Current Unemployment,
Historically Contemplated

Chinhui Juhn
University of Houston

Kevin M. Murphy
University of Chicago

Robert Topel
University of Chicago

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Twelve years ago, our *Brookings* paper "Why has Natural Rate of Unemployment Increased Over Time?" analyzed long term changes in joblessness among American men. We documented the dramatic rise in unemployment and non-participation for prime aged males that had taken place between 1967 and 1989. Our main conclusion was that a steep and sustained decline in the demand for low skilled workers had reduced the returns to work for the less skilled. This led to high rates of unemployment, labor force withdrawal, and long spells of joblessness among the least skilled. We found that the long-term growth in unemployment was accompanied by a roughly equal increase in time spent out of the labor force, leading to a significant long-term increase in joblessness among American males. We concluded that structural factors, primarily the decline in the demand for low skilled labor, had dramatically changed the prospects for a return to low rates of joblessness any time soon.

After our paper was published in 1991, things appeared to change. The 1990s opened with a brief recession that was followed by the longest expansion in U.S. history. During the expansion, unemployment rates fell steadily and by 2000 had reached their lowest levels since the 1960s. Because we had emphasized changes in the structure of labor demand that made a return to low rates of joblessness unlikely, these facts present a challenge to our 1991 framework. Maybe we were just wrong – maybe the demand and supply framework of our previous work cannot explain joblessness in the post-1990 period. This would place us among a very distinguished group of social scientists who have drawn attention a significant empirical phenomenon, only to watch that phenomenon disappear immediately thereafter.[1] As it turns out, however, our framework

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[1] Malthus may have been the founding member of this club. Malthus's theory that the forces of endogenous population growth doomed the common people to perpetual poverty "explained" why incomes

for thinking about pre-1990 changes in joblessness does fairly well in helping to understand the post-1990 period.

In this paper we look in some detail at employment data from the 1990s and ask some simple questions related to our previous analysis. (1) Have the trends we identified in our earlier paper – the concentration of non-employment among the less skilled, the growth of non-participation in the labor force, and the increased duration of joblessness – been reversed with the fall in aggregate unemployment? (2) Did the '90s expansion really "return" the U.S. labor market to conditions of the late 1960s, as unemployment statistics seem suggest? (3) Does the economic framework of supply and demand we utilized a decade ago still explain long-term developments in unemployment, non-employment, and labor force participation?

Our answers are surprising. First, the basic trends toward longer spells of joblessness and rising non-employment have continued in spite of the prolonged expansion of national output and the concomitant fall in unemployment rates. Second, the fall in unemployment to levels close to historical lows is very misleading. Broader measures of joblessness show that the labor market of the late 1990s is more like the relatively "slack" labor market of the late 1980s than the booming labor market of the late 1960s. Finally, the basic forces of supply and demand identified in our previous paper continue to have explanatory power. The theory does a reasonable job of explaining the trends that have continued, as well as the trends that have changed.

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had failed to increase over the period of his data. Publication of Malthus's theory was followed by centuries of almost continuous progress. More recently, when the returns to college were at a record low in 1979, Richard Freeman published "The Over Educated American" only to have the returns to college increase steadily over the next 15 years, reaching a record high. To Richard's credit, his model did predict a rebound (even if not so large and sustained).

Our analysis also provides considerable insight into what has happened in the labor market over the past decade. Our data reveal that over the 1990s while unemployment was falling, time spent out of the labor force was rising. In fact, the increase in time spent out of the labor force was so large that total joblessness (unemployment and out of the labor force together) at the cyclical peak in 2000 was as high as it was in the business cycle peak in 1989, in spite of the fact that the unemployment rate was roughly 2 percentage points lower in 2000. In terms of joblessness, the oft-praised boom of the 1990s really represented little in the way of progress in terms of employment for American males.

While the growth in the amount of time American males spent out of the labor force continues a trend found in our earlier research, other trends have changed somewhat. Over the most recent decade the real wages of less skilled men, which had been falling steadily since the early 1970s, stabilized and even rebounded slightly in the later half of the decade. Based on our data, it appears that the decades-long trend toward greater wage inequality has run its course, at least at the bottom of the wage distribution. The data on joblessness reflect the impact of the changing wage trends. The long-term divergence in employment rates between low-wage workers and those with higher wages that was so pronounced in our earlier work has stopped, while unemployment and wage gaps across skill groups have narrowed. The congruence betweens patterns of change in wages and employment comports with our previous work, which stressed wage changes as the dominant factor driving changes in employment rates.

Our main conclusions are:

1. Falling unemployment rates over the 1990s are very misleading. While unemployment rates were falling, rates of joblessness (including time out of the labor force) were roughly constant. That is, on net the unemployed transited out of the labor force, not to employment.

2. The growth in joblessness over the long term has been generated by enormous growth in the duration of jobless spells. The probability of entering unemployment (or non-employment) has actually fallen over the long term. All of the long-term growth in joblessness is the product of longer durations.

3. The concentration of non-employment among less skilled men continued but did not worsen significantly over the 1990s. Indeed there are some employment gains at the bottom of the wage distribution, where wage gains are also apparent.

4. Real wages for slow skilled workers stabilized and actually rebounded somewhat over the late 1990s. Inequality between men at the bottom of the wage distribution and men at the median may have even contracted slightly over the decade. In any case, the long-standing trend toward greater wage inequality has stopped for males in the bottom half of the wage distribution.

5. The joblessness of the low skilled has shown up increasingly as time spent out of the labor force rather than time spent unemployed. We believe that this reflects two factors – the relatively low returns to work (i.e. real wages, while not still falling, are substantially below where they were in the past) and increasingly attractive outside opportunities such as collecting disability. Indeed, about one half of the growth in OLF status is associated with an increase in individuals claiming to be disabled.

The paper is organized as follows. Section I describes the methods we use to analyze the March CPS data that forms the basis for our empirical analysis. Section II illustrates the basic data on unemployment and participation for 1967-2000 based on our CPS sample and published unemployment data. Section III presents our analysis of unemployment, non-employment and wages over the recent period including the breakdown of wage and employment trends for high, middle and low-wage workers. Section IV analyzes the data on wages and employment in terms of a simple supply and demand framework to explain the changes in employment and wages over the entire sample period 1967-2000 as well as the 1990s. Section V concludes.

Section I: The Data

The data we use in our analysis come from the March 1968-2001 Current Population Surveys (CPS). The monthly CPS files form the basis for published unemployment statistics and represent one of the most broadly used samples of the U.S. population. While the published unemployment statistics rely on questions about each individual's employment status in the reference week of the survey, we focus our attention on the retrospective questions from the March Annual Demographic Supplement. The retrospective questions ask about work experiences in the prior calendar year (hence our data will cover 1967-2000 calendar years). The retrospective questions ask about weeks worked, usual weekly hours, weeks of unemployment, and the number of unemployment spells as well as occupation, industry, and other characteristics for the longest job held during the prior year. From our perspective, the retrospective statistics are useful for several reasons. First, they provide information on the division of time between employment, unemployment and out of the labor force for the calendar year

at the individual level. This is useful because it allows us to examine the degree of concentration of unemployment and non-employment at the individual level. The data also allow us to estimate both the incidence and the duration of unemployment and non-employment spells. In addition, the March surveys provide us with individual-level wage measures that we use to examine changes in real wages and changes in employment outcomes for individuals in different parts of the wage distribution.

We focus our analysis on males since they were the focus of our earlier work and because labor force participation issues for women are significantly more complex. In order to avoid issues associated with early retirement, Social Security, and pensions, we focus on men who have 1 to 30 years of potential labor market experience. For high school graduates this means men who are roughly 19 to 49 years of age, with corresponding age intervals for those with more schooling. We define labor market experience as the minimum of (a) age minus years of education minus seven and (b) age minus seventeen.[2] In addition, in order to avoid measurement problems for individuals that spent part of the year in school or in the military we exclude individuals that report that they did not work part of the year due to school or military service.

We construct two samples for analysis. The wage sample contains individuals with valid observations on annual earnings, weeks worked, and usual weekly hours who are not self-employed.[3] For individuals in the wage sample, we calculate an hourly wage as the ratio of annual earnings to the product of weeks worked and usual weekly hours.

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[2] We use age minus education minus seven rather the standard age minus education minus six because we wish to measure potential experience at the time of our wage and employment measures (which is the year prior to the survey).

[3] We exclude those with earnings imputed according to the CPS "hot deck" procedure. For the early years, (prior to the 1976 survey) we impute usual weekly hours from hours worked last week and individual characteristics and impute weeks worked and unemployed from the categorical data based on averages calculated in the 1976-1980 period.

The employment sample includes individuals from the wage sample, plus individuals who do not have valid wage data. For individuals that are not included in the wage sample, we impute a statistical distribution of wages based on education, experience and weeks worked. Our earlier paper described the methodology in more detail. For those that did not work, we impute a wage distribution based on those that worked the fewest number of weeks (1-13) with similar demographic characteristics. Finally, we correct the wage distribution for heteroskedastic measurement error present in our calculated wage measures.[4] The details of the procedure are presented in our earlier paper.

Armed with calculated wages for those in the wage sample and an imputed wage distribution for those without valid wage data, we group individuals by their positions in the wage distribution using five wage percentile intervals: 1-10, 11-20, 21-40, 41-60, 61-100. Wage percentiles are calculated based on individual wages relative to persons with the same level of experience in a given year. Individuals in the wage sample are assigned to one of the groups based on their actual wage observation while those with imputed wages are assigned probabilities of being in each of the percentile groups.

