

## **Additional Slack in the Economy: The Poor Recovery in Labor Force Participation During This Business Cycle**

**Katharine Bradbury**

This public policy brief examines labor force participation rates in this recession and recovery and compares them with the cyclical patterns in earlier business cycles. Measured relative to the business cycle peak in March 2001, labor force participation rates almost four years later have not recovered as much as usual, and the discrepancies are large.

Among age-by-sex groups, the participation shortfall is especially pronounced at young and prime ages: Only for men and women age 55 and older has participation risen more than is usual four years after the business cycle peak.

The brief examines explanations and different recovery scenarios for various groups—older workers, women, teens. Depending on the scenario, the current labor force shortfall ranges from 1.6 million to 5.1 million men and women. With 7.9 million people currently unemployed, the addition of these hypothetical participants would raise the unemployment rate by 1 to 3-plus percentage points. Current low rates of labor market participation thus potentially represent considerable slack in the U.S. labor market.

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The views expressed in this brief do not necessarily reflect the official position of the Federal Reserve System.

While GDP growth since the 2001 recession has been reasonably robust, the labor market has been much slower to recover. Payroll jobs continued to decline through May 2003, and the unemployment rate continued rising through June 2003, a year and a half after the official trough of the recession. Even after job counts began to rise and joblessness subside, however, the fraction of the population that is employed did not increase, and it has not improved measurably to date. Thus, improvements in total employment and the unemployment rate, as delayed and modest as they have been, overstate the strength of the recovery, since the nation's labor force participation rate has not rebounded to date. Indeed, because participation declined fairly consistently from 2001 on, the rise in unemployment during the recession also understated the severity of the slowdown.

This brief examines labor force participation rates in this recession and recovery and compares them with the cyclical patterns in earlier business cycles, finding that participation remains well below its usual level almost four years after the pre-recession peak. To the extent that the explanations for this sub-normal participation rebound are cyclical, additional workers would be expected to join the labor force in the coming weeks and months as the recovery proceeds, reducing potential pressures on wage costs and prices. That is, the substantial numbers of potential workers who might still (re)enter the labor market can be seen as representing slack in the economy, slack that is not reflected in the unemployment rate.

### **Labor force participation by age and sex**

Figures 1 and 2 report participation rates for the men and women in seven age groups, showing monthly data from January 1948 through February 2005. The groups are those for which the Bureau of Labor Statistics publishes seasonally adjusted participation rates: men and women ages 16-17, 18-19, 20-24, 25-34, 35-44, 45-54, and 55 and older. These figures are intended to provide an indication of the groups' differing levels and trends. Most striking is the general rise in women's participation across all age groups from the 1960s through the 1980s. For both men and women, participation rates for teens and older individuals are generally much lower than for adults because many teens are in school and many of those over age 55 have retired.

Focusing on the right side of the two charts, declines in participation rates are visible over the last five years for all age groups except men and women ages 55 and older.

Also visible in Figures 1 and 2—for most age groups and most recessions—is a pattern of softening participation rates in recessions.

### **Labor force participation in this cycle compared with earlier ones**

This analysis compares changes in participation rates in this business cycle with those in the five previous cycles. To make these comparisons, monthly participation rates during the 12 months before the NBER business cycle peak and four years after are expressed as percentage points above or below the participation rate in the peak month. (Note, this is *not* the month that the participation rate peaks, but rather the month that the NBER declares as the final month before the recession begins.)

Figures 3a-3d and 4a-4d summarize the business cycle patterns of the 14 age-by-sex participation rate series. Each figure displays the path of the participation rate in the current cycle and the *range* for the previous five cycles (shaded area) along with the average for those five cycles, all relative to the participation rate that prevailed at the relevant business cycle peak.

What leaps out from all but three of these charts is the below-average recovery of participation in the current business cycle to date. The depth of the shortfall is most pronounced among teens and for women of all ages. Adult men's rates are only modestly below average (note that their participation is generally much less cyclical than that of teens). The three exceptions are the about-average rebound in participation for men ages 45-54 and the strongly above-average increases in participation for men and women ages 55 and older.

### **The current participation shortfall, the simplest scenario**

One way to measure the current shortfall is to compare the difference, in percentage points, between the participation rate at the cyclical peak and the participation rate recently, for the current cycle and similarly for the same time period after the peak for the average of the

previous five cycles. This approach calculates the gap between the current and previous-average lines in Figures 3 and 4 for months 44 through 47, the most recent four months of the current cycle. This percentage-point difference between the usual change from peak and this cycle's change from peak is used to estimate the number of people who would be participating in the labor force if the group's rate were at its typical cyclical level. This procedure roughly quantifies the size of the overall shortfall and each group's contribution to it.

Table 1 summarizes the contributions of each group to the current shortfall. Column 1 reports the participation rate for each age-by-sex group in March 2001, column 2 shows the participation rate in the most recent four months (November 2004 through February 2005), and column 3 the difference between them. The fourth column indicates the average change in the participation rate from the relevant business-cycle peak to the period 44 to 47 months later. Column 5 reports the percentage-point difference between the current situation (column 3) and the historical average (column 4). Column 6 reports the size of the civilian noninstitutional population in each age-by-sex group (the base for participation rates), and column 7 indicates the number of labor force participants implied by column 5's difference from the norm.

While teens' participation rates are below average by the largest number of percentage points, they are a relatively small population group, so the contribution of the four teen groups to the total shortfall is moderate, amounting to 1.1 million potential participants. The 20 to 24-year-olds comprise a slightly larger group with smaller discrepancies from their usual cyclical pattern; their shortfall totals about 900,000. Men of prime working ages (25-54) add another 190,000. If participation by women of prime working ages had risen to its typical degree by this time in the cycle, the labor force would be larger by 2.9 million persons. Offsetting a substantial fraction of this shortfall are 3.4 million men and women ages 55 and older who would not be participating if this age group's rates had rebounded only as much as usual. Indeed, these data make it clear that were it not for the 55-and-older men and women, the total participation shortfall would be three times as large as it is.

To illustrate the scale of the participation shortfall shown in Table 1, the left-hand bar in Figure 5 displays the impact on the unemployment rate if all the age-by-sex groups returned to “usual” participation relative to the peak for this stage in the business cycle. Summing the figures in column 7 indicates that, on net, 1.6 million people would have joined the labor force and added to the number of unemployed. Relative to 148.2 million people in the labor force and 7.9 million unemployed in the November 2004-February 2005 period, this addition would have raised the unemployment rate by 1.1 percentage points. Rather than the 5.4 percent rate actually observed over the November 2004-February 2005 period, the jobless rate would have been 6.5 percent.

The height of the bars in Figure 5 indicates the unemployment rate; the numbers written inside the bars report the number of labor force participants. For the upper part of the bar, these are hypothetical increments to the labor force that add to the number of currently unemployed (bottom), measured in millions. Note that the left-hand bar’s assumption of moving to typical cyclical participation patterns implies that almost 3½ million men and women ages 55 and older drop out of the labor force, as 5 million under-55s join.

### **Older workers: Why such large participation changes?**

The age pattern of participation discrepancies implies that the situation is actually much worse than shown in the left-hand bar of Figure 5. It seems unlikely that the 55-and-older men and women who are participating to a much greater degree than typical will all withdraw from the labor force as the economy picks up further; indeed, it is difficult to tell a cyclical story about them. Their participation rates began increasing well before the recession began – Figures 1 and 2 show fairly steady increases for both men and women ages 55 and older beginning in the mid-1990s.<sup>1</sup>

Part of the explanation is undoubtedly that the oldest baby boomers, born in 1946, began to cross the age-55 threshold in 2001. This transition pulled down the group’s average age and thereby raised their average participation rate. Indeed, Figure 6 and Tables 2 and 3 report data

for 55-and-overs confirming that this baby-boom related shift in age mix is indeed part of the story. As Table 2 indicates, the fraction of 55-and-older civilian men who were between 55 and 59 years old rose from 23 percent in 1995, to 25 percent in 2000, to 28 percent in 2004, while the corresponding fraction of women rose from 20 percent to 22 percent to 24 percent. Since the labor force participation rate of 55-59-year-olds is 40 to 50 percentage points higher than that of those 60 and older, the increased fraction in the 55-59 age range has a substantial impact on average participation among those 55 and older. Table 3 reports the results of a shift-share analysis for the 2000 to 2004 period, indicating that the change in age mix alone accounts for almost one-half of the overall rise in 55-and-older participation. Indeed, it accounts for considerably more than half the rise for men and less for women.<sup>2</sup>

The other contributing factor (by definition) is that participation rates have been rising among most over-55 age-by-sex groups, as shown in Figure 6. Presumably some of these rate increases could reflect cyclical factors – concerns about stock-market wealth lost in the late-1990s’ stock market decline, for example. However, the rate increases reflect an important non-cyclical component, as well, especially among women. Women’s rate increases since 1990 have been steeper than men’s in the 55-to-64 age group, resulting from replacement of older cohorts in each age group of women by younger cohorts who have participated in the labor market to a greater degree over their lifetimes than did their predecessors.<sup>3</sup>

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<sup>1</sup> Note that the analysis in this brief represents a simple descriptive exercise, not a modeling of participation behavior. This simple measurement of the size of the shortfall by age and sex nonetheless provides bounds on what more complete models might suggest.

<sup>2</sup> Similarly, because men and women ages 60-64 have higher participation rates than their elders, the shift in age mix between 2004 and 2010 as baby boomers take over the 60-64 age group (along with filling out and continuing to occupy the 55-59 age group) will further reduce the average age and raise average participation rates for men and women ages 55 and older. Assuming current (2004) participation rates by age suggests that the 55-and-older labor force participation rate could rise another 1.5 to 2.0 percentage points by 2010 because of shifts in age mix alone.

<sup>3</sup> Furthermore, for both men and women, individuals who have obtained more education typically have higher labor force participation rates than the less educated. As successive cohorts move up the age distribution, the average education level of each age group and hence its participation rate rises gradually, other things being equal.

Thus, what seems likely is that the over-54s will remain in the labor force as the recovery proceeds (and the baby boomers continue to cross the threshold). By the same token, prime-working-age individuals are unlikely to have left the labor force permanently. If the under-55s had rejoined the labor force to the degree they historically have four years after the recession's start, and if those over 54 had stayed in the labor force, the ranks of the unemployed would have increased by 5.1 million persons and the unemployment rate risen by 3.3 percentage points (second bar in Figure 5). An 8.7 percent unemployment rate would represent considerable slack in the labor market.

