Federal Reserve Bank of Chicago

Not Working: Demographic Changes, Policy Changes, and the Distribution of Weeks (Not) Worked

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Abstract

From 1978 to 2000 the fraction of adult men in full-year non-employment increased from 17.1 to 21.6 percent. Previous research focused on the role of disability insurance policy and wage structure changes to explain this increase. Using Current Population Surveys from 1979 to 2003 we assess how much of the changes in full-year non-employment can be explained by demographic changes, possibly linked to health. With our empirical strategy we examine how 1978 to 2000 changes in demographic characteristics would have changed the distribution of weeks worked if policies and macroeconomic conditions remained as they were in 1978. For prime-aged men, we find changes in age, race, and ethnicity can "explain" 14 to 33 percent of the increase in full-year non-employment, without any change in policy or wage structure. For prime-aged women, changes in demographics also would have predicted increases in full-year non-employment, when in fact we saw dramatic decreases.

I. Introduction

The decrease in men's labor market participation over the last two decades has garnered much attention among researchers and policy makers (see for example, Autor and Duggan (2003) and Juhn, Murphy and Topel (2002)). The reason for this attention is several-fold. From a microeconomic perspective, researchers are interested in understanding how individuals respond to changes in policy. From a macroeconomic perspective, significant changes in the fraction of the population that participates in the labor force make it more difficult to compare unemployment rates across time periods and thus infer information about the strength of the economy.

Recent work has focussed on changes in disability insurance eligibility criteria, other public policies, and wages for low-skilled workers as potential explanations for increases in men's nonparticipation in the labor force. Surprisingly little attention has been paid to demographic change as a potential driver of the increase in nonparticipation.[1] In particular, we know that baby boomers have grown older and that there have been increases in the share of the population that is African American or Hispanic. It is possible that these demographic changes may have increased nonparticipation even in the absence of changes in policy or labor market returns because these populations have, on average, worse health outcomes than young and/or white populations. Additionally, most of the focus in this literature has been on men, because it is their labor market participation that has been declining. Women's labor force participation has been increasing over the same period, raising important questions about whether demographic changes and changes in policies governing disability eligibility may have affected them differently.

In this paper we use the March Current Population Surveys from 1979 to 2003 to examine changes in the distribution of weeks worked per year for both men and women. We adapt techniques from DiNardo, Fortin, and Lemieux (1996) to examine questions such as: how would the demographic changes that occurred between 1978 and 2000 have changed the distribution of weeks worked if policies had remained as they were in 1978?[2] Here we focus on reported weeks worked, and in particular on individuals who report not working for the full year. We use actual work behavior as the outcome of interest as it seems more important than self-defined out-of-labor force status or reported disability status. For prime-aged men, we find that the changes in age, race, and ethnicity that occurred over this time period can "explain" 14 to 33 percent of the observed increase in full-year non-employment, without any change in disability insurance eligibility criteria or wages for low-skilled workers. For women, the observed changes in age, race, and ethnicity also would have led us to expect an increase in full-year non-employment, when in fact we saw dramatic decreases in non-employment.

Section II describes our data. Section III provides an overview of explanations for the increase in men not working. Section IV describes our empirical strategy and presents our results. Section V concludes.

II. Data

[1] Duggan and Imberman (2004) is a recent exception.

[2] We use 1979 through 2003 March CPS data throughout the analysis. The employment information corresponds to the previous year, thus 1978 to 2002. The demographic data (as well as some other information) corresponds to the survey year. However, for simplicity we refer to all data as coming from the year prior to the survey year, *i.e.*, the year corresponding to the employment information.

We use the March Current Population Surveys from 1979 to 2003 to examine changes in weeks worked over time.[3] Questions about the labor market refer to the previous year. Our sample excludes people who may have not worked because of military service and those living in group-quarters. We examine weeks worked for men and women, aged 18 and over, but focus on those 30 to 50 years old. These are typically described as prime-aged workers, for whom changes over time in the likelihood of attending school and retirement behavior should not be driving their decisions about whether or not to work.

The number of weeks of non-employment is defined as 52 minus the number of weeks the individual reports working in the previous year. The number of weeks of nonparticipation is defined as 52 minus weeks worked last year and weeks spent looking for work or on layoff. Weeks unemployed is defined as weeks looking for work or on layoff. [4] Percent of the year spent unemployed, out of the labor force, or non-employed is simply number of weeks spent in a given state, divided by 52.

Figures 1a, 1b, 2a, and 2b show the percent of year spent in unemployment, non-employment, and nonparticipation, and percent of individuals reporting full-year non-employment, for men aged 18 and over, women aged 18 and over, men aged 30 to 50, and women aged 30 to 50, respectively, from 1978 to 2003. Percent of the year spent in unemployment, non-employment and non-participation correspond to the measures of labor market (in)activity presented in Juhn, Murphy and Topel (2002) and percent of individuals reporting full-year non-employment corresponds to the measure we examine in detail below. Note that all of these measures show similar patterns. Figure 1a shows

[3] We use the CPS data available through Unicon.

the pattern for men noted by Juhn, Murphy, and Topel (2002), namely, nonparticipation among men increased over the period. While unemployment rates were low by historical standards in the late 1990s, measures of not working—percent of year not participating, percent of year not employed, and percent of men with 52 weeks of non-employment—were all higher than in previous periods. Figure 1b presents the same information for men aged 30 to 50. Again, while the percent of the year spent unemployed reaches historically low levels in the late 1990s, percent of the year spent in non-employment is no lower than it was in the late 1970s, and percent of year not participating and percent of men with full-year non-employment reach historically high levels in the late 1990s and early 2000s.

