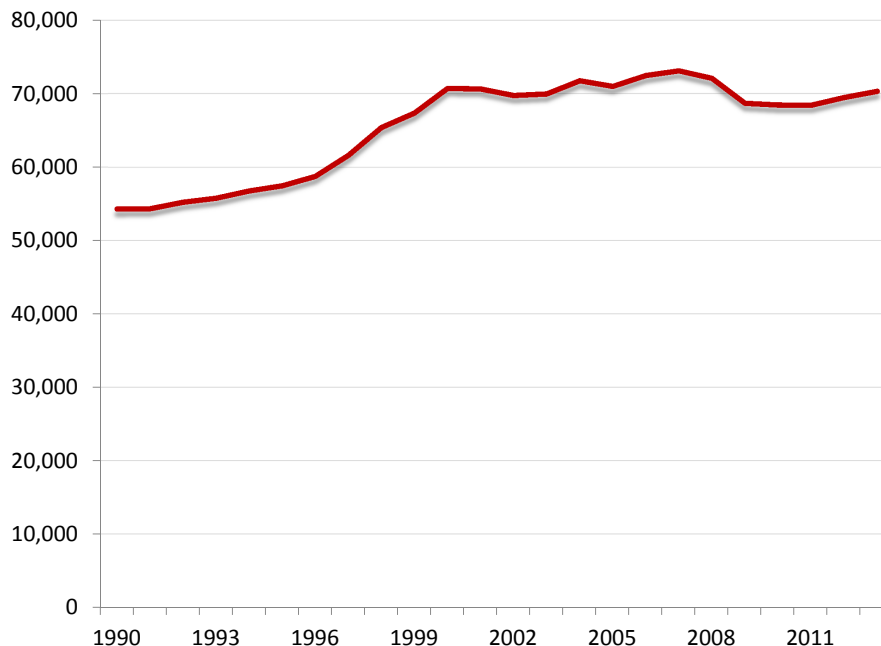


Figure 1: Average real earnings per household, 2009 dollars

declining and will probably reach normal levels in the coming year. Forecasters believe that the Fed will unpin the short-term interest rate in the middle of 2015 or a bit later in the year. Markets for forward rates agree. Thus a consensus is forming that inadequate demand will not longer be a factor in whatever stagnation occurs in coming years. In Japan and Europe, on the other hand, the case for boosting demand is strong and inadequate demand is almost surely a main cause of the stagnation.

Despite the resumption of normal conditions in the U.S. labor market and the consensus that slack is gone, the U.S. economy is stagnated in the sense that the standard of living stopped growing around 2000. Family purchasing power today is just the same as in that year. Figure 1 shows that it grew briskly during the 1990s, slowed markedly prior to the crisis, dropped below its 2000 level as a result of the crisis, and grew slowly in recent years.

Two episodes of low growth of purchasing power despite a growing economy appear in the figure. The first is from 2002 through 2007, the recovery from the recession of 2001, and the second is from 2010 to 2013, the recovery from the Great Recession of 2008 and 2009. The unemployment rate reached 4.8 percent in 2007—well below the long-run average rate of 5.8 percent and is right at that long-run rate today. The evidence is strong that inadequate demand is not behind the general stagnation of purchasing power, though it was a factor in

the period immediately following the crisis. As of 2014, the United States has had a decade and a half of a new kind of secular stagnation, one associated with declining supply.

Four factors account for the stagnation of purchasing power in the U.S. economy:

- Declining labor share
- Depleted capital
- Reduced productivity growth
- Declining participation in the labor market

I will discuss indexes that capture each of these factors. All of the indexes are defined to start at one in 1989. An index of total purchasing power from earnings is the result of multiplying the four indexes together.

Figure 2 shows the index of the share of the total income generated in the U.S. economy that accrues to workers, including fringe benefits. It tends to have a high level in recession years, to fall during the first half of the ensuing expansion, then rise back to a high level at the next recession. But superimposed on that pattern is a general decline that cumulates to about 10 percent over the period. Like the general declining trend in earnings, the decline in the share seems to have started around 2000. Economists have pursued multiple explanations of the decline, but no consensus has formed.