### **Alternative expectation of “recovery” relative to a less-tight labor market than peak**

Because the labor market was unusually tight in the late 1990s, participation rates were relatively high before the economy went into recession after March 2001. The overall participation rate peaked in the early months of 2000 at 67.3 percent and was 67.2 percent in March 2001. Thus, it might be unrealistic to expect participation to rebound cyclically relative to such high base levels. The latest pre-recession year that participation was lower on an annual average basis than in 2000 was 1996, when the overall participation rate was 66.8 percent.

The 1996 annual average participation rates by age group are reported in column 8 of Table 1. An alternative calculation of the participation shortfall by detailed age-by-sex groups calibrates the current shortfall using these 1996 rates rather than those of March 2001 as the base.

Use of the lower, 1996 participation rate baseline implies that about 20 percent fewer under-55 women would be “expected” in the labor force by this point in the business cycle than shown in column 7 of Table 1. However, about 20 percent more under-55 men would be expected if the “usual” patterns applied. These results reflect the fact that women's participation rates were lower in 1996 than in March 2001, but men's rates were higher. Men's rates have generally trended down; their participation rates did not rise as labor markets tightened and the unemployment rate fell in the boom. On net, the participation shortfall for under-55-year-olds using the 1996 base would amount to a little less than 4.6 million individuals, as compared with almost 5.1 million shown in Table 1. This case (third bar in Figure 5) implies an increase of 3.0

percentage points in the unemployment rate. (Furthermore, current participation rates for 55-and-overs are even more out of line with the lower, 1996 baseline than with a March 2001 baseline, since participation among older workers has continued to rise.)

**Women: cycle vs. trend – how much “recovery”?**

The discrepancies between current patterns and previous cycles are so large for women because women’s participation rates have been trending upward steeply since at least the 1960s (Figure 2), but the trend appears to have stalled in the mid-1990s. With an upward trend, when recessions soften the labor market, women’s participation typically either levels out or only slows its rate of increase, while men’s participation declines. Thus in Table 1, the “usual change from peak” column shows that the participation rates of women ages 20-54 have typically risen an average of 2 to 4 percentage points, depending on age, four years after the business cycle peak, while men’s rates usually remain over half a percentage point below their level at the time the recession began. But this time around, women’s participation rates have declined for all under-55 age groups, and they remain several percentage points below pre-recession levels.

The critical question is the extent to which the atypical declines in women’s participation in this business cycle are permanent or transitory: Do they represent an alteration that may persist in the long positive trend or are they cyclical and can be expected to reverse? While women’s long-term uptrend in participation was weakening – leveling out – before the recession, the actual decreases for adult women (ages 20-54) were concentrated in 2000 and 2001 as the economy weakened (Figure 2). Nonetheless, it seems likely that part of the below-average participation rebound for women in this cycle reflects a secular downshift in women’s participation rather than a cyclical response to the recession’s weak labor market.

An extreme assumption is that the long uptrend in women’s participation is entirely over and women’s cyclical rebound can be expected to be only as sizable as men’s. (Notice that women not only failed to recover in this business cycle as much as they typically do, they did not recover even as much as men usually do.) Simulating this assumption involves calculating the difference between women’s actual “change from peak” in this cycle and men’s “usual change



from peak.” This calculation implies a 1.3-million-strong estimated shortfall for under-55 women, rather than the 4.1 million shown in Table 1. Combining this with the under-55 men’s shortfall yields a total of 2.3 million persons (bar 4 in Figure 5). Further narrowing the gap by using 1996 participation rates rather than those of March 2001 as the basis of comparison for “change from peak,” the total under-55 shortfall reduces to a still-substantial 1.8 million potential labor force participants, who could raise the unemployment rate by 1.3 percentage points (right-hand bar in Figure 5).

### **Teens: rising school enrollments and declining participation**

As Figures 3a and 4a show, the participation rates of teenagers (16-19) have also not recovered to the typical degree by this point in the business cycle. Some argue that if teens are increasingly staying in high school and going on to college, their participation rates are not likely to recover cyclically. While they may be expected to join the labor market at the completion of their schooling, they might then no longer be teens. However, enrollment changes may be cyclical as well, since a booming labor market can lure students out of school and a downturn send them back to obtain additional marketable skills. Moreover, participation rates and enrollment rates do not consistently move together, since some young people who are not in school are not in the labor force and some enrolled students are working or looking for work.

Figure 7 reports enrollment rates for teens and near-teens from 1972 to 2003. For females, school enrollment has climbed markedly since the early 1970s, rising almost 25 percentage points for 18-19- and 20-21-year-olds. (Increases have been smaller for 16-17-year-olds, since their enrollment rates started near 90 percent.) Young men’s enrollment rates have risen less consistently, beginning around 1980 and increasing 5 to 10 percentage points. Enrollments have typically ticked up after recessions begin, and the current business cycle appears to be no exception.

Since enrollment rates have been trending upward for 20 or more years and participation rates trending downward, the “previous cycle” average reflects both these trends as well as the

typical cyclical dip and recovery of participation. Because the (unfortunately limited—only through 2003) data do not suggest that enrollment changes are noticeably different this time, it seems reasonable to expect a typical recovery. This means that teens' participation should be expected to rise to the degree shown in Table 1 and assumed in all the bars of Figure 5.

Figure 1

### Men's Labor Force Participation Rates

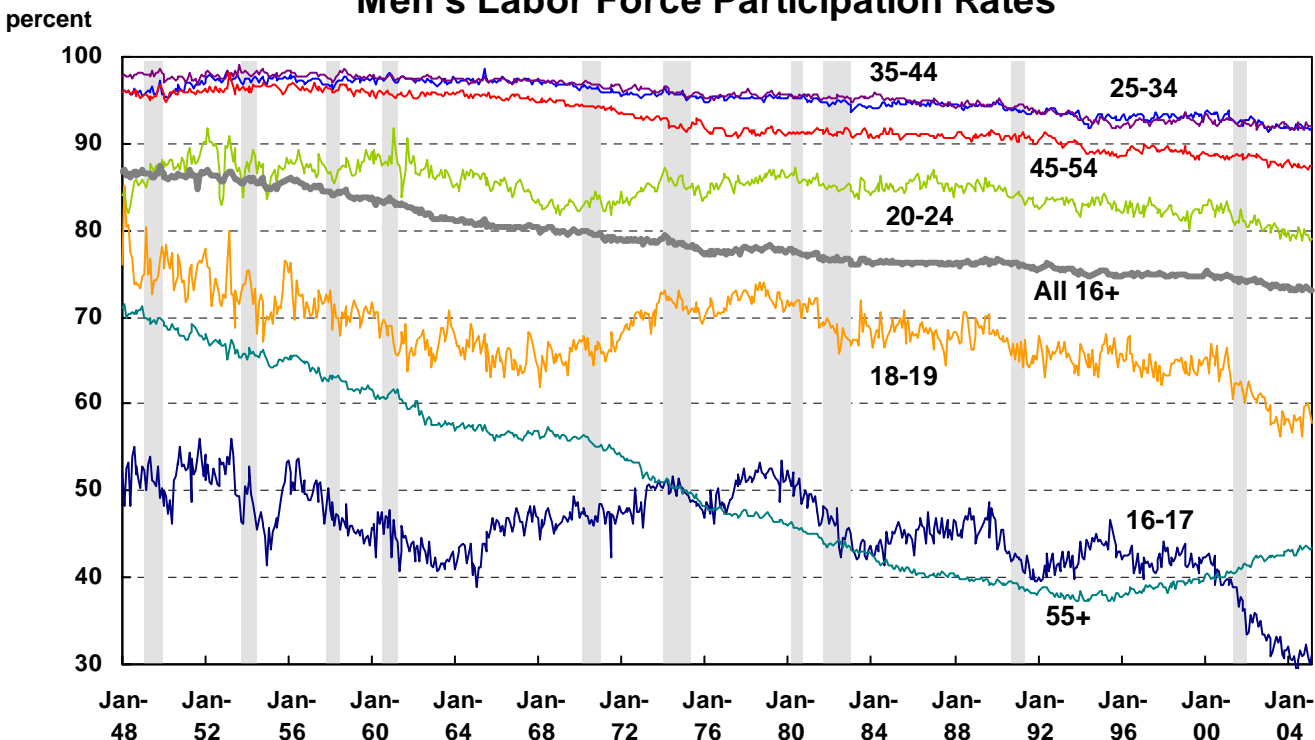
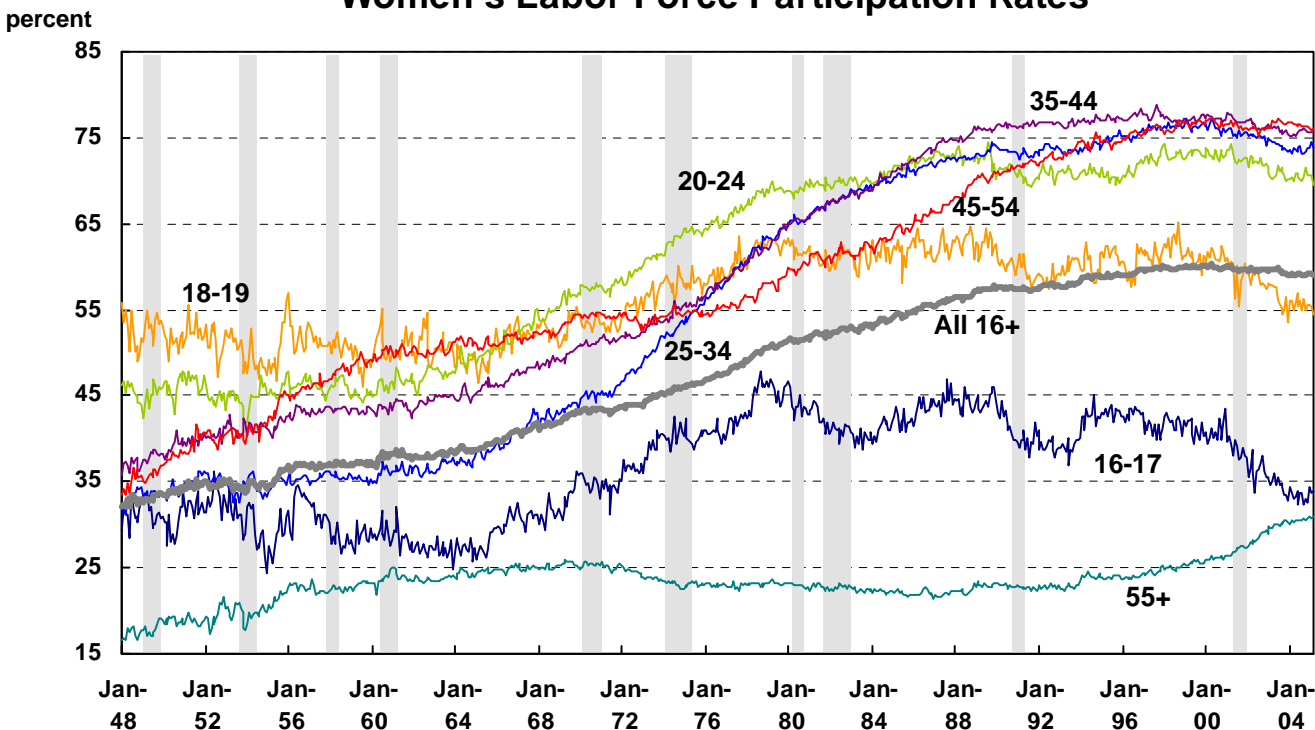