The employment measures we look at are based on (1) weeks worked during the prior year, (2) weeks unemployed during the prior year, (3) weeks out of the labor force during the prior year, and (4) number of spells of unemployment during the prior year. Based on these data, we are able to identify the fraction of individuals that experienced some unemployment or time out of the labor force during the year as well as the number of individuals that worked zero weeks over the year. We refer to the latter event as full year non-employment.

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[4] See Juhn (1992) for a more complete description.

Section II: The Facts

Before we begin, it is useful to look at the history of U.S. unemployment over the period of our data, as published by the U.S. Department of Labor. Figure 1 shows the Civilian U.S. Unemployment Rate for 1967-2001. As the data show, by late 2000 the unemployment rate was at its lowest level in 30 years. Moreover, in 1999-2000 unemployment rates were close to the extremely low rates seen during the late 1960s. Similarly, the peak unemployment rates in the recessions of 1982-83, 1991-92 and 2001-02 were progressively lower over time, reversing the trend of rising peaks between the 1970-71, 1974-75 and 1982-83 recessions.[5] Based on Figure 1, it would appear that the U.S. economy has come full circle: Unemployment rose for 15 years (from 1968 to 1983), and then fell over the next 17 years (from 1983 to 2000), with intervening cyclical swings. Based on Figure 1, one might conclude that the labor market conditions of the late 1960s and late 1990s were comparable.

Figure 2 compares the overall unemployment data from Figure 1 to annual unemployment rates (calculated as weeks unemployed divided by weeks in the labor force) from our sample of prime-aged males. Since our data are based on the 1968-2001 March Current Population Surveys (CPS) and the questions refer to outcomes in the prior calendar year, our data cover the period 1967-2000. In the figure, the data from the aggregate series have been adjusted to make the means of the two series the same over the full period.[6] While the two series should be somewhat different due to the differences in the underlying populations (our sample is only prime-aged males and the other sample is the full population of individuals 16+), the two series are remarkably similar in terms

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of their underlying trends and the rankings of the cyclical swings. Clearly, one would reach the same basic conclusions on the evolution of unemployment using the aggregate series or the CPS series.

One of the major finding of our earlier work was that the long-term growth in unemployment greatly understated the growth in joblessness. The recent data suggest that changes in unemployment shown in the aggregate and CPS statistics are even more misleading for the 1990s. This is illustrated in Figure 3, which plots two series: the fraction of annual weeks spent unemployed and the fraction of annual weeks spent out of work for our sample of men from the CPS. In the figure, the percent of annual weeks spent unemployed is shown by the darkly shaded region while the percent of annual weeks spent out of the labor force is shown by the lightly shaded region. Since non-employment (the fraction of the year spent out of work) is given by the sum of these two percentages, the overall height of the shaded region represents the percent of the year spent out of work in each year. As the figure shows, rather than being comparable to the late 1960s, the late 1990s are more like the late 1980s in terms of overall joblessness. The decline in unemployment over the 1990s does not show up in terms of a lower overall rate of joblessness. On net, those individuals who left unemployment did not find jobs, they left the labor force.

The data from Figure 3 are summarized in Table 1, where we have aggregated the data into nine time intervals corresponding roughly to peaks and troughs in the business cycle, as measured by aggregate unemployment rates. As the Table shows, unemployment rates have a strong cyclical pattern as well as a long-run upward trend

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[5] The recession of 1980 did not fit this pattern but as seen in the figure did not represent much of a peak in terms of unemployment rates.

(measured peak-to-peak or trough-to-trough) up until 1982-83. After 1982-83

unemployment rates fall (or stay constant) measured either peak-to-peak or trough-to-

trough. In contrast, the fraction of the year spent out of the labor force rises between

every pair of intervals. In fact, while the unemployment rate in 1999-2000 is very close

to its level in 1967-69 the overall rate of non-employment in 1999-2000 is 4.7 percentage

points higher than in the late 1960s, and the fraction of the year spent out of the labor

force is roughly double what it was in 1967-69.

Consider next the 11-year interval between the business cycle peaks of 1988-89

and 1999-2000. The unemployment rate fell by 1.3 percentage points, but the percentage

of men who are out of the labor force rose by exactly the same amount. This left the rate

of non-employment at roughly the same level in 1999-2000 as it was in 1988-89, despite

the fact that the this period spans the longest sustained economic expansion on record.

Table 2 and Figure 4 divide the growth in non-employment along a second

dimension. The percentage of weeks spent out of work is equal to the sum of two

components: the fraction of individuals that did not work at all over the year (for whom

the fraction of weeks spent out of work is 100%) and the fraction of weeks spent out of

work for those that worked some positive amount (multiplied by the fraction that worked

at least one week). We refer to these as full-year non-employment and part-year non-

employment in what follows. This decomposition allows us to examine how much of the

growth in non-employment is accounted for by individuals with very long stretches of

joblessness – that is, spells that are so long that individuals do not work at all during the

calendar year. The results are striking. The amount of joblessness accounted for by those

working at least part of the year is essentially unchanged between 1967-69 and 1999-

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[6] This amounts to adjusting the aggregate series downward by 0.85 percentage points.

2000. But the amount of joblessness accounted for by those that did not work at all over the year more than triples, rising form 1.8 percent in the 1960s to 6 percent in 1999-2000. Moreover, while part-year non-employment declines by 4.5 percentage points from its peak in 1982-83 to 1999-2000, the rate of full-year non-employment is essentially unchanged. This is particularly striking given that the intervening period is characterized by two of the longest economic expansions on record.

The data shown in Figures 3 and 4 and described in Tables 1 and 2 illustrate why it is important to look at more than unemployment when trying to measure the state of the labor market. The data on full-year non-employment also suggest that the durations of unemployment and non-employment have increased dramatically over the period of our data. The data we have can be used to examine durations directly. Specifically, the rate of unemployment can be decomposed into the product of two components, the probability that an individual enters unemployment (the entry rate) and the average duration of an unemployment spell. If we denote the rate at which individuals enter unemployment at date t by $\lambda_{eu}(t)$ and the rate at which individuals leave unemployment at date t by $\lambda_{ue}(t)$ then we have

(1) $$du(t)/dt = (1-u(t)) \lambda_{eu}(t) - u(t) \lambda_{ue}(t).$$

The steady state fraction of weeks spent unemployed corresponding to the entry and exit rates at any given point in time satisfies

(2) $$u^*(t) = (1-u^*(t)) \lambda_{eu}(t)/\lambda_{ue}(t).$$

Since $1/\lambda_{ue}(t)$ is the average duration corresponding to the contemporaneous rate of exit

from unemployment and $(1-u^*(t))\,\lambda_{eu}$ is the expected number of spells of unemployment

per year at the current entry rate, equation (2) has a natural interpretation in terms of

entry and duration. Growth in the fraction of the year spent unemployed can be

decomposed into growth in the probability of becoming unemployed (entry) and the

average duration of unemployment spells.

In order to empirically implement this framework we use two identities that

correspond to equation (1) integrated over the year. That is:

(3) $\qquad\qquad\qquad U_1(t) - U_0(t) = (1-U(t))\,\lambda_{eu}(t) - U(t)\,\lambda_{ue}(t)$

where $U_1(t)$ is the unemployment rate (measured as a fraction of the population) at the

end of the year, $U_0(t)$ is the corresponding rate at the start of the year, and $U(t)$ is the

average unemployment rate over the year. With these definitions $\lambda_{eu}(t)$ and $\lambda_{ue}(t)$ are

weighted averages of the instantaneous transition probabilities.[7] The number of spells of

unemployment over the year is then

(4) $\qquad\qquad\qquad S(t) = U_0(t) + (1-U(t))\,\lambda_{eu}(t)$

since spells are generated by either starting the year unemployed -- $U_0(t)$ – or by

becoming unemployed during the year -- $(1-U(t))\,\lambda_{eu}(t)$. In order to estimate the entry

and exit parameters, we use the data from the CPS together with monthly data on

aggregate rates to interpolate the starting and ending numbers for each year. Solving

equations (3) and (4) gives our estimating equations as

(5a) $\lambda_{eu}(t) = (S(t) - U_0(t))/(1-U(t))$

 and

(5b) $\lambda_{ue}(t) = (S(t) - U_1(t))/U(t)$.

The resulting estimates are shown in Figure 5 and in the first two columns of

Table 3. As the figure and the corresponding columns in the table show, *the entire*

growth in unemployment over the 1967-2000 period is accounted for by an increase in

durations. The entry rate is actually lower in 1999-2000 than it was in 1967-69 while

durations have increased by over 50%. As the figure shows, the cyclical moves in

unemployment are driven by both rising durations and incidence with roughly equal

weights on each factor. This finding is in line with what we found in our previous

analysis – that the cyclical and trend components of changing unemployment rates were

very different. In fact, the contrast between what has happened to incidence and duration

is much more striking for the 1990s than it was in our earlier data. The 1990s show the

largest decline in incidence of any period, but the largest increase in duration.

The last two columns of Table 3 and Figure 6 show the corresponding rate on

entry and duration for non-employment. In the case of non-employment we do not have

access to data on the number of spells, so we are forced to use data on the incidence of

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[7] The weights in these weighted averages are $1-u(\tau)$ and $u(\tau)$ respectively where τ indexes weeks over the

non-employment over the year (i.e. the fraction of individuals with positive weeks of non-employment) to infer the entry rate.[8] Given this, the contrast between entry and duration is even more extreme. As with unemployment, the rate of entry to non-employment is actually *lower* in 1999-2000 than it was in 1967-69, but the durations of non-employment spells have more than doubled, reaching nearly 20 months by the end of the data.