Figures 2a and 2b show these statistics for women aged 18 and over and women aged 30 to 50, respectively. Similar to men, women spent a very small percent of the year unemployed in the late 1990s. In contrast to men, however, all of the measures of non-employment show a dramatic decrease over the period, with a small increase in the most recent recession.

These figures suggest that some men have shifted from unemployment into non-participation in the labor market. The potential reasons for this shift are many, including changes in health that make work more difficult, increased participation in transfer programs that preclude work, and low demand for low-skilled workers that made job search less productive. Similar results presented by Juhn, Murphy, and Topel (2002) lead them to question whether the low unemployment rate during the 1990s really implied a robust labor market.

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[4] In the CPS weeks looking for work or on layoff applies to part-year workers. There is a separate question about weeks looking for work for nonworkers. We combine these to measure unemployment for everyone.

In contrast, women have shifted from nonparticipation into employment. The reasons for this change are similarly complicated although driven by different segments of the population. From 1978 to 2000 declines in labor force participation rates for men have been primarily concentrated among lower-skilled men as measured by level of completed education (See Anderson, Barrow, and Butcher 2004). Over this same period, labor force participation rates were increasing for women with at least a high school diploma and staying relatively constant among the women with less than a high school diploma.

III. Why Are Men Not Working?

Why are men, even prime-aged men, more likely to be in full-year non-employment now than in the past? In addressing this question, researchers have focussed on changes over time in disability insurance criteria and other policies affecting the disabled, as well as changes in the labor market, particularly the labor market for less-skilled workers, that may have led some workers to leave the labor force. Below, we discuss three potential drivers of this trend. In addition to changes in disability policies and labor market structure, we consider how demographic changes may have contributed to trends in non-employment.

A. Changes in Policies Affecting the Disabled : 1979 to 2003[5]

Disability insurance (DI) began with legislation signed by President Eisenhower in 1956. At the signing, Eisenhower clearly stated that DI was intended to increase

[5] We draw on detailed descriptions in Stapleton et al. (1998), Social Security Administration (2001), and The Green Book (2000) for the following discussion.

economic security and "…to help rehabilitate the disabled so that they may return to useful employment…." During the 1970s, growth in DI enrollment and the recognition that few disabled people were ever leaving DI led Congress to enact legislation tightening eligibility requirements. Amendments to the Social Security Act between 1980 and 1981 introduced new work incentives for DI and SSI and required the Social Security Administration to tighten the way it adjudicated cases. The legislation limited the DI benefit level, required more careful screening of initial DI applicants, and required periodic review of participants' continuing disability status. To some extent, the 1980-1981 changes codified earlier administrative practices aimed at curbing the growth in DI receipt. However, the increased reliance on "continuous disability reviews" from 1982-1983 led to many people loosing their benefits. For example, termination rates (for medical reasons) per 1,000 beneficiaries reached a peak of 62 in 1982 compared to more typical rates of 5 to 25 per 1,000 beneficiaries (Autor and Duggan 2002). This led to a backlash against the tightening of eligibility requirements.

In response, 1984 legislation led instead to an expansion of the DI program. A moratorium was placed on continuing disability reviews. Impairment criteria reduced the importance of diagnostic or medical factors, with more weight given to functional factors such as the individual's limitations with respect to the activities of daily living. Further, "source evidence" from the individual's own physician had to be considered first, instead of relying heavily on the SSA consultative examination. Additionally, reviewers were allowed to consider the combined effect of multiple impairments in determining disability status. Thus, while an individual might not have any single impairment that would qualify her as disabled, she might qualify as disabled based on her group of

afflictions. Finally, benefits could no longer be terminated without proof of substantial medical improvements.

Changes in the laws governing disability insurance between 1984 and 1996 were relatively minor. However, some changes affected how the programs were administered. For example, in 1989, Congress mandated more SSI outreach. Court challenges have had a further effect. For example, the Sullivan vs. Zebley Supreme Court case increased the supply of benefits to children with mental disorders. Many speculate that this may have had spillovers to adults with mental impairments. Finally, downsizing at SSA in the early 1990s meant that there was less ability to review cases, and many believe that the adjudicative environment shifted in favor of making awards.

Eligibility standards were tightened somewhat in 1996. The Contract with America Advancement Act of 1996 excluded from eligibility persons whose drug or alcohol addiction was a primary factor in their disability, and it increased funding for reviews of the continuing disabled. Additionally, the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 excluded many non-citizens from eligibility. The next major DI legislation occurred at the end of the Clinton administration with the introduction of the Ticket to Work and Work Incentives Improvement Act of 1999 which aimed to increase the incentives for the disabled to work.

To the extent that these legislative changes have bite, we would expect to see changes in disability rolls and corresponding changes in full-time, full-year non-employment due to the loosening and expanding of eligibility requirements as described above. Changes in disability insurance applications, award rates, and beneficiaries are shown in figure 3. The shaded portions mark the NBER recession years. The tightening

of DI rules in the early 1980s coincides with a decline in applications, awards, and worker beneficiaries as a share of the number of insured workers. In general, applications increase in recessions. Since the early 1980s, awards have increased from a low of about 3 per 1000 insured workers to the current high of nearly 6 per 1000 insured workers. The increase in award rates (a flow) has lead to a large increase in the number of disabled worker beneficiaries (a stock). This has increased from a low of about 25 beneficiaries per 1000 insured workers in the early 1980s to a high of about 41 beneficiaries per 1000 insured workers in 2003.