Figure 2

### Women's Labor Force Participation Rates



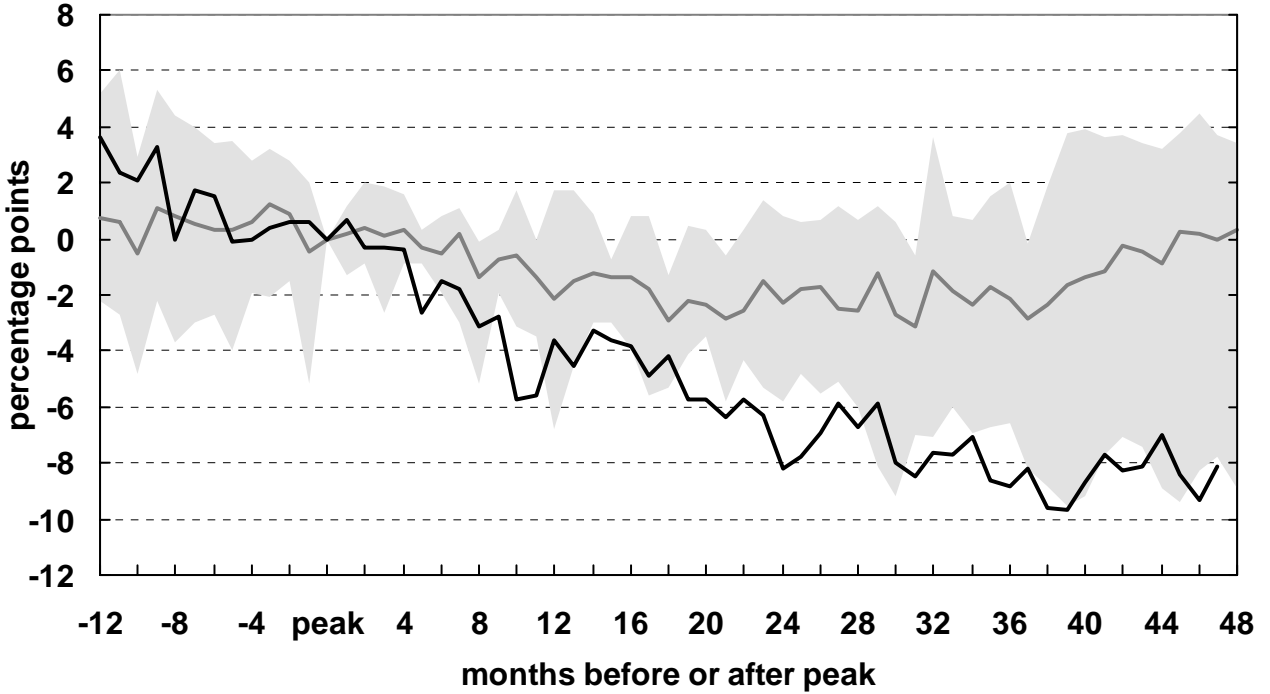
Source: U.S. Bureau of Labor Statistics.

Note: Shading denotes recession periods.

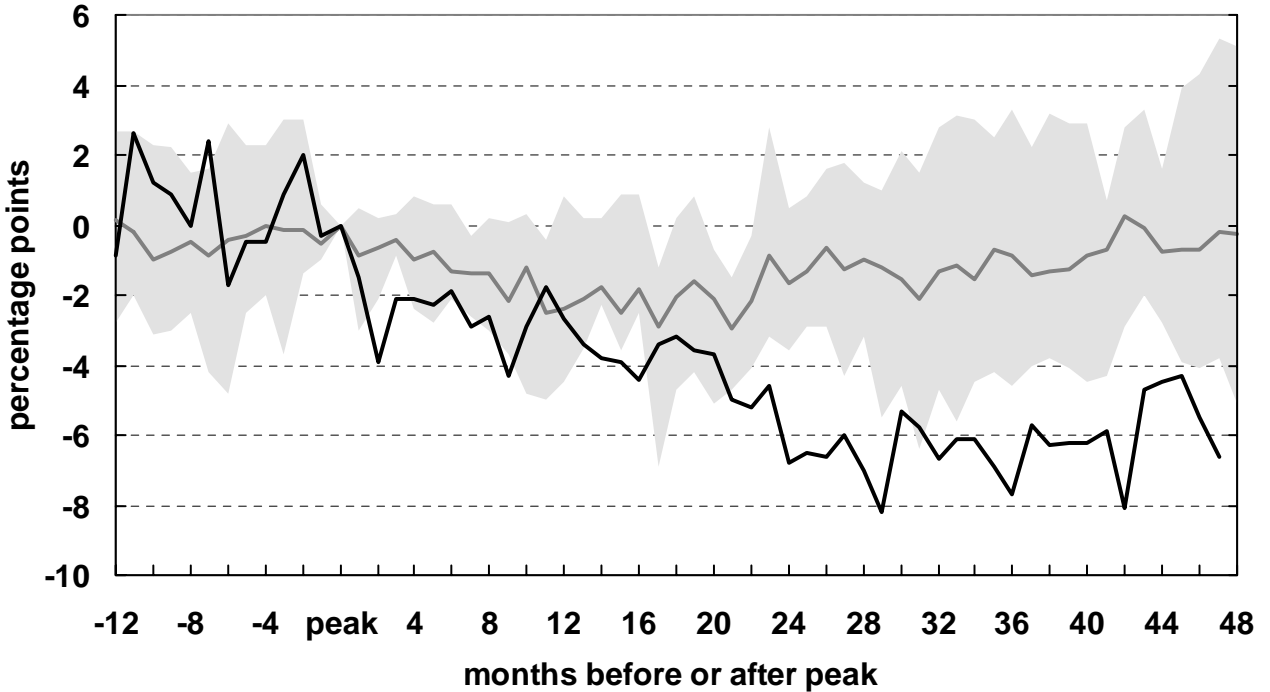
Figure 3a

# Deviations in Labor Force Participation Rates from Previous Business Cycle Peak

## Males, 16-17



## Males, 18-19



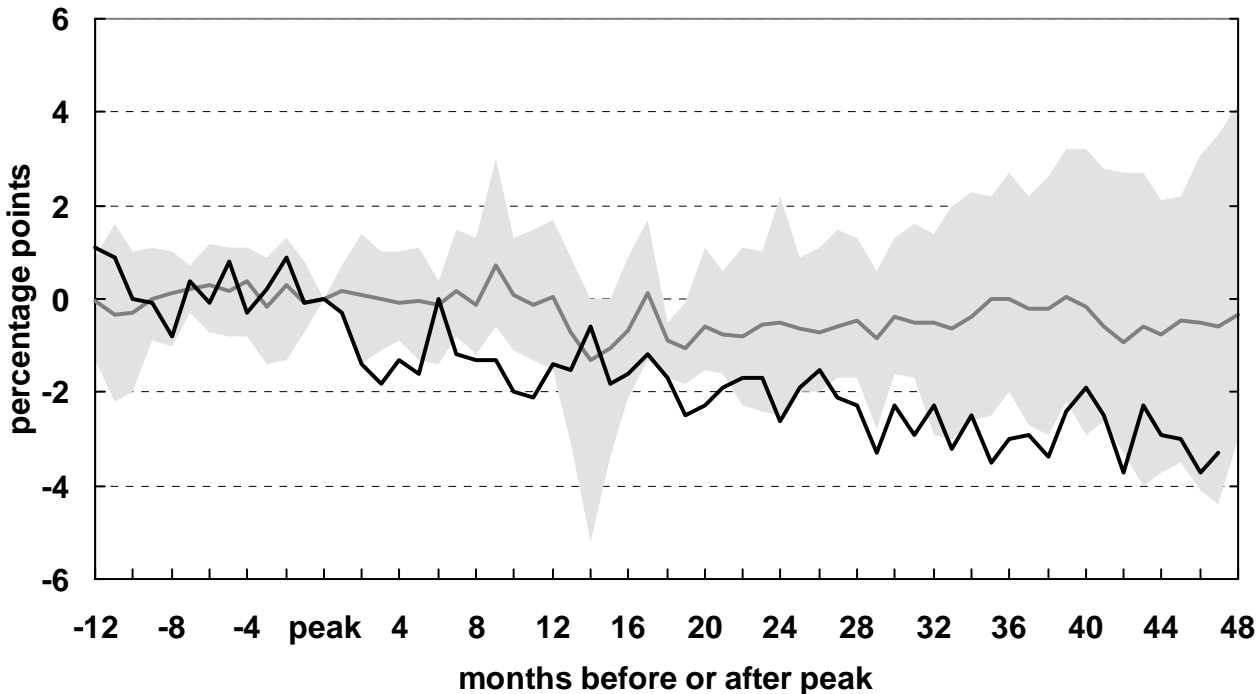
— previous cycle average      — current cycle (peak Mar-01)

Note: Shading indicates range of values in five previous recessions.