Table 3 and Figures 5 and 6 paint a clear picture. While the rate of entry into unemployment and non-employment have returned to or even fallen below the levels seen during the late 1960s, the durations of jobless spells are much higher today than in the late 1960s. Indeed, durations are higher in 1999-2000 than at any previous cyclical peak. These should be troubling facts for those that associate the labor market of the late 1990s with "job instability." Rather than reflecting the increased rate of people *entering* unemployment, today's unemployment (and even more so non-employment) is more closely associated with long spells than ever before. People are less likely than ever to enter unemployment, but once there they are much less likely to leave. It should be clear from these data that the employment patterns of the late 1990s resemble the late 1960s only in terms of the overall rate of unemployment and the rates at which individuals enter joblessness. The durations of spells are very different are very much longer.

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year.
[8] The number of individuals that experience zero non-employment (i.e. are employed for the full year) is given by $Full(t) = E0(t) \exp(-12\lambda^*(t))$, where $\lambda^*(t)$ is the average monthly hazard over the twelve months for individuals that have not yet entered non-employment and $E0(t)$ is the employment rate at the start of the year. In general $\lambda^*(t) < \lambda(t)$, where $\lambda(t)$ is the average rate of transition to non-employment for the population of employed people (what we would have in the analog to equation (3)). This will cause our estimates of entry and exit rates to be biased down. We attempted to assess the magnitude and variability in this bias based on similar calculations for unemployment. In that case the bias varied little over time lending some confidence that this method should not be too far off.

Section III: Unemployment, Non-employment and Wages

In our previous analysis we found that the patterns of change in unemployment and non-employment varied significantly across groups defined by education and wage percentiles. Figures 7-9 and Table 4 summarizes our results based on wage percentile groupings for the 1967 to 2000 period. Figure 7 shows unemployment by percentile group, Figure 8 shows the corresponding data for OLF status and Figure 9 combines the unemployment and OLF to measure non-employment by group. These same data are summarized in Table 4 in terms of the changes in each of the rates between the 1967-69 and 1998-99, 1988-89 and 1999-2000 and the full period 1967-69 and 1999-2000.

As shown in the table and illustrated in the corresponding figures, unemployment rates and OLF rates increased most for low wage workers over the period as a whole and over the pre-1989 period in particular. Over the 1990s, OLF rates continued to rise for low-wage workers while unemployment rates declined sharply. Non-employment rates fell the most for low-wage workers over the 1989-89 to 1999-2000 interval but declined very little for other groups (and even rose somewhat at the median). Even with the decline in unemployment for low-wage workers in recent years, unemployment and non-employment increased the most among the low skilled groups over the 1967-69 to 1999-2000 period as a whole. In particular, non-employment rose by roughly 12 percentage points for the two lowest wage groups and only 1.5 percentage points for the highest 40% of the wage distribution. For workers near the median, unemployment was essentially unchanged over the period as a whole, but time out of the labor force rose by over 2 percentage points.

Figure 10 makes one final comparison of employment changes across wage groups. The figure compares three types of changes, the average change in and out of the 4 recessionary periods in our data (1970-71, 1975-76, 1982-83 and 1991-92)[9], the secular change between the cyclical peaks in 1967-69 and 1988-89 (corresponding to the period covered in our earlier paper) and the secular change over the more recent 1988-89 to 1999-2000 period. As the figure shows, the secular change over the earlier period was very skewed toward the low skilled groups relative to what we see over the business cycle. In fact, while the business cycle is somewhat biased against low skilled workers, this bias is very small relative to the secular bias seen in the earlier period. The secular movement over the more recent period is basically skill-neutral, with the exception that non-employment falls significantly for the least skilled.

So far, our discussion has focused on changes in unemployment and employment over time. Figure 11 and Table 5 illustrate what has happened to real wages for these percentile groups over our sample period. As illustrated in the figure and shown clearly in the table, many of the same patterns we saw with regard to employment and unemployment hold for real wages. Inequality in real wages grew significantly from 1970 to 1990 across the full range of the wage distribution. Since 1990, inequality has continued to increase at the top of the wage distribution, but inequality has held steady or contracted somewhat at the bottom: both low and middle-wage workers have experienced real wage increases from 1994 to 2000. These increases in real hourly wages represent the first significant growth in real wages for low to middle wage males since the early 1970s.

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[9] We measure this by the average of the change going into and out of each recessionary period. The periods are defined using the same year groupings used in the tables, 1967-69, 1970-71, 1972-73, 1975-76,

Interestingly, the growth in real wages for low-wage workers in the late 1990s fits very well with what we saw above in terms of unemployment and non-employment. Over the 1990s, employment levels increased for low-wage workers for the first time in several decades. In the next section we attempt to link the changes in wages and employment that we observe in order to see how well the changes in wages explain the observed changes in employment.

Section IV: Supply and Demand

At a general level, Figures 7 and 9 on the evolution of unemployment and non-employment by wage percentile and Figure 11 on the evolution of real wages for these same groups bear a striking resemblance. In both cases, low-wage workers fared far worse than their middle and high wage counterparts for much of the sample period, and in both cases the divergence stops (after roughly 1983 in the case of employment and after roughly 1989 in the case of wages. However, for OLF status the divergence continues through the end of our data (see Figure 8). Thus low wage workers continued to move out of the labor force even though labor market conditions stopped deteriorating after 1990 and actually began improving after 1995. The demand-driven explanation we stressed in our earlier paper – that individuals respond to changing real wage opportunities – can help to explain the shift from unemployment to employment, an explanation of the growth of OLF status requires a force operating on the supply side. In this section, we look at both supply and demand factors and ask how much each contributed to post-1989 changes in employment and unemployment for the less skilled.

1978-79, 1982-83, 1988-89, 1991-92, and 1999-2000.

While changes in real wages represent one of the major factors behind the changes in employment and unemployment, we can gain insight into both the supply and demand factors by examining the reasons individuals give for being out of work. The data are shown in Table 6 and Figures 12-13. The figures show the evolution of OLF status (Figure 13) and non-employment (figure 14). In each figure, we divide the change in non-employment into the change in unemployed and OLF time and by three reasons: no work (corresponding to looking for work or discouraged worker status), Ill (not working due to physical limitation on the ability to work) and other. In Table 6 we examine the data underlying the figures by looking at changes over two time periods, the full sample period 1967-69 to 1999-2000 and the period of the 1990s expansion, 1988-89 to 1999-2000. The changes for the full period are shown in the top panel. The changes for the recent period are given in the bottom panel.

As can be seen from the top panel, the overall growth in non-employment of 4.6 percentage points breaks out roughly evenly among no work, ill, and the residual category (other). The vast bulk of this (3.8 points) comes from the growth in time spent out of the labor force, with those that cannot find work and those that report themselves as being ill (disabled) each accounting for about 40 percent of the growth in OLF weeks. Interestingly, the growth in non-employment for those that state the inability to find work as their reason for not working shows up in the OLF category rather than the unemployment category. This reflects the fact that the growth in unemployment over

time is not associated with an increased number of individuals moving between jobs but instead is characterized by an increasing number of individuals that have been out of work for prolonged periods of time (many of whom have given up looking for work). Many have been out of work so long that they no longer classify themselves as being unemployed.

The changes over the recent period, 1988-89 to 1999-2000, are interesting in that the total change in non-employment of –0.1% masks a substantial change in composition. As we noticed in section II above, the fall in unemployment of roughly 1.3 points is offset almost entirely by the growth in time spent OLF. Along the reason dimension things are equally interesting. The number of individuals who report that they cannot find work fell by 1.7 percentage points over this period but is offset by increases of 0.7 points and 0.9 points in the "ill" and "other" categories. Thus it appears that on net between the late 1980s and 1999-2000 individuals transited from unemployment to OLF, rather than to employment, in spite of the extremely strong economy.

Our reading of the evidence is that the fall in employment and the rise in time spent out of the labor force is driven by two forces. On the demand side, falling real wages over the 1970s and 1980s for low-wage workers reduced the returns to work and increased both unemployment and OLF time for these groups. Over the 1990s, the fall in wages subsided and even reversed itself somewhat. This caused the fall in employment and the rise in unemployment to stop, and even to reverse. At the same time, supply-side changes like the liberalization of disability benefits pulled some of these individuals in the opposite direction – toward OLF status. Interestingly then, the rapid fall in unemployment for the low skilled in the 1990s reflects two things, a strengthening job

market (though at low levels of the real wage) and growing opportunities to choose non-participation. With plentiful jobs at low wages there is little reason to be unemployed. However, at the same time, with low wages in the job market and relatively attractive opportunities outside, there is little reason to be looking for work. The low unemployment rates of the late 1990s reflect the two contradictory phenomena.

Section V: Conclusions

We have shown four things. First, the fall in measured unemployment that is often used to characterize the labor market of the 1990s is a very misleading statistic. Measured between the business cycle peak in 1988-89 and the peak in 1999-2000, employment rates for prime-aged males remained essentially unchanged even through the fall in unemployment for this group equaled the decline in unemployment generally. By simple arithmetic this tells us that, on net, the entire fall in unemployment is accounted for by individuals who left the labor force. Why did they leave? In our view, this movement out of the labor force reflects two phenomena, both of which have reduced unemployment. On the one hand the returns to work for less skilled males have improved modestly and, most importantly, have not continued the steep and sustained decline that characterized the prior two decades. On the other hand large numbers of workers have left the labor force in response to (a) the low level of wages offered to less skilled workers in today's labor market, which reduce the return to maintaining labor force attachment, and (b) a growth in the attractiveness of non-market options, in particular disability. While we have no direct measure of the attractiveness of disability payments, the continued increase in individuals stating disability as their primary reason

for not working, and the work of others (Bound and Waidmann (2000) and Autor and Duggan (2001)) suggest that disability is an important part of the story.