Recent research has examined the link between the rise in the disability insurance rolls and labor force status. Autor and Duggan (2003) find that the loosening of eligibility criteria in the 1980s and the increase in wage inequality (which had the effect of gradually raising the replacement rate of disability insurance) led to an increased propensity for high school dropouts to exit the labor force. According to their estimates, this may account for a one-half percentage point decline in the measured U.S. unemployment rate.

Bound and Waidmann (1992) examine the impact of disability transfers on labor force participation of older men. As an upper bound, they find that roughly one-half and one-third of the drop in labor force participation for 45 to 54 and 55 to 64-year-old men, respectively, can be linked to disability transfer programs. In a more recent paper, Bound and Waidmann (2002) find that *among the disabled*, growth in disability insurance receipt can account for most of the decrease in employment during the 1990s.

Other policy changes in the early 1990s may have changed the opportunities for disabled people to work. The Americans with Disabilities Act of 1990 required

employers to make reasonable accommodations for workers with disabilities. This requirement took effect for employers with 25 or more employees in July of 1992 and was extended to all employers of 15 or more employees in July of 1994 (Burkhauser and Daly (1996)). The intent of the law was to increase the ability of the disabled to find work; however, some researchers have found that the Act had the unintended consequence of reducing work opportunities for the disabled (DeLeire (2000a, 2000b) and Acemoglu and Angrist (2001)). Employers may have become more reluctant to hire disabled workers because they are now required to accommodate them in potentially expensive ways. The researchers argue that this decrease in demand for disabled workers contributed to their labor force withdrawal and an increase in the disability insurance rolls. If the ADA reduced work opportunities for the disabled, it may have correspondingly increased DI take-up rates and thus the percent of the population in full-year non-employment. Alternatively, some research indicates that the disabled increased their school enrollment after the ADA which would also lead to an increase in full-year non-employment (Jolls 2004).

B. Business Cycle and Wage Structure Changes

Over the period of policy changes discussed above, the macro economy was also changing, going through both recessionary and expansionary periods. In addition, there were notable changes in the wage structure leading to increased wage inequality. (See, for example, Juhn, Murphy and Pierce (1993)).

Ceterus paribus, one would expect cyclical downturns to result in a lower percentage of people being employed for all 52 weeks of the year, *i.e.*, an increase in non-

employment for some number of weeks of the year. However, whether individuals describe themselves as unemployed or out of the labor force will depend on many factors, including alternate uses of their time, disability regulations, and the perceived benefits of job search. Juhn, Murphy, and Topel (2002) speculate that the shift from unemployment to nonparticipation for men is due both to (relative) improvements in their non-work opportunities, namely disability insurance payments, and to lower real wages for less-skilled workers.

In table 1 we present wage distribution information for five business cycle periods as defined by Juhn, Murphy, and Topel (2002) and for the most recent recession. From 1978 to 2002, there are three "peak" periods—1978-79, 1988-89, and 1999-2000—and three "trough" periods—1982-83, 1991-92, and 2001-2002. We show real wages at the 10^{th}, 50^{th}, and 90^{th} percentiles of the distribution for men in the top panel. The same statistics are shown for women in the bottom panel.

As the top panel of table 1 shows, real wages for men at the 10^{th} percentile of the distribution fell from the 1978-1979 peak through the 1991-1992 trough. By the 1999-2000 peak, real wages were on the rise, but were only about the same level as in 1978-1979. Wages at the median fell through the 1991-1992 trough as well, while wages at the 90^{th} percentile rose throughout the periods shown.[6] As discussed by Autor and Duggan (2002) and Juhn et al. (2002), declining wages at the lower end of the skill distribution may particularly have affected disability insurance take-up. As wages for less-skilled workers were falling, disability payments became more valuable relative to the wages less-skilled men would likely receive.

Women similarly experienced declines in real wages at the 10th percentile. However, wages at the 10th percentile begin to rise sooner than men's wages at the 10th percentile, and at the median women's wages are rising throughout.

C. Changes in Health and Demographic Change

The literature examining the increase in men's non-employment focuses on the role of changes in the regulatory environment affecting disability and changes in the labor market that may have reduced the demand for low-skilled workers in relatively ill health. Less research in economics has addressed changes in health itself as a potential cause of the increase in the disability rolls and non-employment.[7] Many of the papers on the increase in disability rolls mention that this increase happened against a backdrop of increasing aggregate health, typically measured as decreasing mortality. However, researchers in public health have focussed their attention on inequalities in health outcomes. Morbidity and mortality are inversely related to income (and to many other measures of socio-economic status—see Deaton 2002 for a recent review). Thus, it is possible that aggregate health may have been increasing at the same time as health inequality was growing, just as average real wages may increase while real wages of those at the bottom of the wage distribution are stagnant or falling. [8]

Recent evidence suggests that despite declining mortality rates, morbidity is increasing. Lakdawalla, Bhattacharya, and Goldman (2004) define disability by survey

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[6] Wages at the 10th percentile may be driven, in part, by the real value of the minimum wage. For example, the federal minimum wage (in 2003 dollars) was $6.38 in 1979, fell to $5.56 in 1983, fell further to $4.51 in 1989, and then rose to $5.13 in 1992.