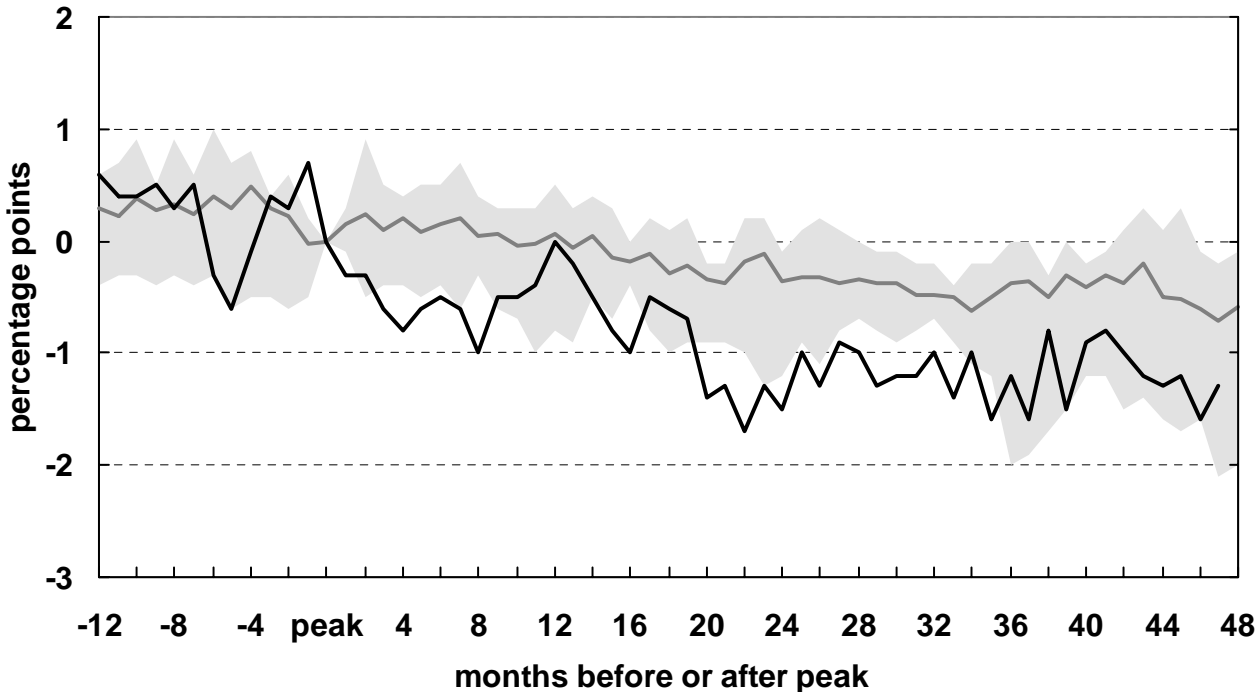
Figure 3b

# Deviations in Labor Force Participation Rates from Previous Business Cycle Peak

## Males, 20-24



## Males, 25-34



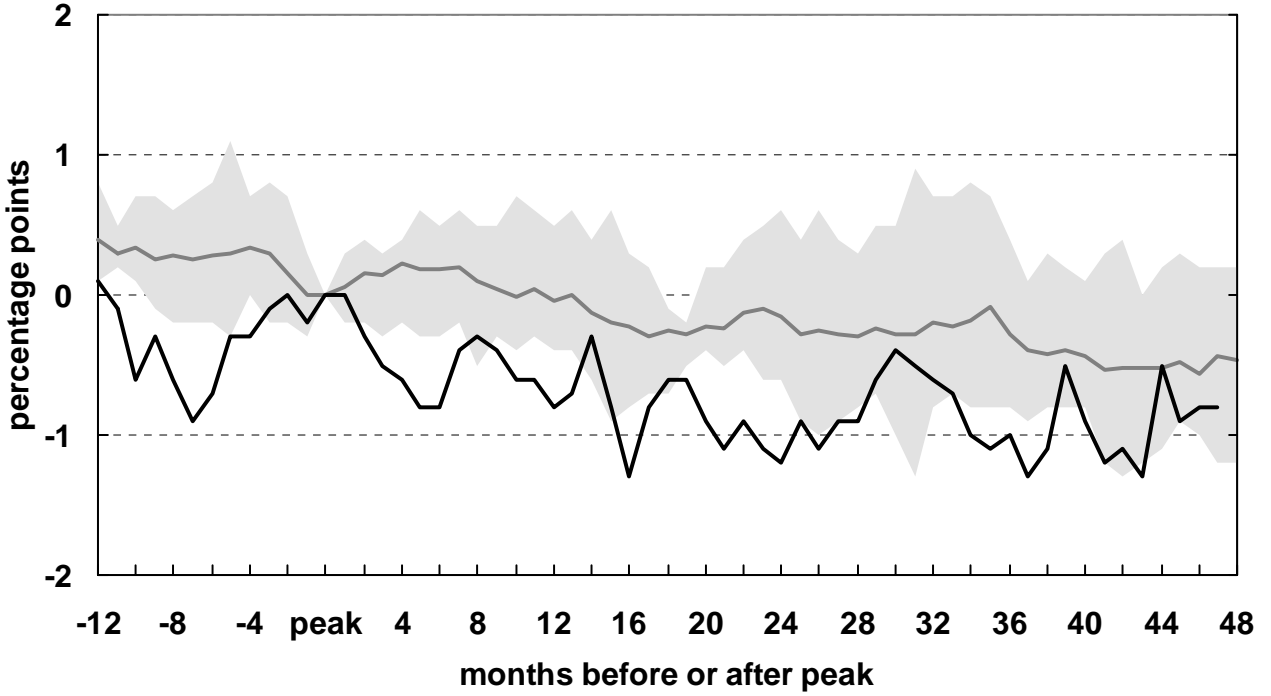
— previous cycle average      — current cycle (peak Mar-01)

Note: Shading indicates range of values in five previous recessions.

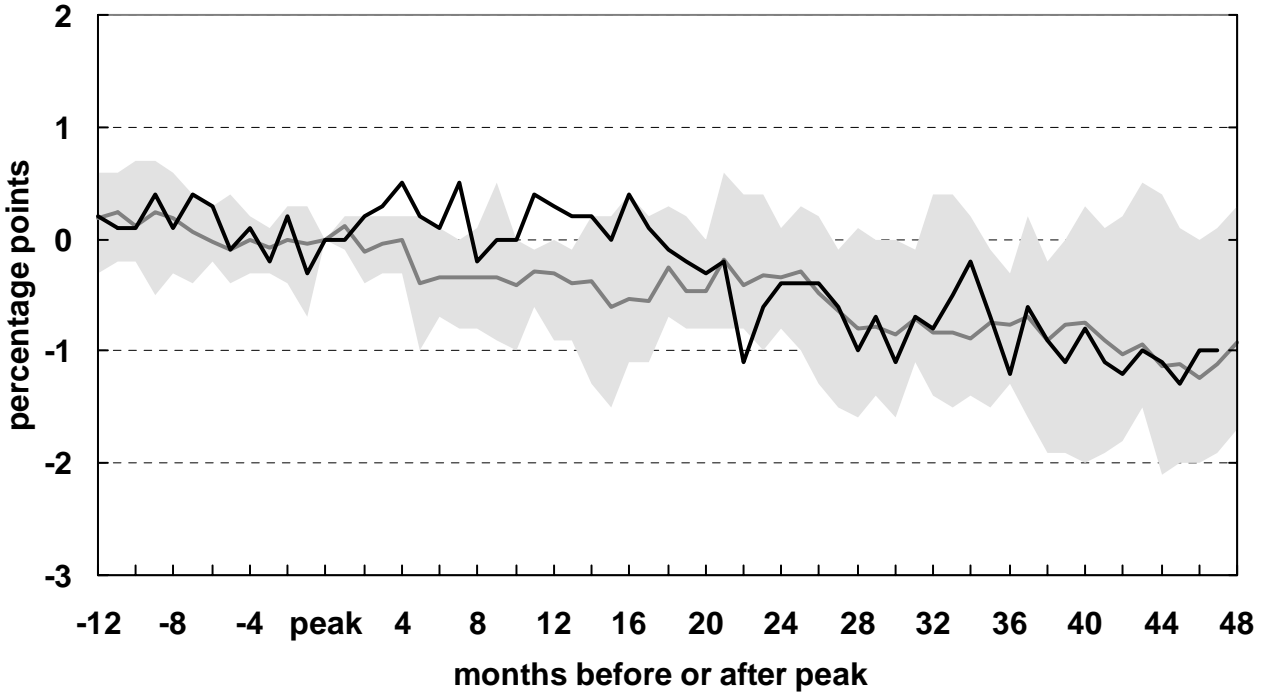
Figure 3c

# Deviations in Labor Force Participation Rates from Previous Business Cycle Peak

## Males, 35-44



## Males, 45-54



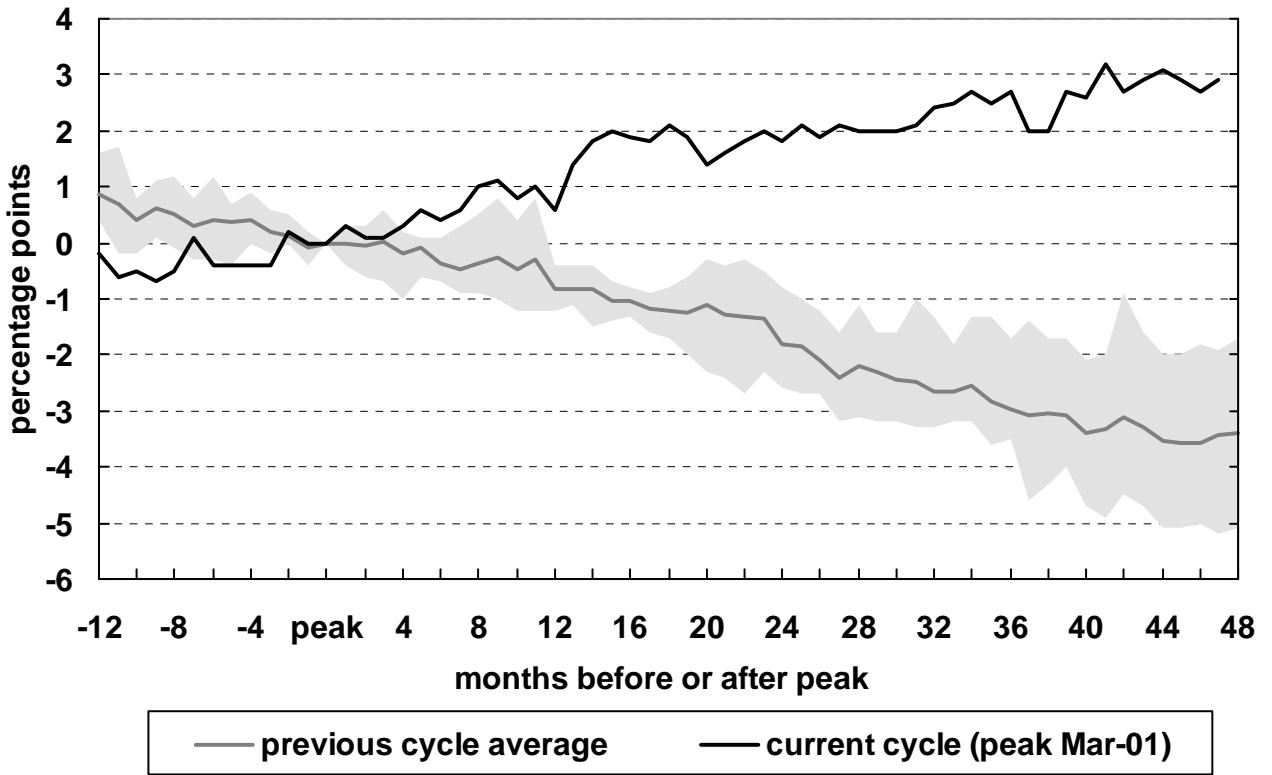
— previous cycle average      — current cycle (peak Mar-01)

Note: Shading indicates range of values in five previous recessions.