Second, the long-term growth in joblessness is associated with a pronounced increase in the duration of unemployment and non-employment spells. If anything, rates of entry into unemployment and non-employment (unemployment and OLF together) are lower now than they were in the late 1960s. However, the duration of unemployment spells in 1999-2000 is roughly vastly higher than in the late 1960s, and also higher than at business cycle peaks during the 1970s and 1980s. Thus while the overall level of unemployment is comparable today to what it was 30 years ago, the mix between duration and incidence is decidedly different. Looking closer, the duration of non-employment spells has increased even more than the duration of unemployment spells. Non-employment spells in 1999-2000 were roughly twice as long as they were in 1967-69. All of the long-term increase in non-employment is the result of increased duration.

Third, the concentration of unemployment and non-employment among the less skilled has continued, and may have improved somewhat during the 1990s. The time series on employment levels follows the changes observed for real wages. Real wages for low skilled workers stabilized and actually rebounded slightly. Inequality between males at the bottom of the wage distribution and men at the median contracted somewhat over the decade, reversing the long trend toward greater wage inequality.

Finally, the decline in unemployment for low skilled men we have seen in recent years has reflected largely the movement of these men out of the labor market rather than into employment. We identify two major explanations for this. First, real wages for these men remain low by historical standards, making work a relatively unattractive

option. Second, the attractiveness of non-market opportunities such as disability has increased. With relatively low returns to work and relatively attractive non-market opportunities, many of these men do not find it attractive to look for work. This is a relatively grim assessment of the low unemployment rates of the recent past, and of the implications of those rates for the state of the labor market. But we think it is an accurate one.
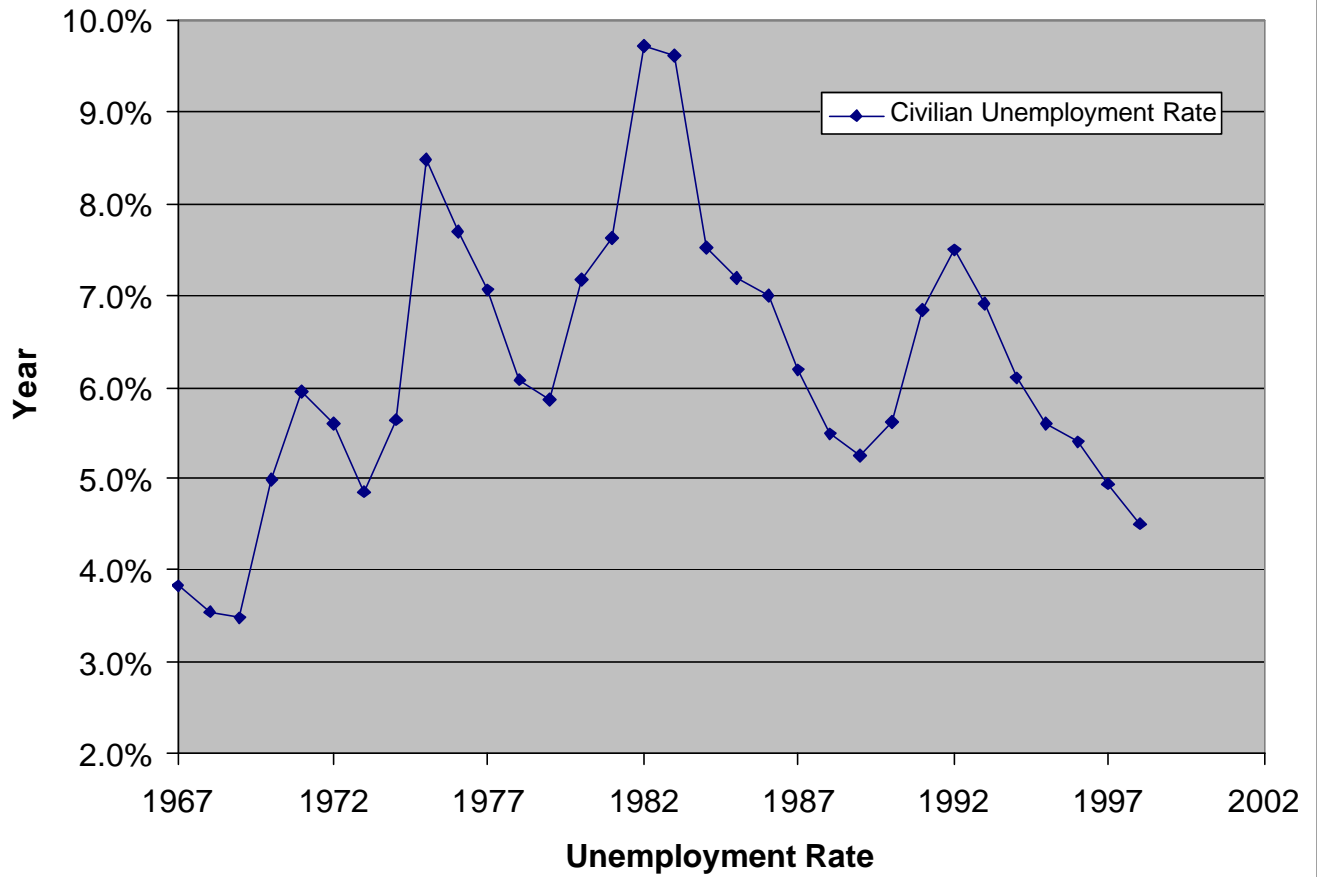
Figure 1. Civilian Unemployment Rate 1967-2000

Figure 2. CPS Male and Aggregate Unemployment Rates 1967-2000
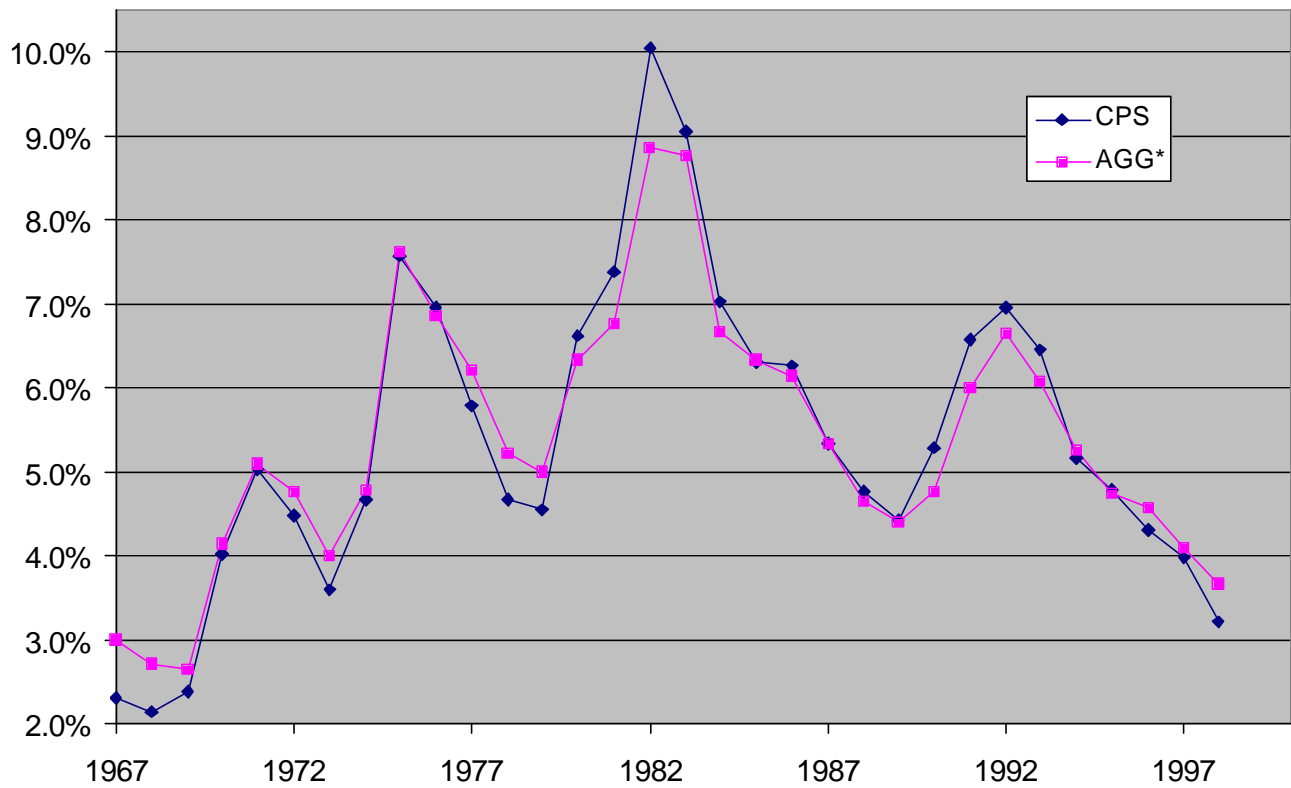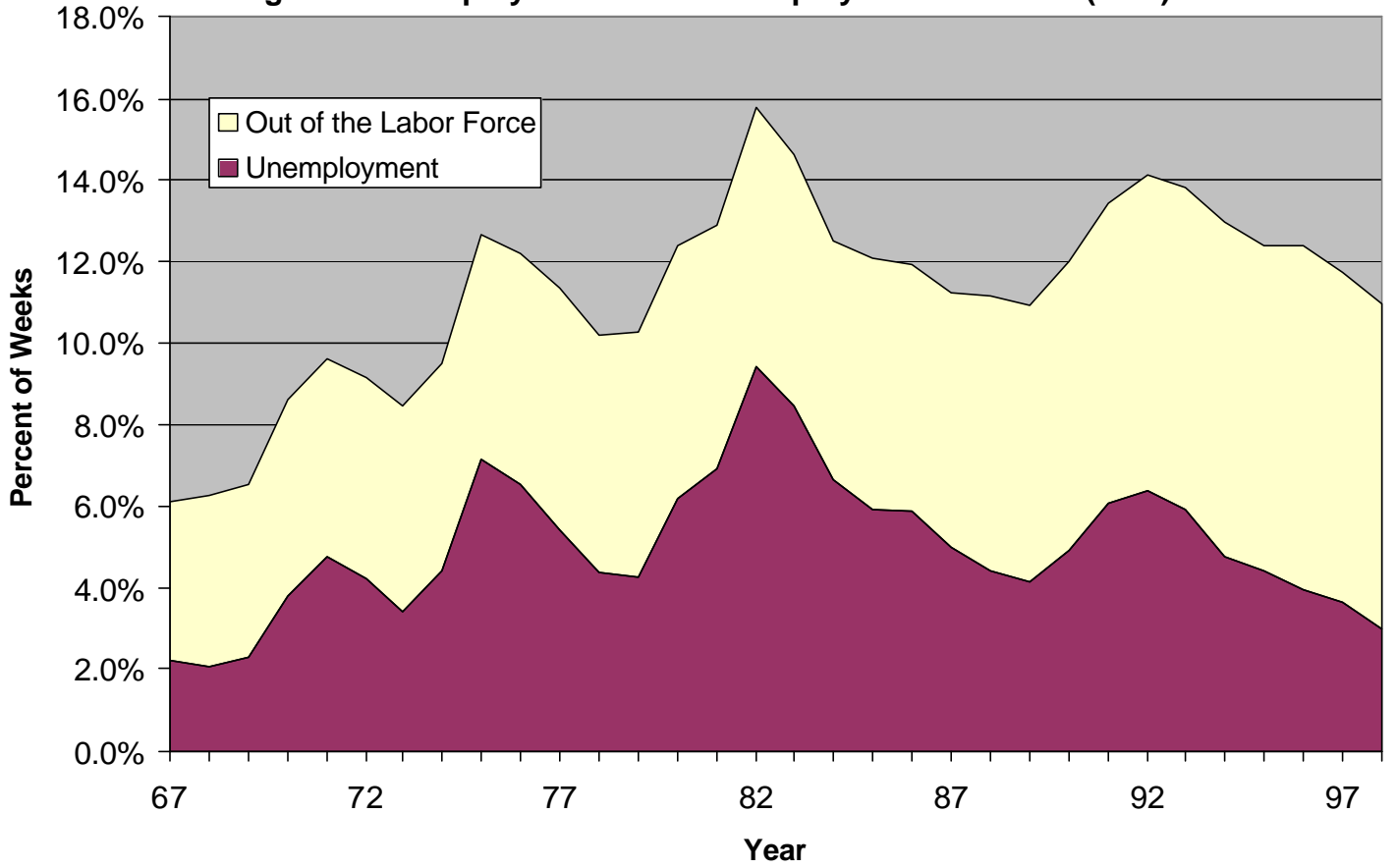
Figure 3. Unemployment and Non-employment for Males (CPS)