[7] Cutler and Richardson (1997) describe changes in health in the United States. The 20th Century saw a dramatic decrease in mortality, although morbidity changes are less clear.

[8] Many public health researchers go further and posit a direct causal impact of inequality on health. This would imply that rising wage inequality leads to worse health (see, for example, Wilkinson 1996).

questions about personal care limitations. Using this definition of disability, they find that from 1984 to 1996, disability among the non-elderly rose. The largest increase in disability was for those aged 30-39 for whom disability rose more than 50 percent. In part, this increase in disability among the non-elderly may be driven by steep increases in obesity (see Anderson, Butcher, and Levine 2003 for an overview). It may also be the case that morbidity has increased precisely because mortality has decreased, i.e., those who would have died in the past now survive, but are disabled.

In addition to the evidence that that health has declined across population groups, we know that there have been increases in population groups that tend to have higher morbidity. For a simple example, the population is aging, and age is related to increased morbidity. Thus if health of the working-aged population is declining, we would expect to see an increase in the disability rolls and an increase in full-year non-employment even without changes in disability insurance criteria.

Here, we briefly review the demographic changes that are the focus of our study and the link between these changes and health. We mainly focus on changes in the age structure of the population and changes in race and ethnicity. In addition, we briefly examine the role of changes in marital status and education for non-employment. In Table 2 we show how age, race, ethnicity, marital status, and education have changed for the adult population over the six time periods we examine. For men, median age increased from 39 in 1978-1979 to 43 in 2001-2002; similarly, median age increased from 41 to 44 for women.[9] In figure 4, we plot the age distributions for individuals aged 18 to 80 from the 1979 and 2003 March CPSs. The aging of the baby-boom cohort from

their twenties into their forties is seen in the rightward shift of the mass of the distribution.

Because morbidity increases with age, the aging of the population may have an important effect on disability and non-employment. The National Center for Health Statistics (NCHS) publishes detailed statistics on how health measures change with certain demographic characteristics (Blackwell and Tonthat 2002).[10] The NCHS summary of health statistics for the United States shows that the percent of the population reporting their health as "fair" or "poor" increases from 5.3 percent for those aged 18 to 44 years to 14 percent for those aged 45 to 64 years. The percent of the population with any activity limitation increases from 6.7 to 17.5 percent for these age groups. [11]

In addition, the percent of the population that is white declined from 88.6 to 83.5 percent for men and from 87.3 to 81.6 percent for women between 1978-1979 and 2001-2002. Both the percent of the population that is African American and the percent that is Hispanic have increased.[12] The NCHS reports self-assessed health is worse for African Americans (non-Hispanic) and Hispanics than it is for white non-Hispanics.[13] Roughly 8.2 percent of white non-Hispanics assess their health as "fair" or "poor" while12.9 percent of African Americans fall into these categories. This statistic for Hispanics is 8.8 percent. Activity limitations also differ along racial and ethnic lines, with 13.4 percent of white non-Hispanics and 14.7 percent of blacks reporting some activity limitation.

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[9] Beginning in 2002 age is topcoded at 80 years in the March CPS. For consistency over time we topcode age at 80 years for all CPS samples. As a result, average age of the population is understated in each period.
[10] These statistics come from NCHS analyses of the 1998 National Health Interview Surveys.
[11] See NCHS tables 2 and 4.
[12]Note that these calculations are based on the Current Population Surveys that sample the civilian non-institutionalized population. As others have noted (see for example Katz and Krueger (1999) and Chandra (2003)), the increase in the prison population over this period disproportionately affected African-American and Hispanic men, and thus, the CPS will understate demographic change overall since these men are not in the sampled population.

Despite lower health assessments, Hispanics report a lower percentage of activity limitations than whites or African Americans (8.4 percent).

The percent of the population that is married has declined over the period. For men, the percent who are never married increases from 18.6 to 23.7 from the beginning to end of our sample period, and the percent who are divorced increases from 5.3 to 9.3. Similarly, the percent of women never married increases from 12.8 to 17.9, and the percent divorced increase from 7.2 to 11.5. Marriage may provide financial, emotional, and in-kind support that may directly affect health, or may affect an individual's take-up of disability transfer programs for a given level of health (Stapleton et al. 1998). In addition, mental illness, one of the forms of disability that has increased in recent years, is negatively related to marriage (Bartel and Taumban 1986). Finally, whether one returns to work following a period of disability is also correlated with marital status. Married men are more likely to return to work than unmarried men; conversely unmarried women are more likely to return to work than married women (Baldwin and Johnson 2001).

Finally, the population has become more educated. For men the numbers without at least a high school diploma have declined from 30.2 percent in 1978-79 to 17.4 percent in 2001-02 while the numbers with at least some college have increased from 39 percent to 51.5 percent. The education levels of women have increased similarly.

Clearly, it is difficult to discern the direction of causality when it comes to the relationship between either marital status or education and health and disability. People who have worse health are, perhaps, less successful in the marriage market. On the other hand, marriage may have an impact on one's health. Further, for a given level of health,

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[13] See NCHS tables 2 and 4.

being married may facilitate work, or, alternatively, may provide resources such that work is less necessary. Similarly, researchers have found that higher levels of education are correlated with better health. Thus, we mainly focus on changes in age, race, and ethnicity as these changes are the most likely to be exogenous.