Figure 3 shows the second factor, the overall productivity of the U.S. economy. Productivity is the amount of output the economy can produce from a given amount of inputs—labor, plant and equipment, and materials. From 1989 to 2007, productivity grew rapidly. The Great Recession caused a dip in productivity, as past recessions did as well, mainly because of idle facilities. Though productivity grew at normal rates during the recovery, it did not make up for the shock of the crisis, so the average growth since 2006 has been below par. Household earnings suffered proportionately.

Figure 4 shows the amount of capital—plant, equipment, and software—available to equip the workers of the average household. With more capital, workers earn more. Capital per household rose rapidly during the 1990s, but more slowly after 2000. Capital per household actually fell during the Great Recession, and its more recent growth has not come close to placing capital per household where it would have been if the trend of the 1990s had continued.

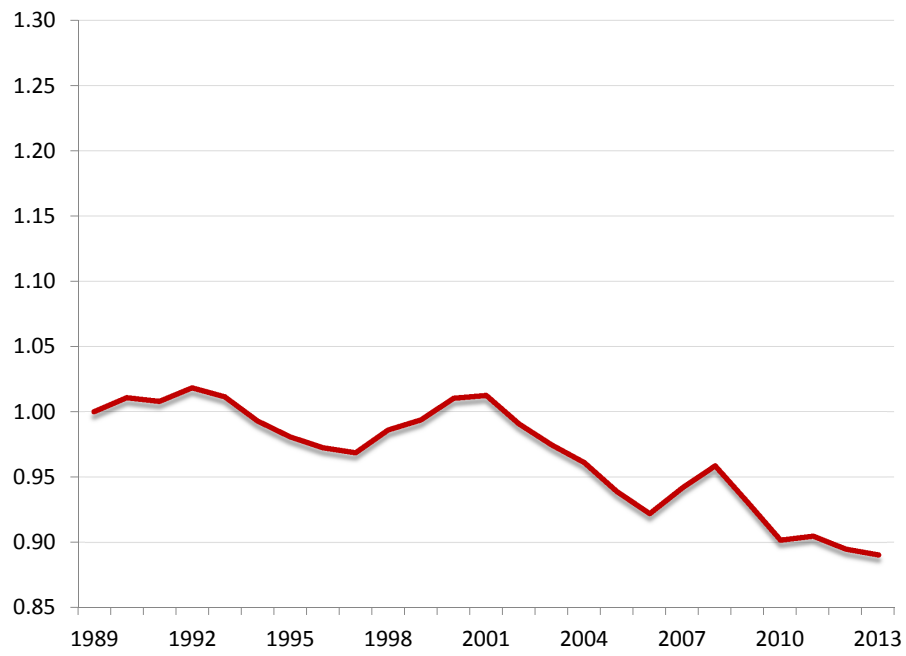


Figure 2: Labor share

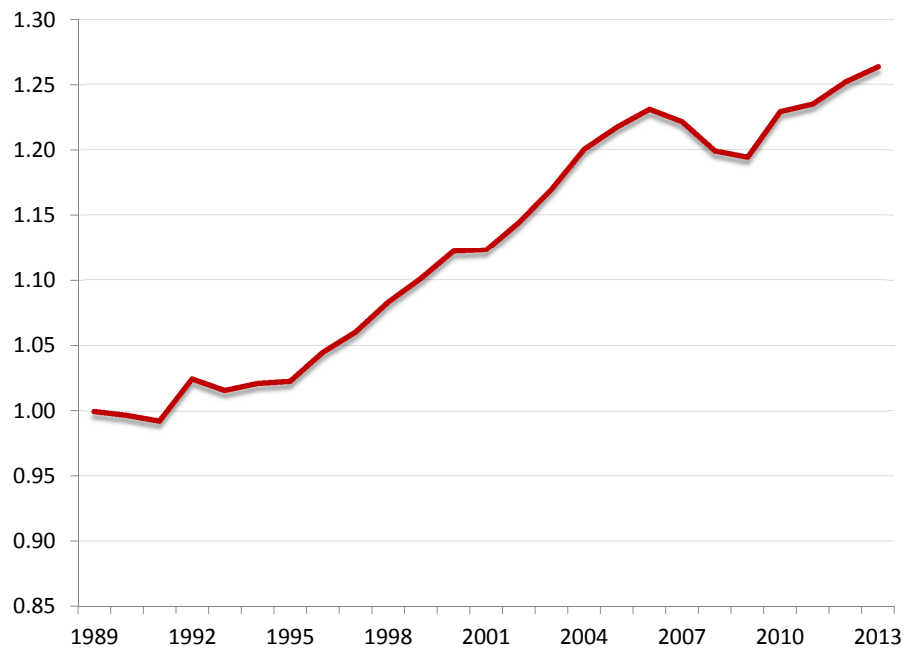


Figure 3: Productivity

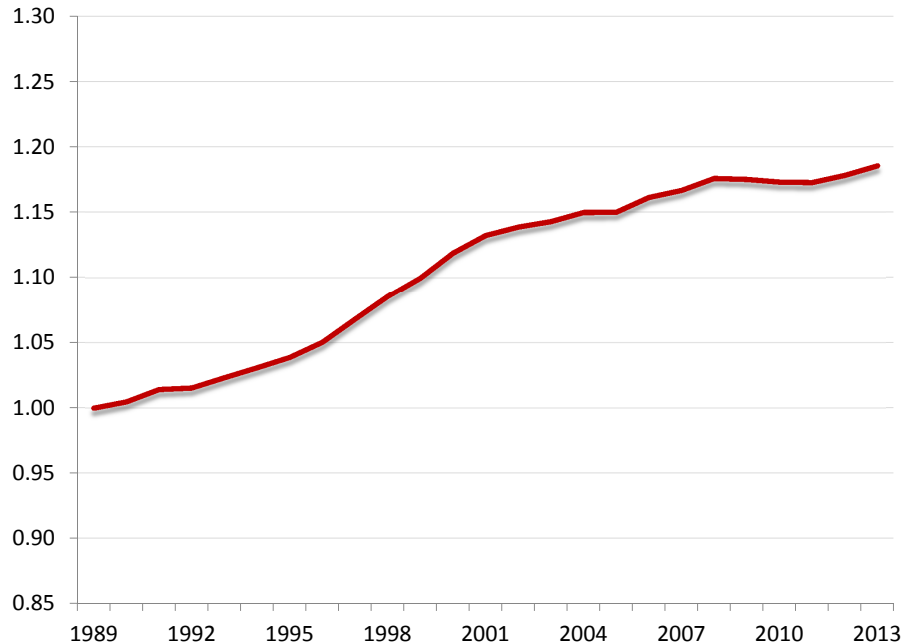


Figure 4: Capital per household

Finally, Figure 5 shows an index of the average household's involvement in the workplace, measured as annual hours of work of household members. Hours per household grew rapidly until 2000, fell as usual during the recession of 2001, flattened but did not grow during the boom of 2002 through 2007, unlike previous booms, collapsed in the Great Recession, and have risen during the recovery that is still underway. The decline in hours since 2000 is the single biggest factor in the decline in household earnings. Recent growth in hours per household offers some hope for the return of earnings growth in coming years.

Because declining hours account for the biggest part of the stagnation of earnings, I will dig deeper, by breaking them down into components:

- Labor-market participants per household
- Fraction of participants who are working
- Hours per worker

Figure 6 shows an index of participants per household. A participant is a family member 16 or over who works, even if the work is only a few hours a week, or a member who is actively looking for work. Participation rose during the 1990s, especially in the second half of the decade. It has fallen since then. The Great Recession depressed participation only