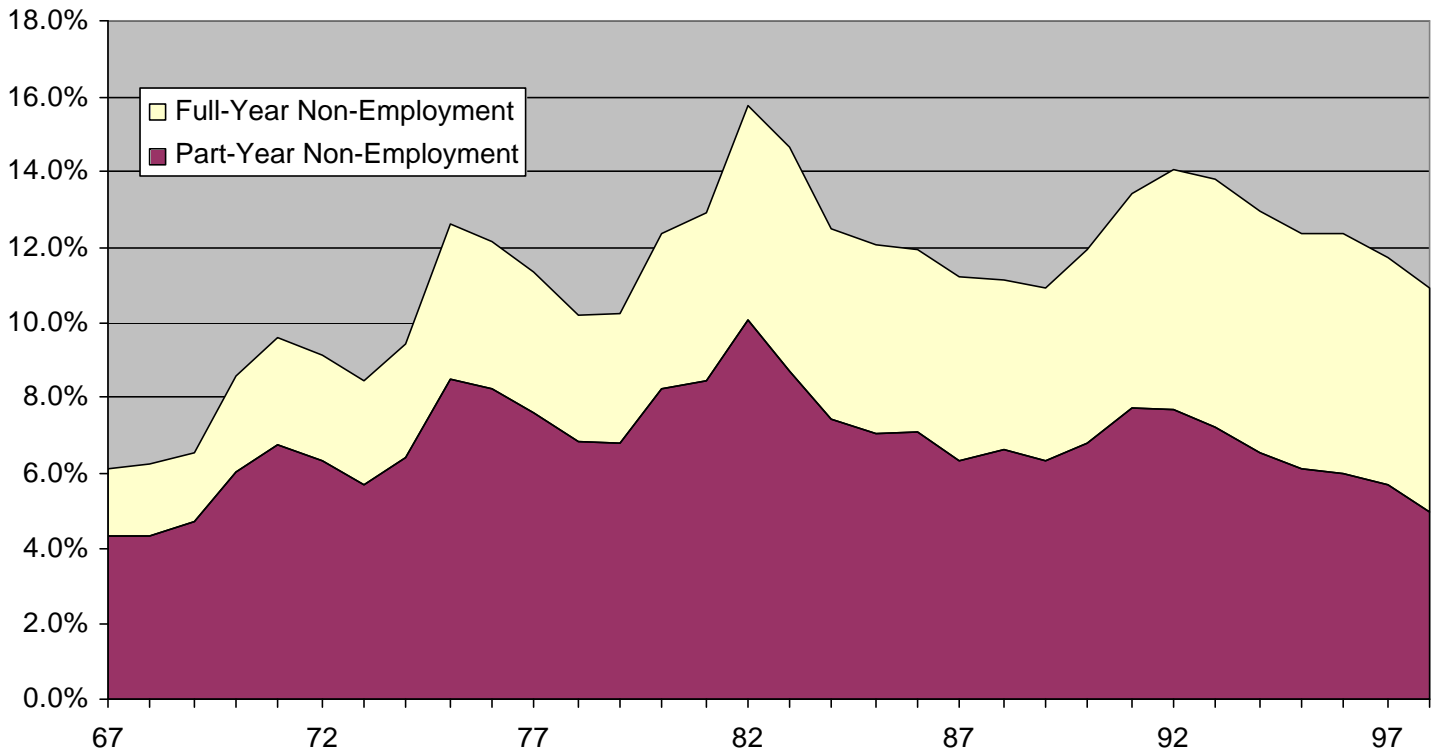Figure 4. Non-Employment - Full and Part Year 1967-2000

Table 1. Unemployment, OLF and Non-employment 1967-2000

Years	Period	Unemp.	OLF	Non-Emp.	Unemp. Change	OLF Change
1967-69	Peak	2.2%	4.1%	6.3%		
1971-72	Trough	4.5%	4.9%	9.4%	2.3%	0.8%
1972-73	Peak	3.8%	5.0%	8.8%	-0.7%	0.1%
1975-76	Trough	6.9%	5.6%	12.4%	3.0%	0.6%
1978-79	Peak	4.3%	5.9%	10.2%	-2.5%	0.3%
1982-83	Trough	9.0%	6.3%	15.2%	4.6%	0.4%
1988-89	Peak	4.3%	6.7%	11.0%	-4.7%	0.5%
1991-92	Trough	6.3%	7.5%	13.8%	2.0%	0.8%
1999-00	Peak	3.0%	8.0%	11.0%	-3.3%	0.5%

Table 2. Non-Employment - Full and Part Year 1967-2000

Years	Peak/Trough	Part Year	Full Year	Total
1967-69	Peak	4.5%	1.8%	6.3%
1971-72	Trough	6.5%	2.9%	9.4%
1972-73	Peak	6.0%	2.8%	8.8%
1975-76	Trough	8.4%	4.1%	12.4%
1978-79	Peak	6.8%	3.4%	10.2%
1982-83	Trough	9.4%	5.8%	15.2%
1988-89	Peak	6.5%	4.6%	11.0%
1991-92	Trough	7.7%	6.0%	13.8%
1999-00	Peak	5.0%	6.0%	11.0%