In what follows, we consider changes in non-employment over time for men and women aged 18 and over, with a particular focus on prime-aged individuals, 30 to 50 years old. We focus on non-employment, rather than non-participation, because it does not depend on individuals' self-definition of their activities and is therefore more easily compared across time periods. We try to disentangle the effects on non-employment of changes in population characteristics that may be linked to health, from changes in the labor market, the business cycle, and the regulatory environment governing disability.

IV. Empirical Strategy and Results

A. Empirical Techniques

In order to examine the role that changes in age, race, and ethnicity play in the changes in full-year non-employment for men and women, we have adapted techniques developed by DiNardo, Fortin, and Lemieux (1996). They examine questions, such as: How would the wage distribution have changed from 1973 to 1992 if union participation had remained at its 1973 level? We adapt their techniques to examine the distribution of weeks worked (or not worked). We want to ask, for example, how would the distribution of weeks not worked have changed from 1978 to 2000 if the regulatory and macroeconomic environments had remained as they were in 1978, but age, race, and ethnicity changed to their 2000 levels?

Consider the following distribution of weeks worked:

$$g(w) = \int f(w \mid x)h(x)dx \tag{1}$$

where $f(w \mid x)$ is the density of weeks worked (w) conditional on a set of characteristics (x). The set of characteristics x has distribution $h(\cdot)$.

The observed density of weeks worked in 2000 is:

$$g(w \mid t = 2000) = \int f^{2000}(w \mid x)h(x \mid t = 2000)dx \tag{2}$$

Similarly, the observed density of weeks worked in 1978 can be written as:

$$g(w \mid t = 1978) = \int f^{1978}(w \mid x)h(x \mid t = 1978)dx \tag{3}$$

We would like to know what the distribution of weeks worked would look like if the population had the distribution of characteristics as in 2000, but the 1978 distribution of weeks worked conditional on those characteristics. This can be written as:

$$g_{2000}^{1978}(w) = \int f^{1978}(w \mid x)h(x \mid t = 2000)dx \tag{4}$$

Bayes Law implies that:

$$h(x) = \frac{h(x \mid t = 1978)\Pr(t = 1978)}{\Pr(t = 1978 \mid x)}$$

and

$$h(x) = \frac{h(x \mid t = 2000)\Pr(t = 2000)}{\Pr(t = 2000 \mid x)}$$

where $\Pr(t = 1978)$ and $\Pr(t = 2000)$ are the probabilities that a given sample comes from 1978 and 2000. $\Pr(t = 2000 \mid x)$ and $\Pr(t = 1978 \mid x)$ are the probabilities that a sample comes from a particular year, given the observed characteristics. We can set

$\Pr(t = 1978) = \Pr(t = 2000)$—the probability of a sample coming from 2000 and 1978 is the same—so we can re-write the distribution of characteristics in 2000 in terms of the distribution of characteristics in 1978 and the probabilities that a given sample comes from a given year, given the observed characteristics as in (5):

$$h(x \mid t = 2000) = h(x \mid t = 1978) \cdot \frac{\Pr(t = 2000 \mid x)}{\Pr(t = 1978 \mid x)} \tag{5}$$

Thus, we can re-write what the distribution of weeks worked in 1978 would have been, if 1978 had had the same demographic characteristics as 2000:

$$g_{2000}^{1978}(w) = \int f^{1978}(w \mid x) h(x \mid t = 2000) dx = \int \theta(x) f^{1978}(w \mid x) h(x \mid t = 1978) dx \tag{6}$$

where $\theta(x) = \dfrac{\Pr(t = 2000 \mid x)}{\Pr(t = 1978 \mid x)}$.

In other words, we have reduced the problem to one of reweighting the 1978 data with the ratio of the probability that an observation comes from 2000, given observed characteristics, to the probability that an observation comes from 1978, given observed characteristics. We call θ the "counterfactual" weights.

Consider reweighting the 1978 data to have the same age distribution as in 2000. We can take the 1978 data and create "counterfactual" weights such that the weighted age distribution of the 1978 data is precisely the same as the age distribution in 2000. This means creating weights that increase the weight of older people in the 1978 data and decrease the weight of younger people. We can then consider reweighting the distribution of weeks worked in 1978 with the weights described above. This is

equivalent to asking what the weeks worked distribution was in 1978 among people with the same age distribution as in 2000. By using the 1978 data, we are ensuring that these people with the 2000 age distribution are "facing" the regulatory and macro environments that existed in 1978.

To construct the counterfactual weights, we first normalize the CPS weights to sum to one in each year. Then, using two years of data, we estimate a logistic model using the CPS normalized weights to predict from which year an observation comes as a function of demographic characteristics.[14] We then multiply the normalized CPS weight by the appropriate estimated odds ratio from the logistic regression. This is our counterfactual weight.