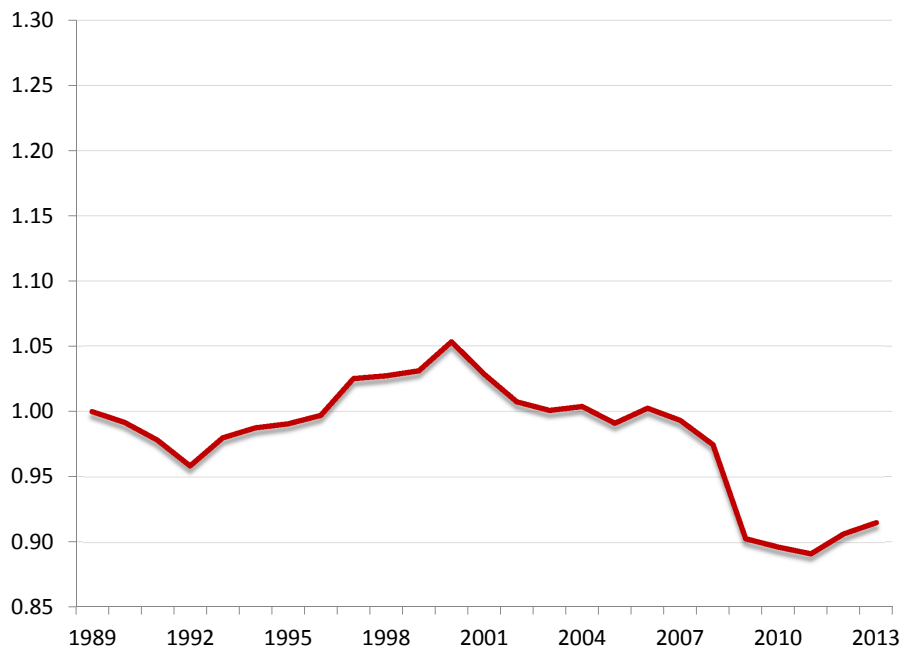


Figure 5: Total hours of work per household

slightly and does not appear to have been an important determinant of the overall decline in involvement in the labor market. Of course, the recession was a time when fewer participants were actually working and more were looking for work. Economists have been working hard on trying to understand the surprising decline in participation, which exceeds forecasts that were made in earlier years. Most research agrees that the slack labor market had a relatively small discouraging effect. Another suspect that has been found to have at most a small role is changes in the composition of the working-age population—the negative effect of aging of the population on participation just offsets the positive effect of higher educational attainment. A large increase in the fraction of households subject to taxes imposed on families benefiting from food stamps, disability, and other safety-net programs may be a factor.

Figure 7 shows an index of the fraction of participants who were actually working—the remainder were unemployed and actively looking for work. This factor was flat on average, falling in recessions and rising in the ensuing recoveries. It has risen recently, as unemployment has fallen to the upper-five-percent range. It is not an important element of the stagnation of earnings as of today.

Finally, Figure 8 tracks the number of hours of work that the members of the average household put in each week. It was quite constant over most of the period, but fell sharply during the Great Recession and recovered about half of the decline since then. It is too