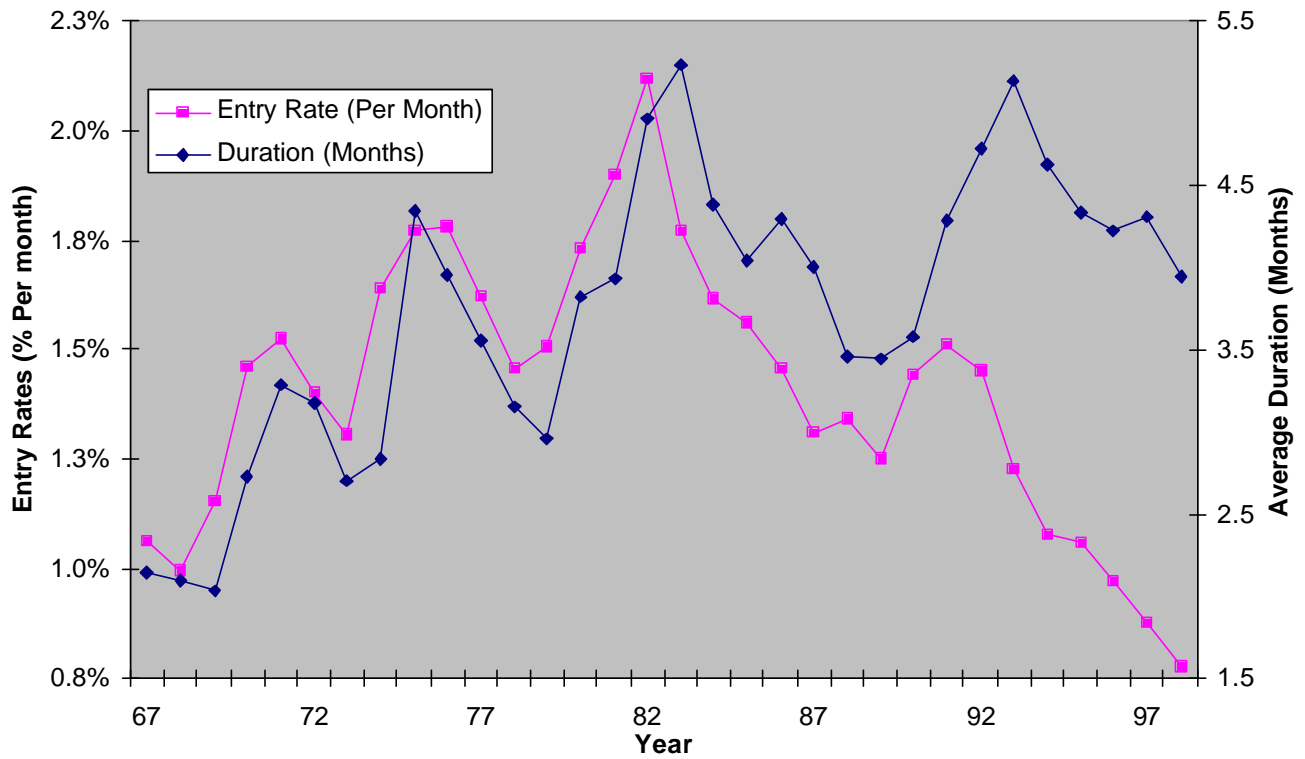**Figure 5. Entry Rates and Durations for Unemployment 1967-2000**

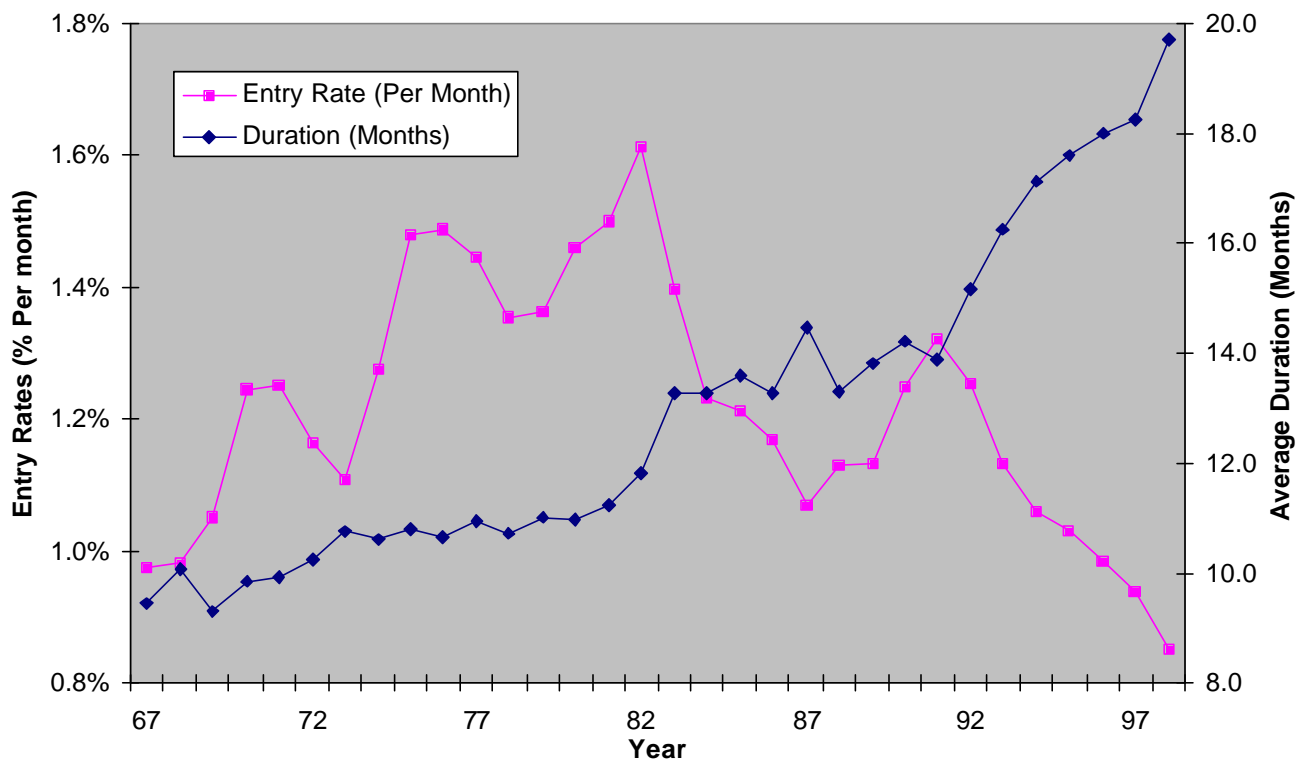**Figure 6. Entry Rates and Durations for Non-Employment 1967-2000**

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Table 3. Entry Rates and Duration for Unemployment and Non-Employment 1967-2000

Years	Period	Unemployment		Non-Employment	
		Entry	Duration	Entry	Duration
		(per month)	(months)	(per month)	(months)
1967-69	Peak	1.1%	2.1	1.0%	9.6
1971-72	Trough	1.5%	3.2	1.2%	10.1
1972-73	Peak	1.4%	2.9	1.1%	10.5
1975-76	Trough	1.8%	4.1	1.5%	10.7
1978-79	Peak	1.5%	3.1	1.4%	10.9
1982-83	Trough	1.9%	5.1	1.5%	12.5
1988-89	Peak	1.3%	3.5	1.1%	13.6
1991-92	Trough	1.5%	4.5	1.3%	14.5
1999-00	Peak	0.8%	3.9	0.9%	19.7

Figure 7. Unemployment Rates by Wage Percentile Groups 1967-2000
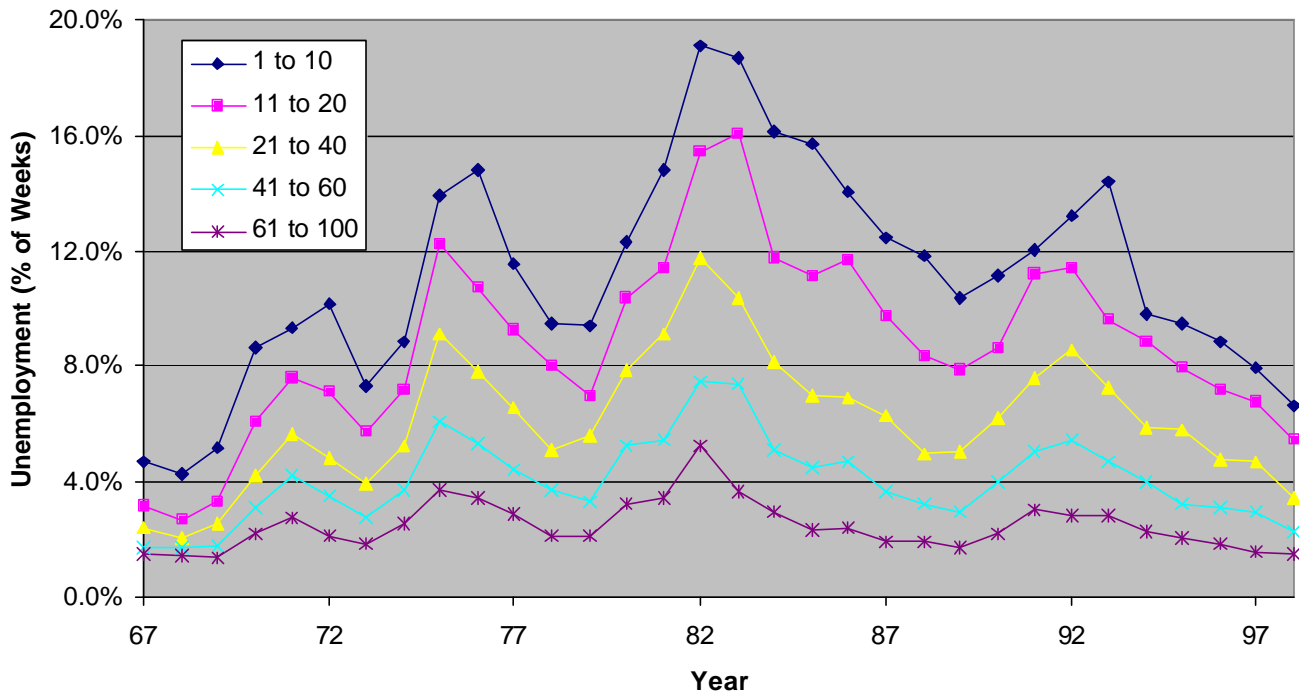
Figure 8. OLF Rates by Wage Percentile Groups 1967-2000
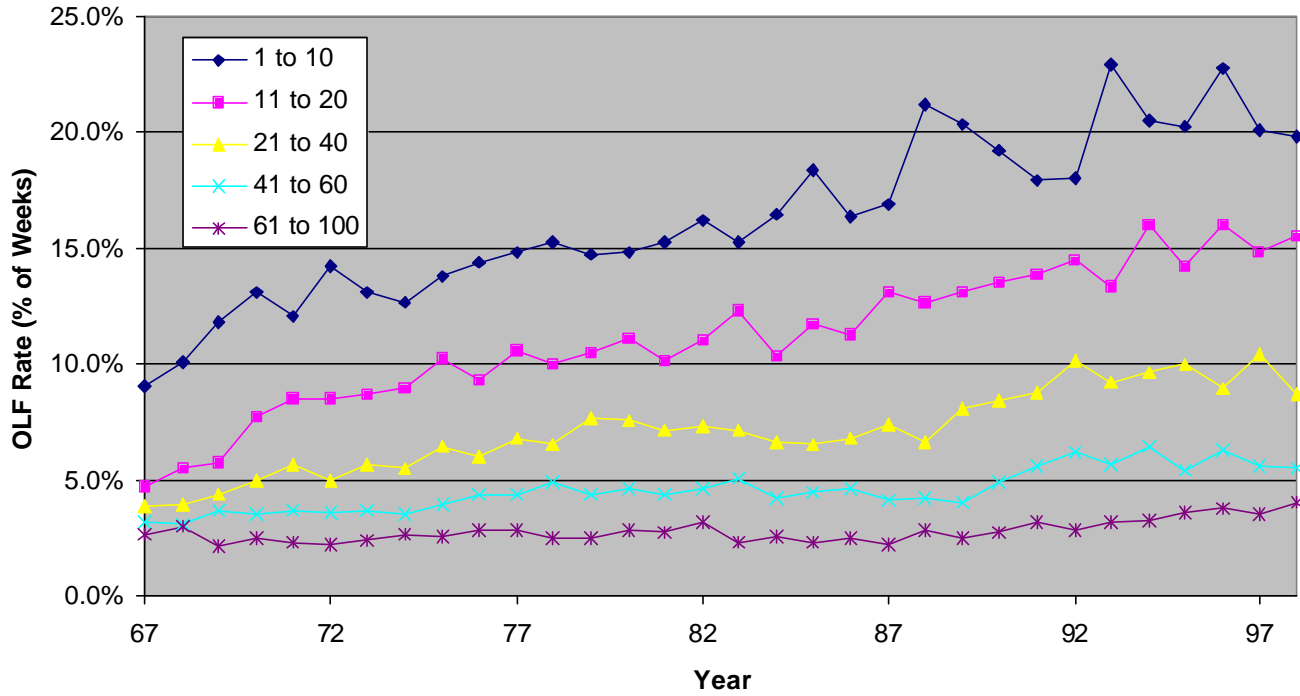