B. Results

i. Results for 1978 and 2000

Before turning to the results of this counterfactual weighting strategy, consider tables 3a and 3b. These tables give us some insight into how changes in the age distribution may affect the distribution of weeks worked. The first two columns show the percent of the population in 13 age categories in 1979 and 2001. From 1979 to 2001 about 30 percent of the adult male population (table 3a) moves from being in the three youngest age categories to being in the three age categories spanning 35 to 49. This is the aging of the baby boom. Labor economists normally think of this aging of the population as increasing the number of weeks worked as these are the years when workers are at the

[14] The included demographic characteristics are as follows: a fifth-order polynomial in age, indicators for race is African American and race is other non-white, an indicator for Hispanic ethnicity, and all pair-wise interactions. The results with marital status additionally include indicators for all marital status categories

peak of their age-earnings profile. Indeed, if we look at the next two columns, the fraction of the population working 52 weeks per year, we can see that these 3 age categories have the highest percent of workers working full-year. However, if we look at the last two columns, these show the percent of the population working no weeks per year, or full-year non-employed. In 1979, that fraction starts to increase with the 40 to 44 year-old category, and increases with each age group thereafter. The patterns are similar in 2001. The age patterns are similar for women, although between 1979 and 2001 we see the large increase in women's labor supply.

The re-weighting technique that we described above allows us to examine how the distribution of weeks worked has changed over time in a more straightforward fashion. In figure 5 we present a bar graph for changes in weeks not worked for men aged 18 and over between 1978 and 2000. We create 7 categories for weeks not worked: zero, 1 to 12, 13, 14 to 25, 26, 27 to 51, and 52 weeks. The "zero" category represents those who worked all weeks in a given year. We break out 13 and 26 weeks separately, since these represent small mass points in the full distribution of weeks worked, likely related to unemployment insurance rules.

The first series in the graph represents the observed change from 1978 to 2000 in the percent of men who did not work for that particular number of weeks. For example, 56.8 percent of men worked for the full 52 weeks in 1978 and 62.2 percent worked 52 weeks of the year in 2000. The first column in the figure 5 bar chart represents this 5.4 percentage point change in the number of men working 52 weeks of the year. At the other end of the spectrum, 17.1 percent of men did no work for 52 weeks in 1978 and 21.6

(married spouse present is the omitted category) and pair-wise interactions with the age, race, and ethnicity variables above.

percent of men did no work for 52 weeks in 2000, an increase of 4.5 percent. Thus, the first series represents the actual change in the distribution of weeks worked from 1978 to 2000. From 1978 to 2000 there were increases in both the percent of men working 52 weeks of the year and the percent of men working no weeks in the year. Looking at the other categories, there were relatively large decreases in the fraction of men who did not work 1 to 12 weeks or 27 to 51 weeks. Compared to 1978, it looks as though weeks worked shifted to the extremes of the distribution in 2000. Men who had not worked for a small number of weeks in previous years may have shifted into full year employment, and the men who had not worked for quite a few weeks in earlier years may have shifted into full year non-employment.

The second series (diagonal lines) represents the "counterfactual" change in the distribution of weeks not worked from 1978 to 2000 for men aged 18 and over. The counterfactual change equals the predicted distribution of weeks not worked in 2000 minus the observed distribution of weeks not worked in 1978. Our prediction of weeks not worked in 2000 reweights the 1978 data to have the same age distribution as the 2000 men. In other words, this series represents the change in the distribution of weeks not worked if we observed the actual change in age, but under the 1978 "environment." By "environment" we mean, what if the men in 2000 had faced the regulatory and macroeconomic conditions that existed in 1978.[15]

We see that the changes in demographic characteristics would have led us to predict an increase in the fraction of the population that did not work for the full 52 weeks, even if there were no change in the policy and macroeconomic "environment." In fact, changes in the age distribution "explain" nearly 14 percent of the observed change.

Under this identification strategy, the remaining difference can be attributed to changes in the regulatory and macroeconomic environments. Age changes predict a somewhat larger increase in the percent of men working 52 weeks of the year.

Figure 6 presents the same exercise for men aged 30 to 50. Here we are asking how the change in the age distribution among the prime aged affected the distribution of weeks worked. Again we see that the changing distribution of age among the prime aged would have predicted an increase in both full-year employment and full-year non-employment, although a smaller amount of the change is explained when we focus on prime aged men.

ii. Changes in Demographic Characteristics versus Changes in Regulatory and Macroeconomic Conditions

In what follows, we focus exclusively on prime aged men and women. We also limit our analysis to the fraction of people full-year non-employed, instead of examining the entire distribution of weeks worked. The increase in full-year non-employment for prime age men poses the biggest puzzle and the greatest concern since if they are on now on disability insurance, they are likely to be on it for a long time. We consider the effect of the changes in four demographic characteristics, age, race and ethnicity, marital status, and education. We also examine the effect of these changes in characteristics under different regulatory and macroeconomic environments.

In tables 4a-7b, we perform the same sort of counterfactual exercise as above for men and women but limit our analysis to full-year non-employment for prime-aged men

[15] Here we generate our counterfactual weights using a fifth-order polynomial in age.

and women. We also break the years into peak and trough years as in tables 1 and 2. Comparing periods in which the macroeconomic conditions are similar, for example, comparing peak periods to peak periods, we can assess the importance of macroeconomic and regulatory changes versus demographic changes.

In tables 4a-7b the numbers on the diagonal present the actual data. For example, in table 4a, in 1978-79, 4.17 percent of men were not employed for the full year; in 2001-2002, 8.19 percent of men were not employed for the full year. The general trend is upward over each of the periods although the percentage jumps up during trough years and dips down during peak years.