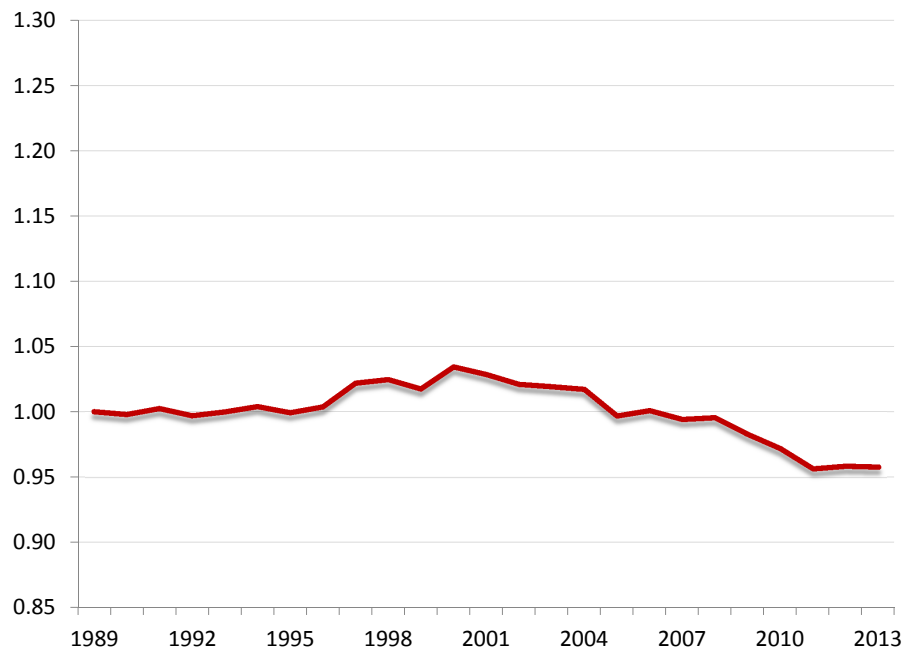


Figure 6: Participants per household

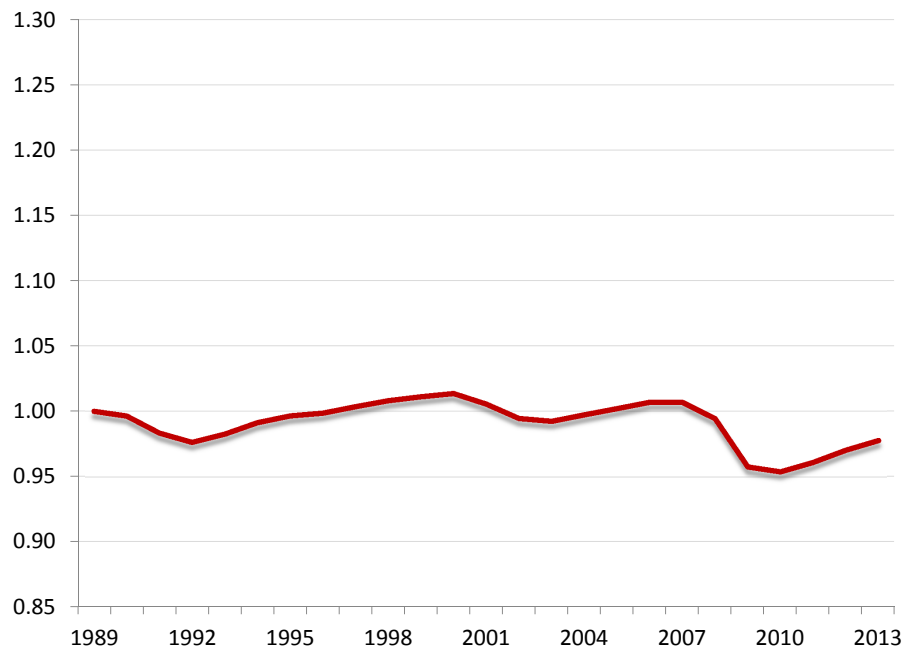


Figure 7: Workers per participant

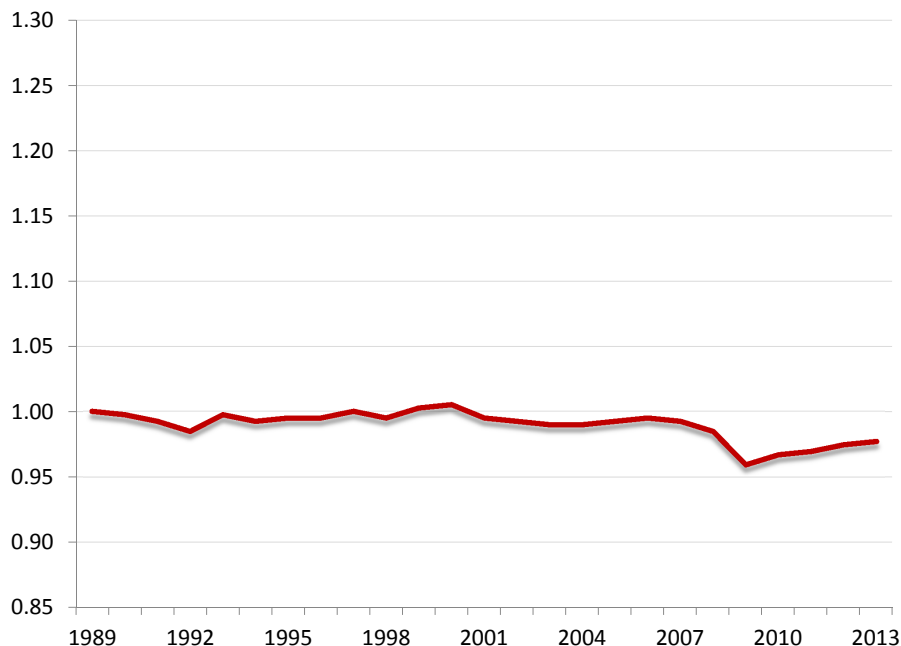


Figure 8: Hours per worker

	<i>Personal care</i>	<i>Household work</i>	<i>Market work</i>	<i>Education</i>	<i>Leisure</i>	<i>Other</i>
Men	1.3	0.1	-2.5	0.2	1.3	-0.4
Women	1.6	-0.7	-0.8	-0.1	0.8	-0.8

Table 1: Changes in weekly hours of time use, 2003 to 2013, people 15 and older

early to judge whether hours per worker will return soon to its earlier level or remain as an element of the stagnation of earnings.