Figure 3d

# Deviations in Labor Force Participation Rates from Previous Business Cycle Peak

## Males, 55+

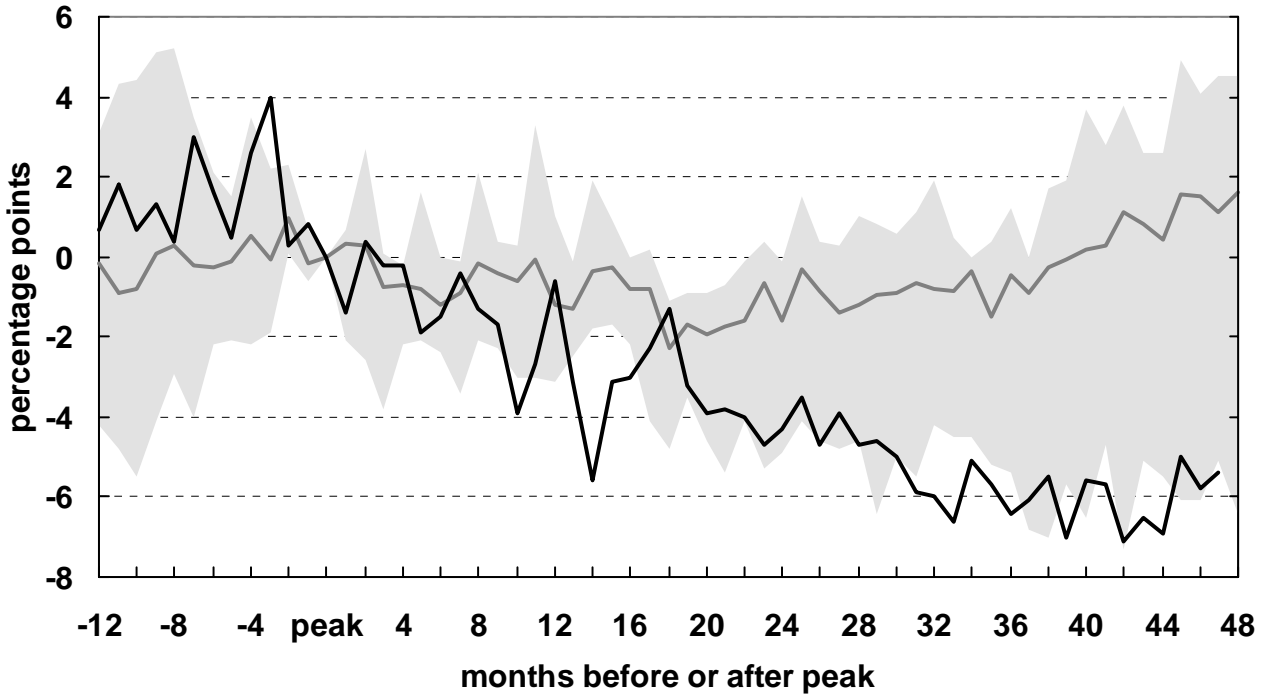


Note: Shading indicates range of values in five previous recessions.

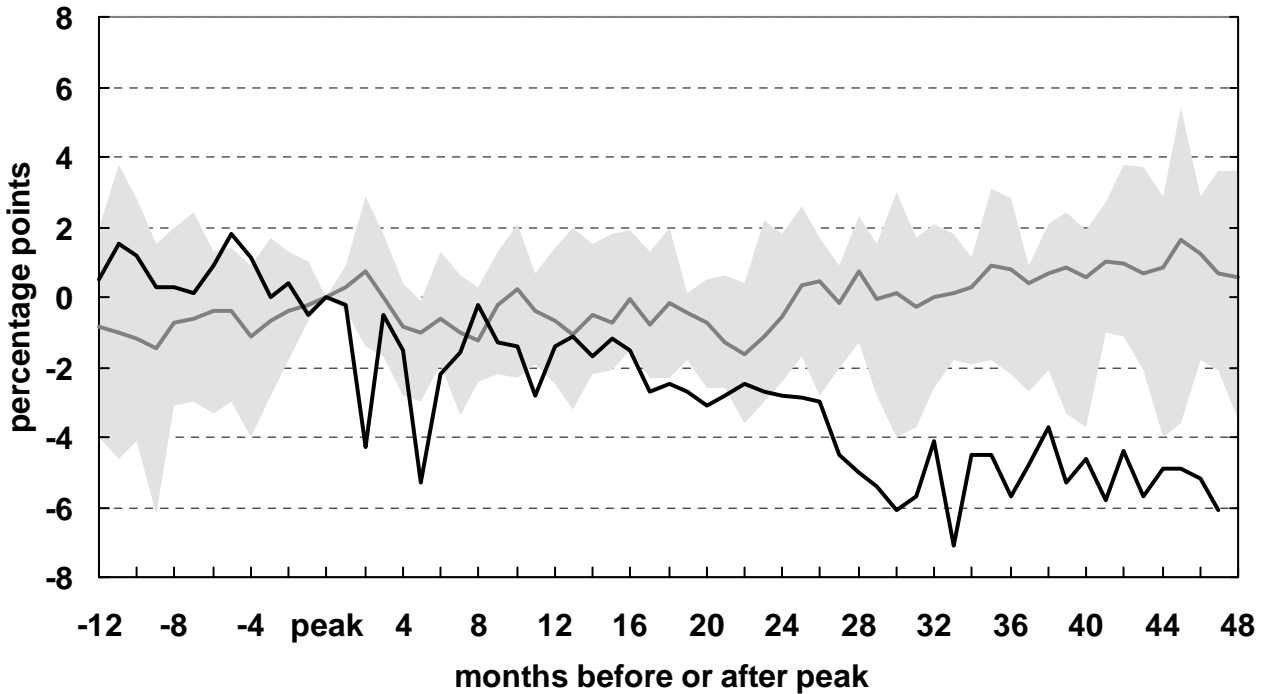
Figure 4a

# Deviations in Labor Force Participation Rates from Previous Business Cycle Peak

## Females, 16-17



## Females, 18-19



— previous cycle average      — current cycle (peak Mar-01)

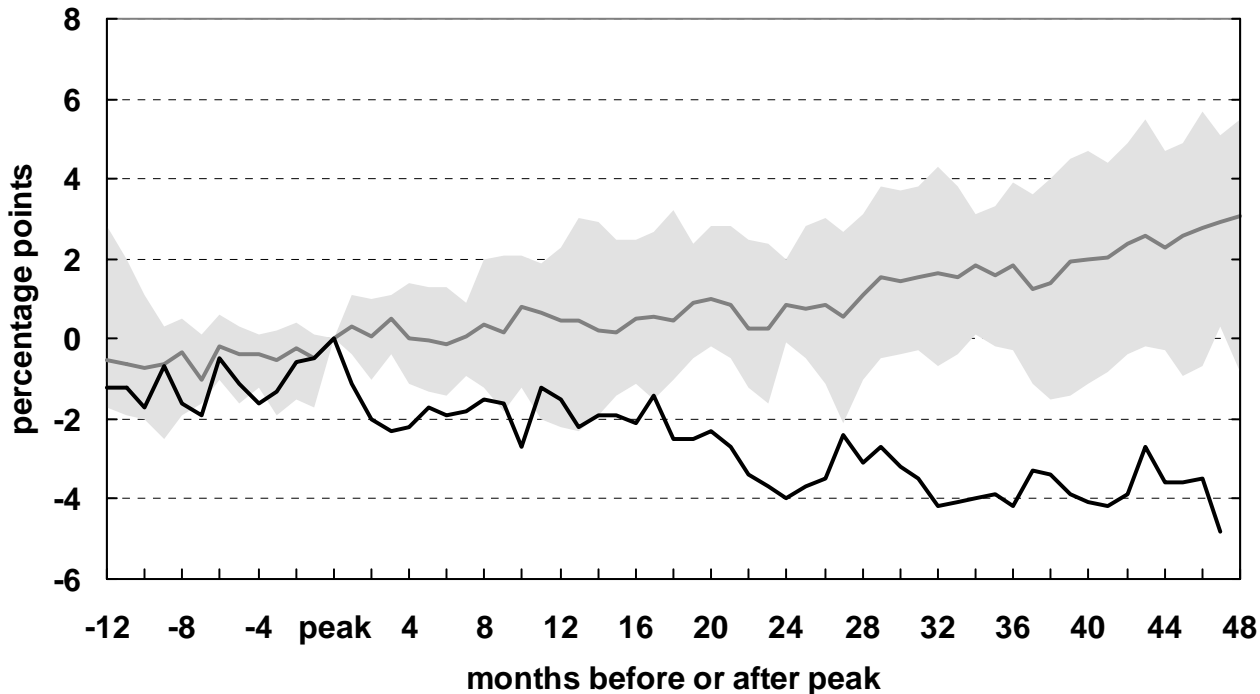
Note: Shading indicates range of values in five previous recessions.