The off-diagonal elements of the tables correspond to counterfactual distributions of weeks not worked calculated as described in the previous section. For example, row five of column 1 in table 4a represents the 1978-79 distribution of weeks not worked reweighted by the 1999-2000 age distribution. Similarly, the first row of the fifth column represents the 1999-2000 (period 5) distribution of weeks not worked reweighted by the 1978-79 (period 1) age distribution. Following column 1 from row 1 to row 6 we are asking, "How would people who existed in each of the periods have behaved if they had faced the environment that prevailed in the 1978-79 period?" The other columns correspond to the same exercise, but using a different period for the "environment." For example, column 4 takes the 1991-92 period as the "environment" and asks, "How would people who existed in each of the periods have behaved if they had faced the environment that prevailed in the 1991-92 period?" Tables 4a-7b present these results for men (the "a" tables) and women (the "b" tables), each using a different set of demographic characteristics. Tables 4a and 4b reweight by age only; tables 5a and 5b

reweight by age, race, and ethnicity; tables 6a and 6b reweight by age, race and ethnicity, marital status; and tables 7a and 7b reweight by age, race and ethnicity, marital status, and education.

What do these tables tell us? First, each of the columns traces out the effect of demographic change under different regulatory and macroeconomic conditions. Consider table 5a. The fact that the share of men who spent the full year non-employed increases as we look down each column suggests that demographic change would have led to an increase in the fraction of men who spent the full year non-employed, regardless of the regulatory and macroeconomic environments they faced. In other words, regardless of the environment, older, nonwhite, and Hispanic men are more likely to be full-year non-employed than younger, white, non-Hispanic men. The fact that men are aging, even within the prime age group, and are more likely to be African American and Hispanic has led to an increase in the fraction of men who are full-year non-employed.

Second, the table can give us some insight into the relative importance of changes in the regulatory and the macroeconomic environments. Note that the column 1, 3, and 5 counterfactual estimates correspond to business cycle peaks (1978-79, 1988-89, and 1999-2000, respectively) and within each row these estimates are less than the counterfactual estimates that correspond to trough periods (1982-82, 1991-92, 2001-02). Clearly, macroeconomic fluctuations are important in determining the fraction of men that is not working.

We can estimate the predicted increase in the percent of men with full-year non-employment between periods in two ways. For example, the predicted increase in the percent of men with full-year non-employment between periods 1 and 5 can be calculated

as: (1) the difference between the predicted percent not working 52 weeks in 1999-2000 under the 1978-79 environment (column 1, row 5) minus the observed percent of men not working 52 weeks in 1978-79 (column1, row 1), or (2) the difference between the observed percent not working 52 weeks in 1999-2000 (column 5, row 5) minus the predicted percent not working 52 weeks in 1978-79 under the 1999-2000 environment (column 5, row 1). As in the Oaxaca/Blinder (1973) decomposition of wage differences by sex where it matters whether one uses the coefficient estimates for men or the coefficient estimates for women in calculating the shares of the observed wage difference due to differences in human capital, the predicted change in full-year non-employment may depend on which combination of demographic weights and "environment" we use.

In table 8a we present the predicted changes in full-year non-employment and shares of the actual change attributable to demographic changes for a select subset of time periods. We include one peak-to-peak and one trough-to-trough comparison. We chose these particular time periods because they represent the longest time spans. We show the effect for age alone; age, race and ethnicity; age, race and ethnicity and marital status; and age, race and ethnicity, marital status, and education. In each case we calculate the predicted change using both of the re-weighting schemes described above.

In order to think about the two methods of decomposing the change in percent not working 52 weeks of the year, consider a simple example in which there are only two types of men, young and old, and two time periods, 1978 and 2000. Further assume that the probability of being old given that the year is 1978 equals p_1, and the probability of being old given that the year is 2000 equals p_2. The observed share of men experiencing full year non-employment (y) in 1978 can be written as

$$(1-p_1)\Pr^{1978}(y \mid young) + p_1 \Pr^{1978}(y \mid old). \quad (7)$$

The counterfactual share of men experiencing full year non-employment in 2000 assuming the conditional probabilities of not working full year are the same as in 1978 can be written as

$$(1-p_2)\Pr^{1978}(y \mid young) + p_2 \Pr^{1978}(y \mid old). \quad (8)$$

Then the predicted change in the share of men in full-year non-employment equals

$$(p_1 - p_2)\left[\Pr^{1978}(y \mid young) - \Pr^{1978}(y \mid old)\right]. \quad (9)$$

Similarly, the predicted change in the share of men in full-year non-employment, assuming the conditional probabilities of full-year non-employment equal those observed in 2000 can be written as

$$(p_1 - p_2)\left[\Pr^{2000}(y \mid young) - \Pr^{2000}(y \mid old)\right]. \quad (10)$$

Consider equations (9) and (10) in a world in which the population is aging, in other words, $p_2 > p_1$. As long as the probability of full-year non-employment for the old exceeds the probability of full-year non-employment for the young in both years, we will predict an increase in the share of men with full-year non-employment. The size of the predicted change may be different if the difference in the probabilities of full-year non-employment between the young and old change over time. If the probability of full-year non-employment conditional on being old is less than the probability of full-year non-employment conditional on being young in the later period, the predicted change in full-year non-employment will be positive using equation (9) and negative using equation (10). This example demonstrates how using different base years for the "environment" under which we evaluate the impact of demographic change can generate different predictions.