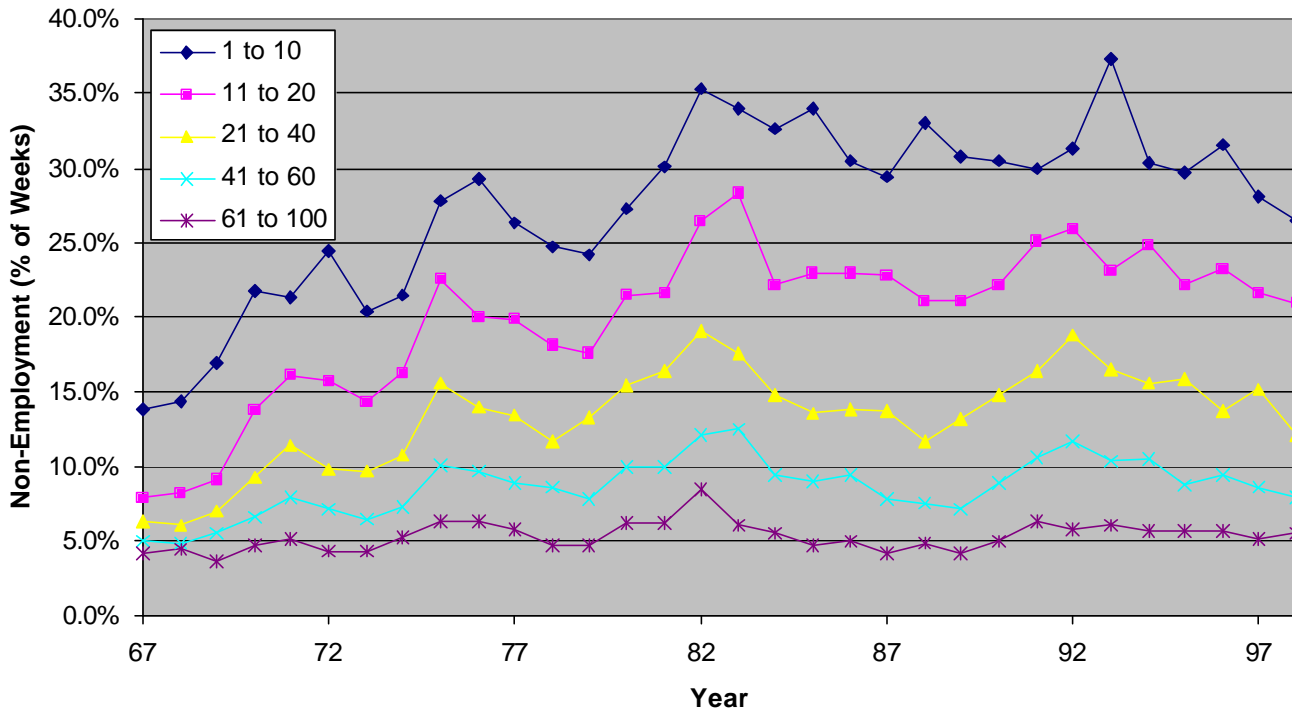
Figure 9. Non-Employment by Wage Percentile Groups 1967-2000

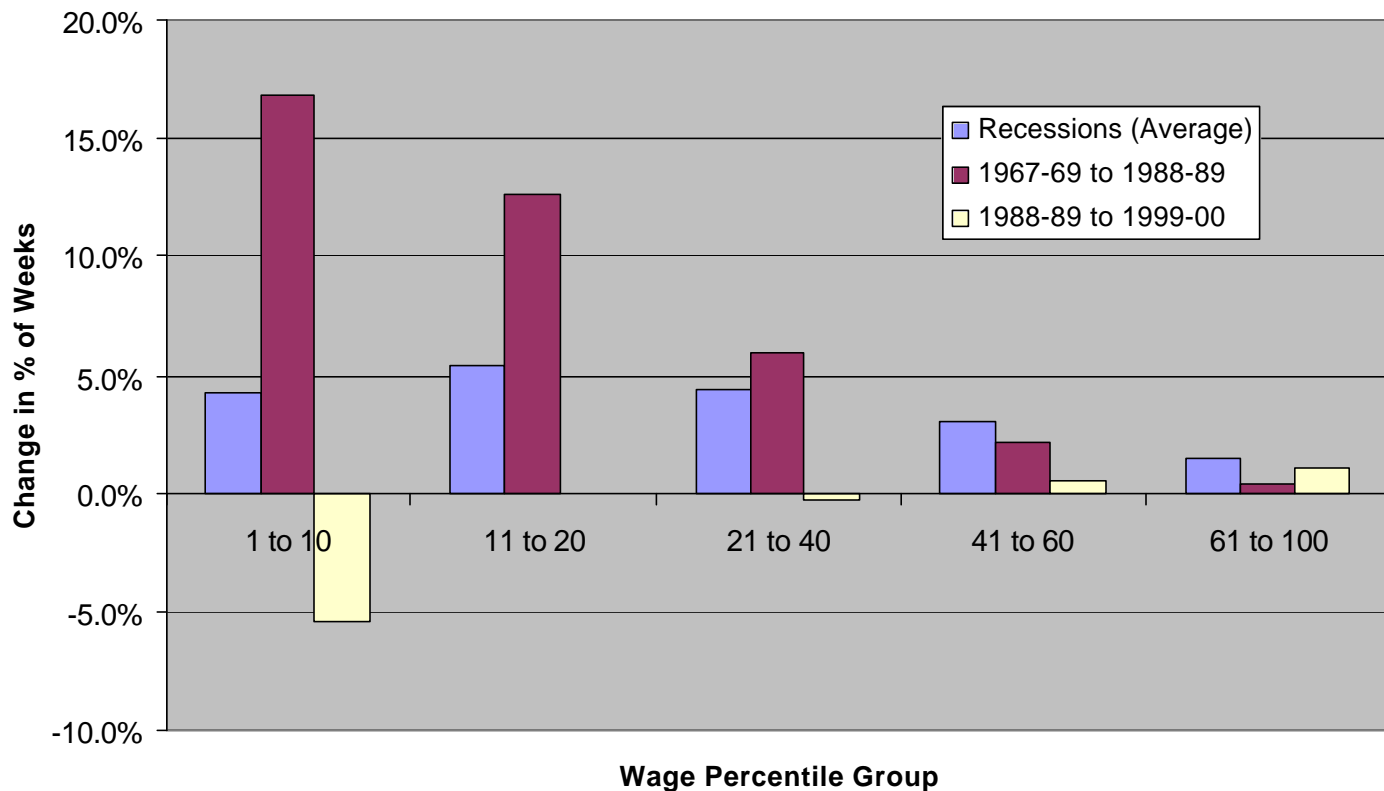**Figure 10. Cyclical and Secular Changes in Non-Employment**
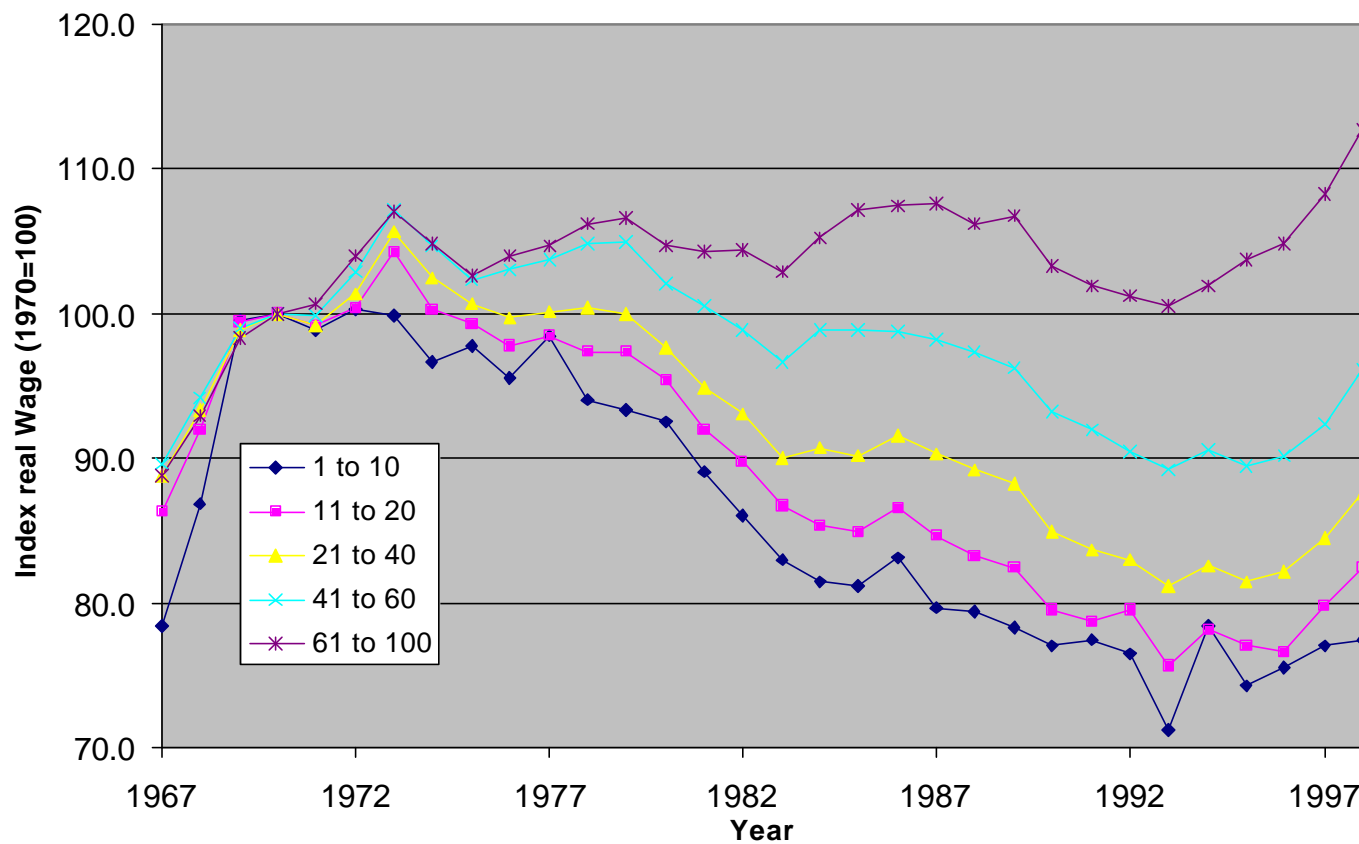