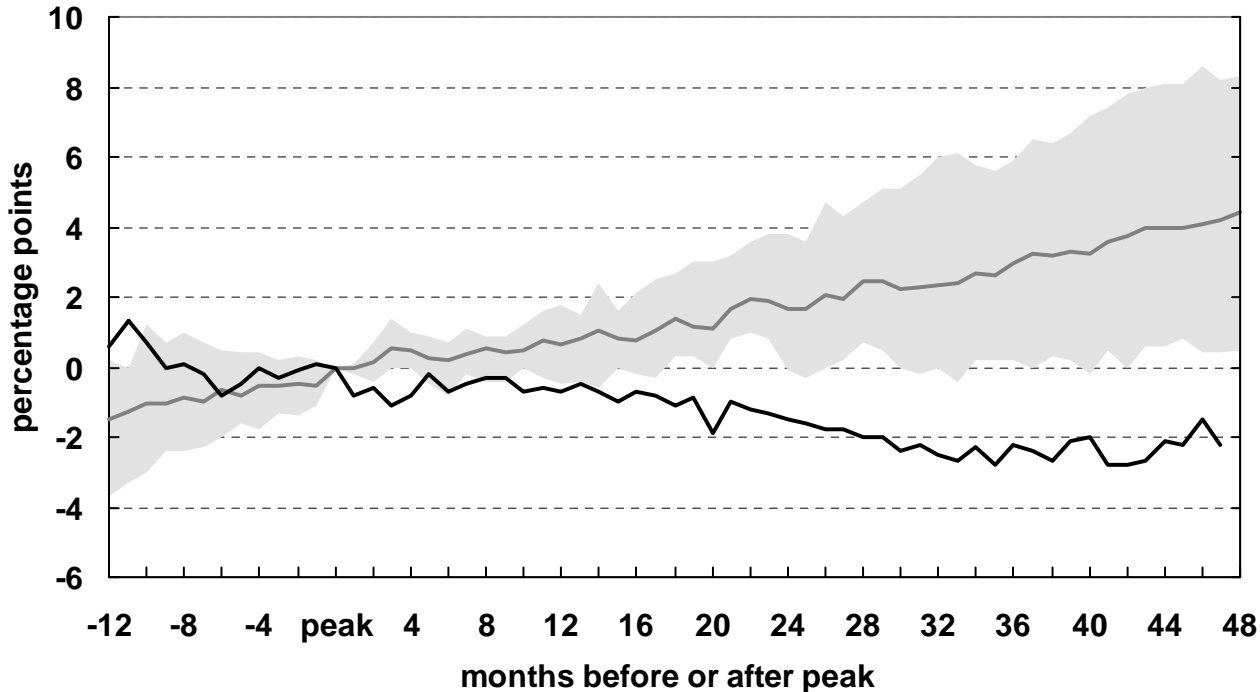
Figure 4b

# Deviations in Labor Force Participation Rates from Previous Business Cycle Peak

## Females, 20-24



## Females, 25-34



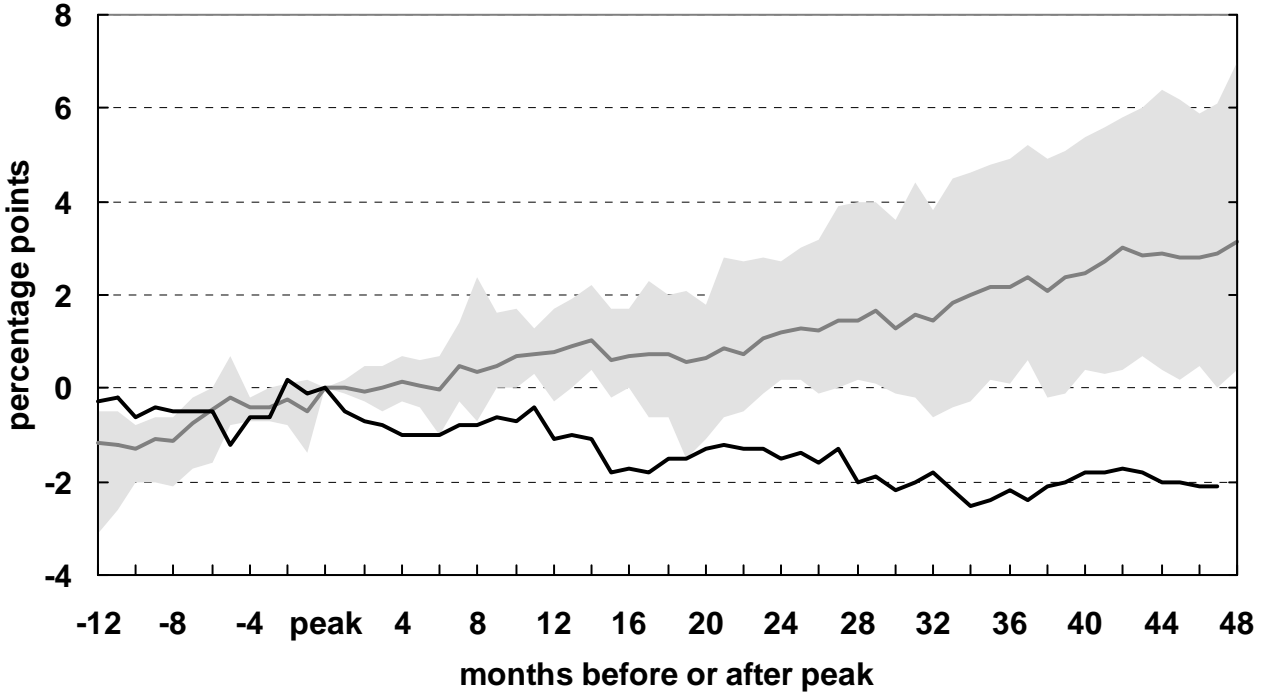
— previous cycle average      — current cycle (peak Mar-01)

Note: Shading indicates range of values in five previous recessions.