Some indication about the changing balance between work and other uses of time comes from the American Time Use Survey, which began in 2003. Table 1 shows the change in weekly hours between 2003 and 2013 in a variety of activities. For men, the biggest change by far is the decline of 2.5 hours per week at work, a big drop relative to a normal 40-hour work week. A small part of the decline is attributable to higher unemployment—the unemployment rate was 6.0 percent in 2003 and 7.4 percent in 2013. The decline for women is much smaller, at 0.8 hours per week. For both sexes, the big increases were in personal care (including sleep) and leisure (mainly video-related activities). Essentially no change occurred in time spent in education. Women cut time spent on housework.



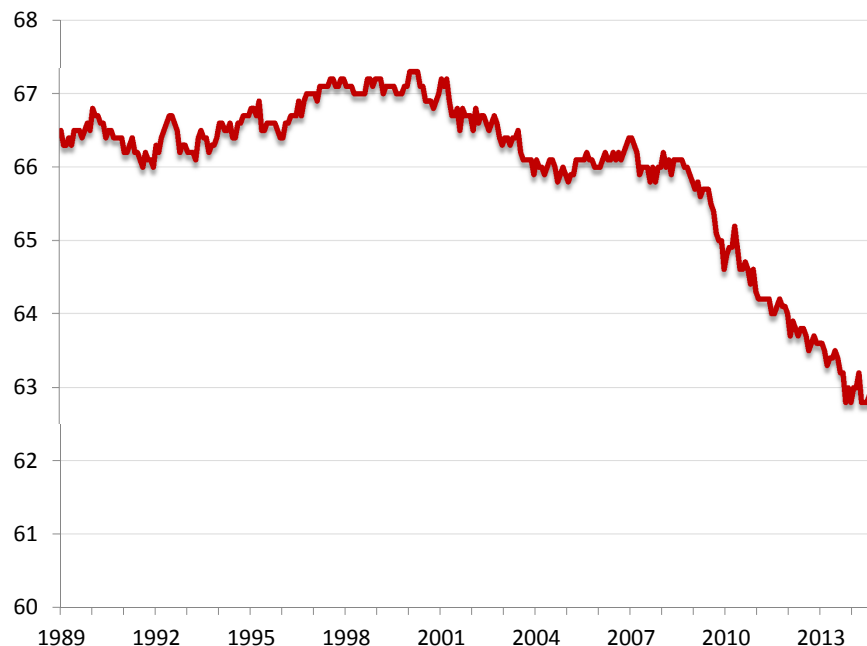


Figure 9: Labor-force participation rate, monthly

Is there hope for a return to normal growth of household purchasing power? Capital seems likely to continue to return to its historical growth path, as Figure 4 suggests. For the three other major categories, forecasting is a challenge. There has been no sign of a reversal of the decline in labor's share of total income and no body of research that supports the idea that it will. Productivity growth is definitely under way, at rates similar to those in the 1970s and 1980s, but well below the rates of the 1950s, 1960s, and 1990s. In particular, there is no sign that a burst of productivity growth will make up for the complete stall in productivity growth around the crisis, as Figure 3 shows. Most importantly, there is no sign suggesting a departure from the decline in labor-force participation shown in Figure 6. Some commentators have declared a turnaround in participation based on recent monthly data, but Figure 9 suggests this is wishful thinking. Participation has declined along a straight line during the period of improving conditions in the labor market, suggesting a complete disconnect between participation and the state of the labor market.

One possibility for growth in purchasing power is that unemployment may dip below the level of around 5.5 percent that some economists believe defines full employment. The unemployment rate reached 3.8 percent in 2000 and 4.4 percent in 2007, in both cases at the ends of long expansions, without triggering inflation much above the Fed's target of around two percent.

## Appendix: Decomposition of real earnings per household

$$\begin{aligned}
 R &= (1 - \alpha_t) \frac{Y_t}{F_t} \\
 &= (1 - \alpha_t) A_t H_t^{1-\alpha_t} K_t^{\alpha_t} \frac{1}{F_t} \\
 &= \underbrace{(1 - \alpha_t)}_{\text{share}} \underbrace{A_t}_{\text{TFP}} \underbrace{\left( \frac{H_t}{F_t} \right)^{1-\alpha_t}}_{\text{hours/HH}} \underbrace{\left( \frac{K_t}{F_t} \right)^{\alpha_t}}_{\text{capital/HH}}
 \end{aligned}$$