Figure 11. Indexed Real Wages by Percentile Group 1967-2000

Table 4. Changes in Employment & Unemployment by Percentile

Unemployment Rate Changes by Percentile Group 1967-2000

		Percentile Group				
Start	End	1 to 10	11 to 20	21 to 40	41 to 60	61 to 100
1967-69 to 1988-89		6.4%	5.1%	2.7%	1.4%	0.4%
1988-89 to 1999-00		-4.5%	-2.7%	-1.6%	-0.8%	-0.3%
1967-69 to 1999-00		1.9%	2.4%	1.1%	0.6%	0.0%

OLF Rate Changes by Percentile Group 1967-2000

Start	End	1 to 10	11 to 20	21 to 40	41 to 60	61 to 100
1967-69 to 1988-89		10.4%	7.6%	3.3%	0.8%	0.1%
1988-89 to 1999-00		-0.9%	2.6%	1.3%	1.4%	1.4%
1967-69 to 1999-00		9.5%	10.2%	4.6%	2.2%	1.4%

Non-Employment Rate Changes by Percentile Group 1967-2000

Start	End	1 to 10	11 to 20	21 to 40	41 to 60	61 to 100
1967-69 to 1988-89		16.8%	12.6%	6.0%	2.2%	0.4%
1988-89 to 1999-00		-5.4%	-0.1%	-0.3%	0.6%	1.0%
1967-69 to 1999-00		11.4%	12.6%	5.7%	2.8%	1.5%

Full Year Non-Employment Changes by Percentile Group 1967-2000

Start	End	1 to 10	11 to 20	21 to 40	41 to 60	61 to 100
1967-69 to 1988-89		10.0%	6.7%	3.2%	1.2%	0.5%
1988-89 to 1999-00		0.1%	3.0%	1.4%	1.6%	1.3%
1967-69 to 1999-00		10.1%	9.7%	4.5%	2.8%	1.8%

Table 5. Real Wage Changes by Percentile Group 1967-2000

Starting Period		Ending Period	Percentile Group				
			1 to 10	11 to 20	21 to 40	41 to 60	61 to 100
1967-69	to	1988-89	-23.7%	-18.8%	-12.0%	-3.2%	6.3%
1988-89	to	1994-95	-3.3%	-6.5%	-7.8%	-7.3%	-3.5%
1994-95	to	1999-00	5.0%	7.4%	6.8%	6.6%	12.2%
1988-89	to	1999-00	1.7%	0.8%	-1.0%	-0.7%	8.7%
1967-69	to	1999-00	-18.7%	-11.5%	-5.2%	3.4%	18.5%

Table 6. Changes in Nonemployment by Reason

Changes 1967-69 to 1999-2000

Statistic	Reason For Non-Employment			
	No Work	ILL	Other	Total
OLF	1.5%	1.6%	0.7%	3.8%
Unemployment	-0.1%	0.0%	0.9%	0.8%
Total	1.4%	1.6%	1.6%	4.6%

Changes 1988-89 to 1999-2000

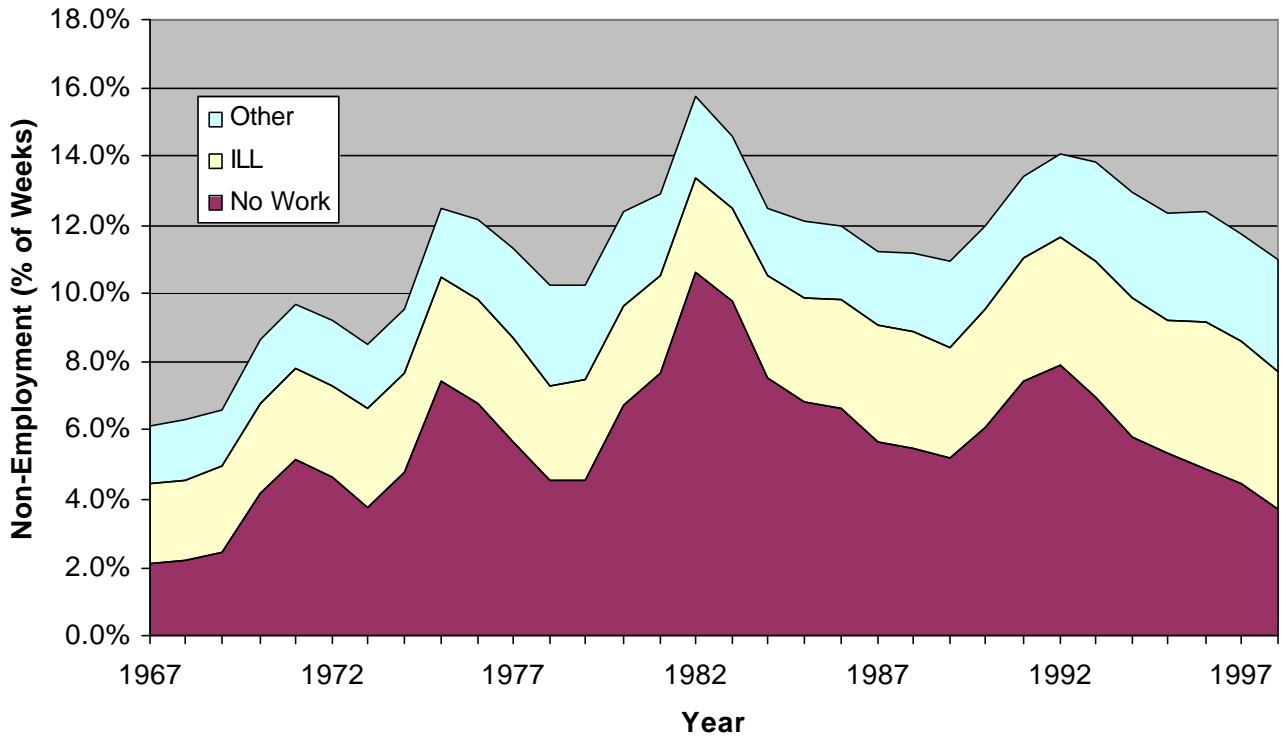| Statistic	Reason For Non-Employment			
	No Work	ILL	Other	Total
OLF	0.8%	0.8%	-0.3%	1.3%
Unemployment	-2.5%	0.0%	1.2%	-1.3%
Total	-1.7%	0.7%	0.9%	-0.1%

Figure 12. Non-Employment by Reason 1967-2000

Figure 13. OLF by Reason 1967-2000