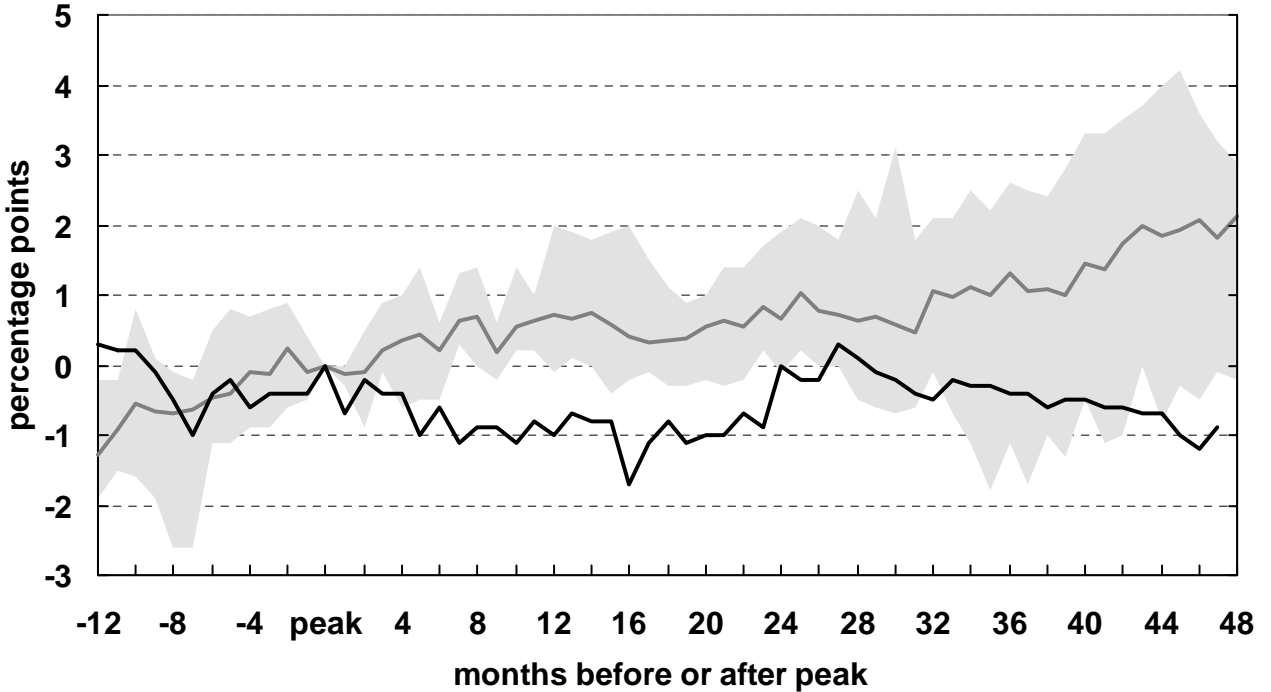
Figure 4c

# Deviations in Labor Force Participation Rates from Previous Business Cycle Peak

## Females, 35-44



## Females, 45-54



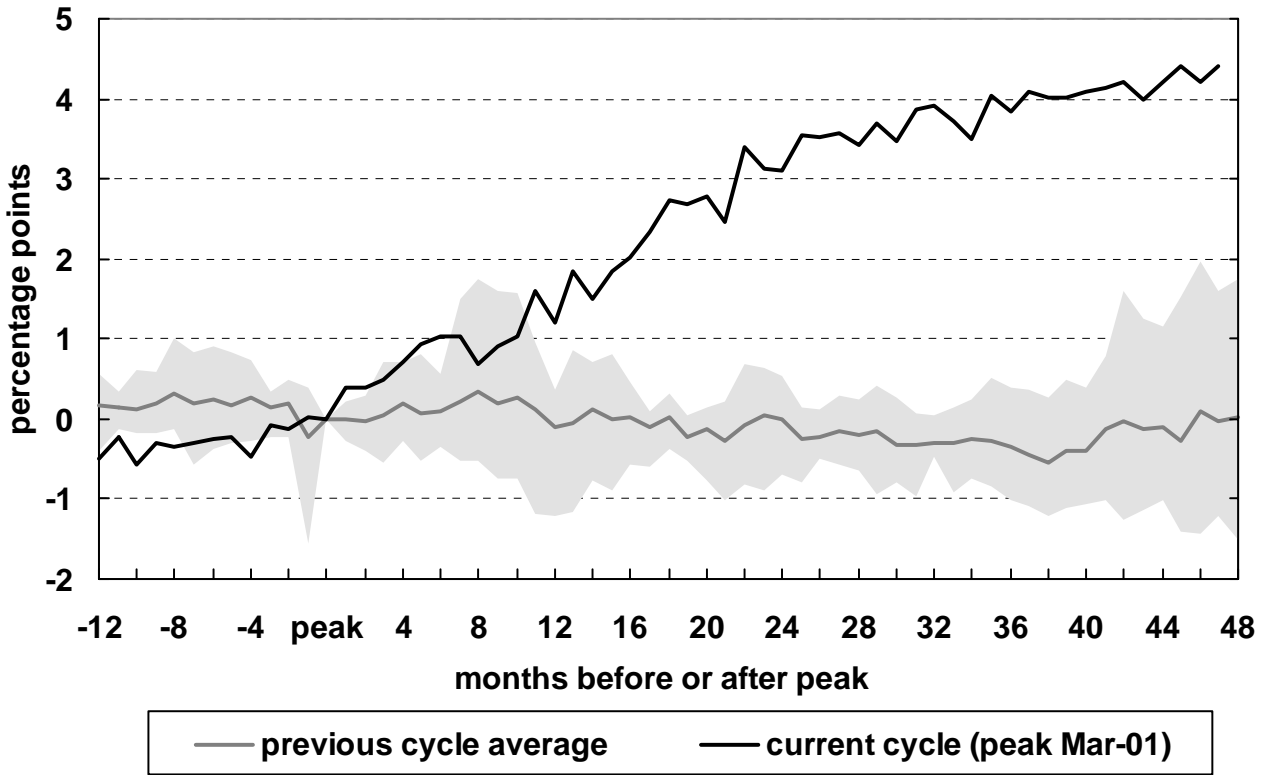
— previous cycle average      — current cycle (peak Mar-01)

Note: Shading indicates range of values in five previous recessions.

Figure 4d

# Deviations in Labor Force Participation Rates from Previous Business Cycle Peak

## Females, 55+



Note: Shading indicates range of values in five previous recessions.

**Table 1. The Shortfall in Participation in this Recovery**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Participa- tion rate, March 2001	Partic. rate average Nov 2004- Feb 2005	Change from peak	Usual change from peak <sup>a</sup>	Difference from usual	Civilian noninsti- tutional population <sup>b</sup>	Labor force discrepancy (col.7 = col.5 x col.6)	Note: participa- tion rate in 1996
	----- (percent) -----	-----	----- (percentage points) -----	-----	-----	---- (thousands) ----	----	(percent)
<b>Men</b>								
16-17	39.2	31.0	-8.2	-0.1	-8.1	4,529	-366	42.2
18-19	64.4	59.2	-5.2	-0.6	-4.6	3,739	-174	65.3
20-24	82.4	79.2	-3.2	-0.6	-2.6	10,168	-268	82.5
25-34	93.1	91.8	-1.3	-0.6	-0.8	19,396	-148	93.2
35-44	92.9	92.2	-0.8	-0.5	-0.2	21,209	-53	92.4
45-54	88.4	87.3	-1.1	-1.2	0.1	20,374	11	89.1
55+	40.5	43.4	2.9	-3.5	6.4	29,025	1,868	38.3
<b>Women:</b>								
16-17	39.4	33.6	-5.8	1.2	-6.9	4,292	-297	43.0
18-19	60.6	55.3	-5.3	1.1	-6.4	3,738	-238	60.0
20-24	74.2	70.3	-3.9	2.6	-6.5	10,096	-657	71.3
25-34	76.0	74.0	-2.0	4.1	-6.1	19,595	-1,188	75.2
35-44	77.7	75.7	-2.1	2.9	-4.9	21,893	-1,074	77.5
45-54	77.0	76.1	-1.0	1.9	-2.9	21,288	-609	75.4
55+	26.5	30.8	4.3	-0.1	4.4	35,395	1,556	23.9

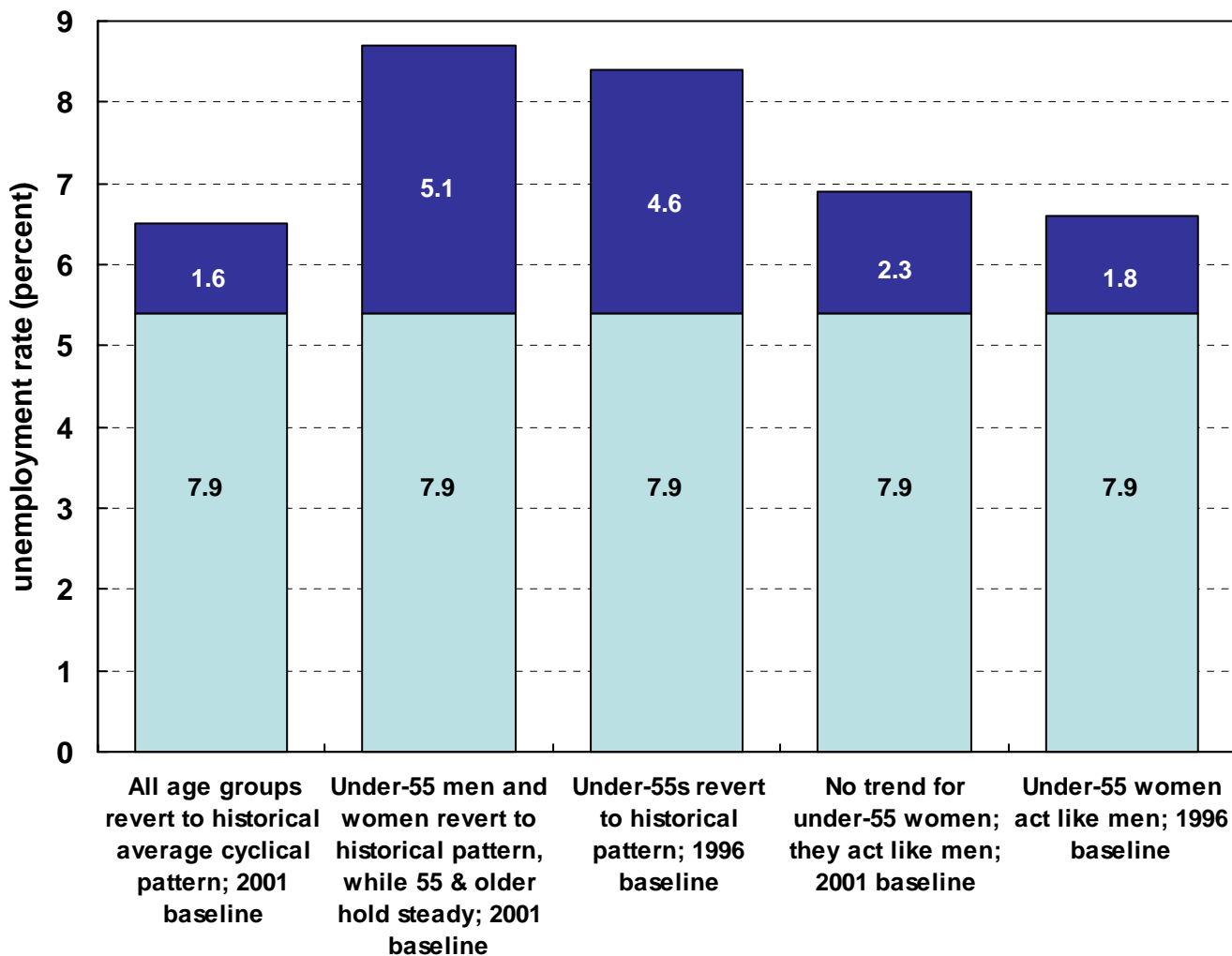
<sup>a</sup>Usual change from peak is calculated in months 44-47 after business cycle peak for cycles that peaked in April 1960, December 1969, November 1973, July 1981, and July 1990. Current cycle peaked in March 2001.

<sup>b</sup>Civilian noninstitutional population is average for November 2004-February 2005.

Source: Calculations based on data from U.S. Bureau of Labor Statistics.

Figure 5

## Implications for Unemployment of Alternative Assumptions Regarding Return to “Normal” Participation Patterns (Numbers in bars are unemployed labor force participants, in millions)

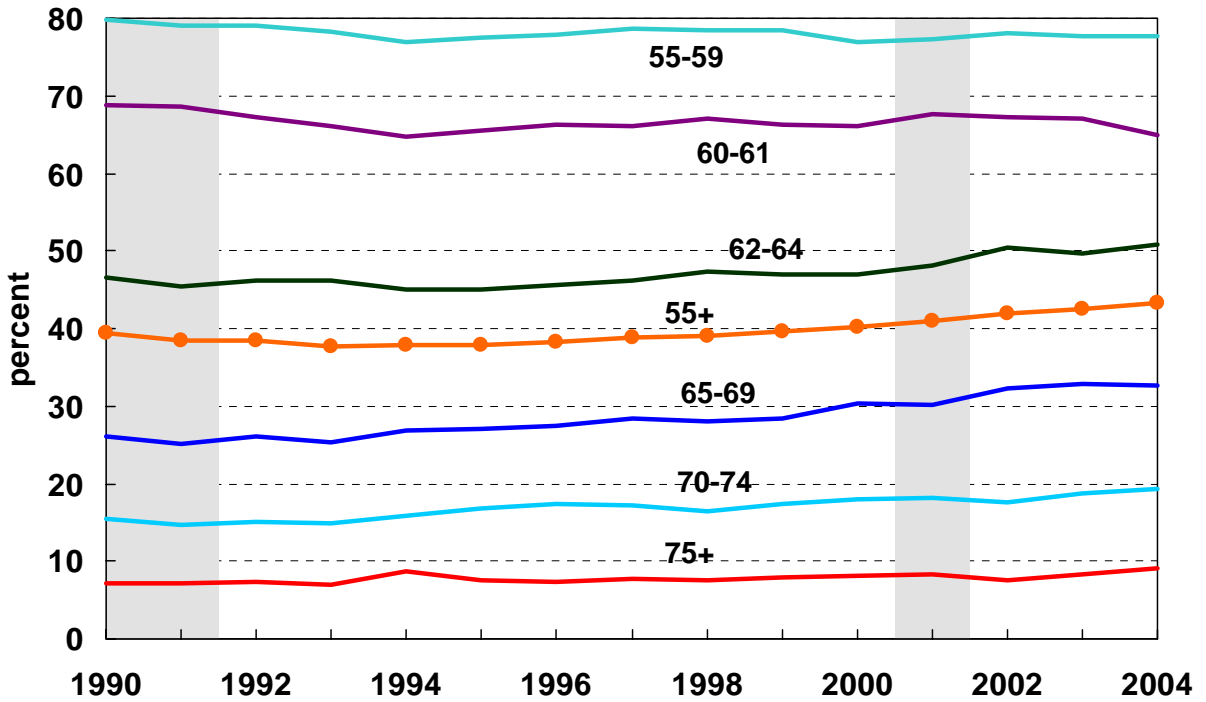


Simulations measured relative to  
November 2004 - February 2005 current situation

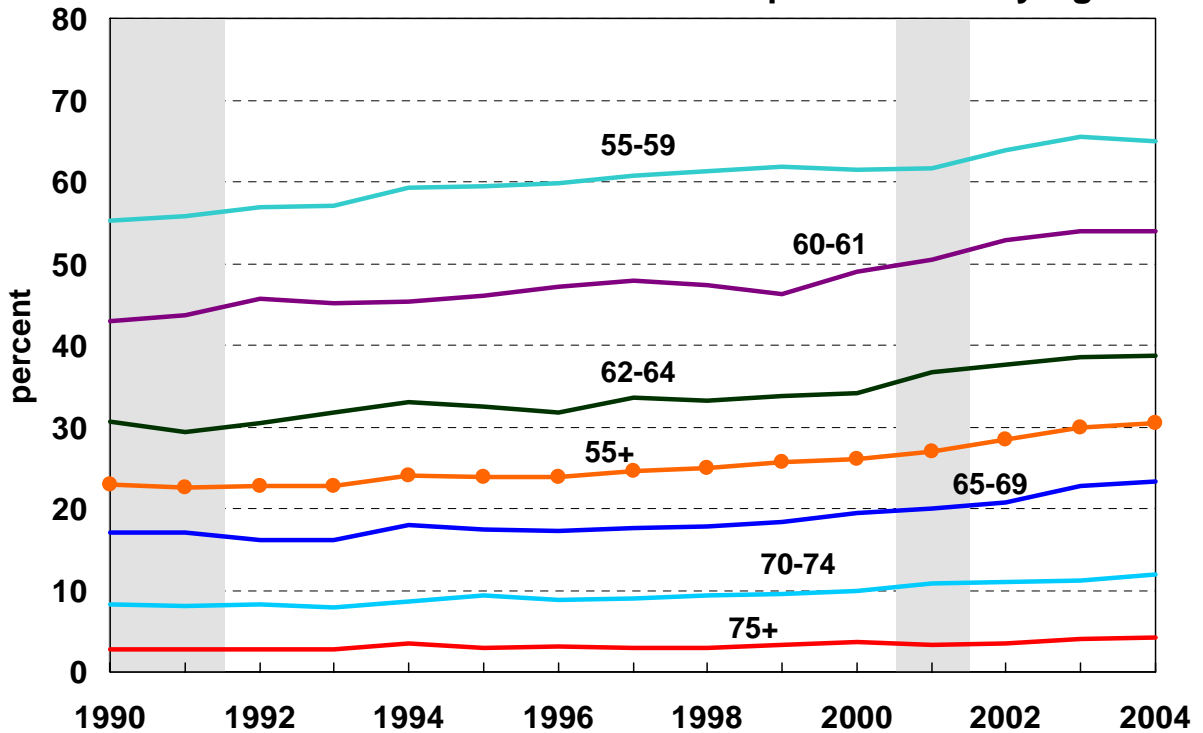


Figure 6

Older Men's Labor Force Participation Rates by Age



Older Women's Labor Force Participation Rates by Age



Source: Current Population Survey, annual data.

**Table 2. Age Mix Over Age 55**

(percent of civilian noninstitutional men or women ages 55 and older)

	Age Group				
	55-59	60-64	65-69	70-74	75 +
<b>Men</b>					
1990	22.5	22.3	20.3	15.4	19.6
1995	22.7	20.1	19.2	16.4	21.5
2000	25.3	19.9	17.0	15.0	22.7
2004	27.7	20.9	16.0	13.0	22.4
<b>Women</b>					
1990	19.1	19.8	19.4	15.7	26.0
1995	19.5	17.8	18.2	16.6	28.0
2000	21.7	17.7	15.9	15.2	29.4
2004	24.1	18.9	15.0	13.3	28.7

Source: Current Population Survey, annual averages.

**Table 3. Ages 55 and Older, 2000-2004 Change in Labor Force Participation Rate**

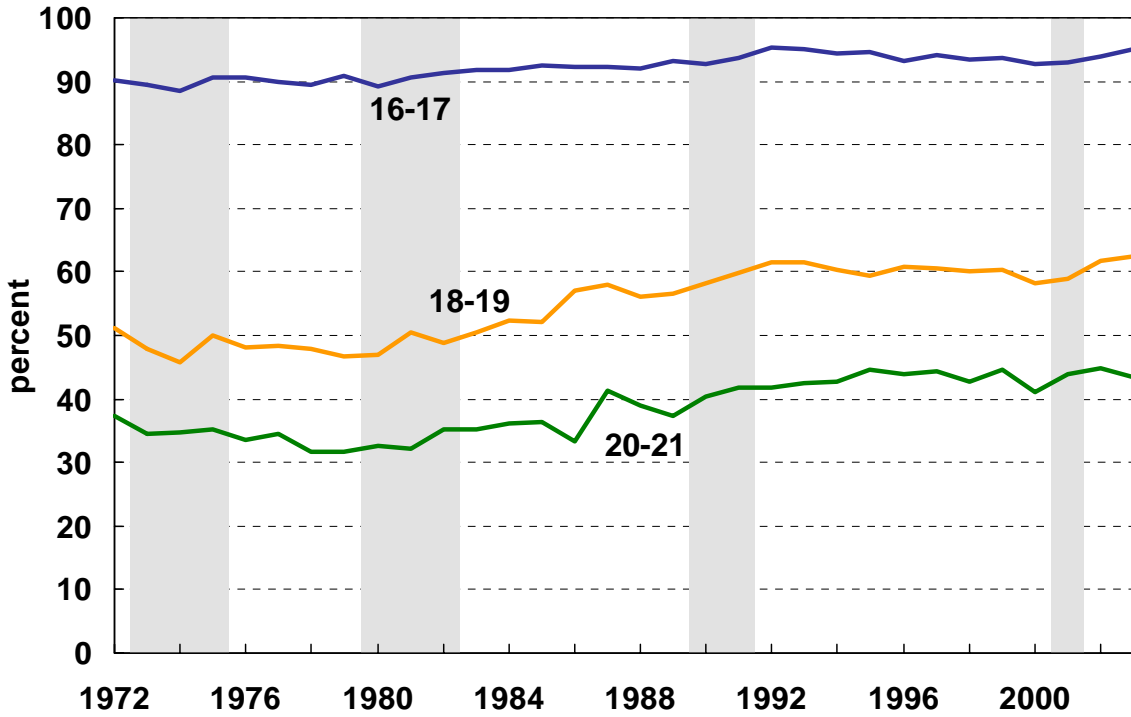
(percentage points, except as noted)

	All	Men	Women
2000 participation rate (%)	32.4	40.1	26.1
2004 participation rate (%)	36.2	43.2	30.5
Actual Change	3.9	3.0	4.4
Change from 2000 if:			
2004 mix, 2000 rates	1.8	1.8	1.6
2000 mix, 2004 rates	2.1	1.3	2.8

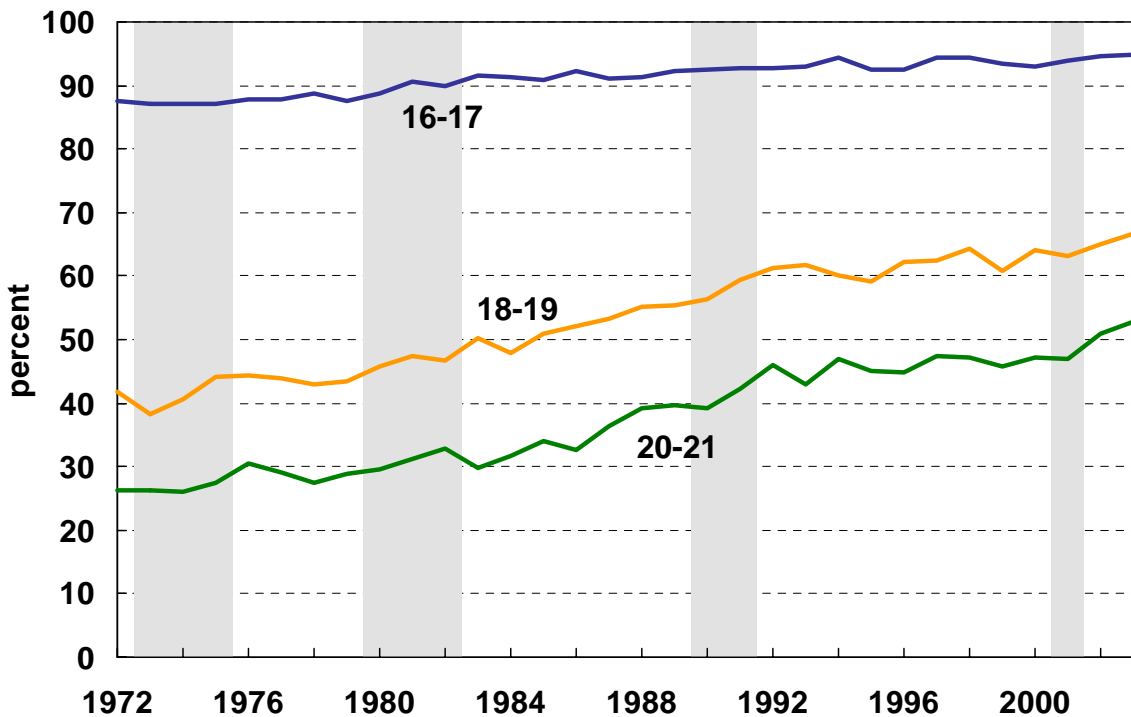
Source: Calculations based on data from Current Population Survey, annual averages.

Figure 7

### Young Male School Enrollment Rates by Age



### Young Female School Enrollment Rates by Age



Source: Current Population Survey, annual data.