With that simple example in mind, consider table 8a. The top panel shows that between 1978-79 and 1999-2000, there was a 2.94 percentage point increase in the number of men who were full-year non-employed. [16] The top row shows that using the 1978-79 "environment," the change in the age distribution would have led to a 0.11 percentage point increase in full-year non-employment. Using the 1999-2000 environment, we would have predicted a 0.16 percentage point increase in full-year non-employment. The change in the age distribution alone can explain 3.7 percent of the increase in full-year non-employment under the earlier macro economic and regulatory conditions. The change in the age distribution can explain about 5.4 percent of the increase under the later conditions.

Including race and ethnicity leads to a larger predicted increase in full-year non-work, under either set of macro economic or regulatory conditions. The changes in these demographic characteristics account for 13.9 to 18.4 percent of the increase in full-year non-employment. The bottom panel presents these comparisons for two trough periods, 1982-83 and 2001-02. Here, age, race and ethnicity changes can account for about one-third of the increase in full-year non-employment, using either period as the "environment."

The fact that we find similar predicted increases in non-employment using the regulatory/macroeconomic conditions of either 1978-79 or 1999-2000 and 1982-83 or 2001-02 as the "environment" means that under any of these regulatory or macroeconomic conditions, the observed changes in age, race and ethnicity, lead to increases in the fraction of men who are full-year non-employed. This suggests that

[16] The difference in this calculation from the calculation applying to figure 6 arises because we are considering 1978-79 and 1999-2000 instead of single year comparisons.

older non-whites and/or older Hispanics were always more likely to be full-year non-employed, and in the later period there are more of them.

There have been many changes in the population since the late 1970s. We choose to focus on age and ethnicity because these changes are the most clearly exogenous. However, one can employ this technique to assess the impact of any changes in population characteristics. In the last two rows of each panel of table 8a, we include marital status or marital status and education. As discussed above, there is a strong correlation between health, marital status, and education, and a correlation between full-year non-employment, marital status, and education. Adding marital status to the list of demographic characteristics increases the proportion of the change in full-year non-employment that can be explained by changes in demographic characteristics. In the peak-to-peak comparison, about 60 percent of the increase in full-year non-employment is explained by the changes in these characteristics; in the trough-to-trough comparison over 100 percent of the increase in full-year non-employment is explained by these changes.

The last row of each panel in table 8a adds education to the list of demographic variables. For 1978-79, the changes in demographic characteristics that occurred between 1978-79 and 1999-2000 would predict about 17 percent of the actual increase in non-employment that occurred between those two periods. For the trough-to-trough comparison, we predict about 43 percent of the increase using the 1982-83 environment and 27 percent of the increase using the 2001-2002 environment. For 1999-2000 environment, the demographic changes between 1978-79 and 1999-2000 predict a decline in full-year non-employment, thus, we explain a negative percent of the actual

change. As in the simple example above, the fact that the sign of the prediction changes between the two periods suggests that either the change in macro economic and regulatory environment disproportionately affects individuals of some types, or that it does not mean the same thing to be an individual of a given type in the two periods. For example, the average unobserved "ability" of a high school dropout in 1978-79 may be higher than the average unobserved "ability" of a high school dropout in 1999-2000. One can think of similar arguments about the average ability among divorced men in the earlier and later periods. On net, changes in education seem to dominate when we use 1999-2000 as the base period.

The results for women, in table 8b, are quite different. The percentage of women who were full-year non-employed fell between the peak periods by 12 percentage points and between the trough periods by 7.5 percentage points. Demographic characteristics changed for women in the same ways that they did for men: namely, the population of women got older and are less likely to be white, non-Hispanic, and married. Women's education also increased.

Consider the changes in age, and age, race and ethnicity in the top two rows of each panel. For women, these changes in characteristics either explain a very small proportion of the overall decrease in full-year non-employment or predict an increase. For women, the women's liberation movement, changes in home production technology, and welfare reform may be much more important in determining women's full-time non-employment than changes in the demographic characteristics considered thus far. See Greenwood *et al.* (2002) for example.

When we include marital status and education, we do much better at predicting the actual change in full-year non-employment. We predict between 31 and 44 percent of the peak-to peak or trough-to-trough decline in full-year non-employment regardless of which period's macro economic and regulatory environment we use to examine the effect of demographic change.

V. Conclusion

Previous literature examining the increase in men's non-employment has focused on the roles of disability policies and macroeconomic conditions. In this analysis, we examine how demographic changes between 1978 and 2003, in particular, age, race, and ethnicity, may also contribute to the increase in non-employment for men 30 to 50 years old. These demographic characteristics are correlated with health and disability status; therefore, even without the changes in disability policies in 1984 and 1990, we would have expected an increase in full-year non-employment. Under our maintained assumptions, this analysis shows that about 15 to 30 percent of the increase in men's full-year non-employment may be explained by demographic changes alone.

The counterfactual analysis for women is similar to that for men in that changes in age, race, and ethnicity over the period are predicted to increase the fraction of women who are full-year non-employed. In contrast to men, however, women's actual non-employment fell over the period. Women increased their employment, even in the face of underlying demographic and policy changes that would be expected to decrease it.

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Figure 1a: Percent of Weeks per Year Spent in Unemployment, Nonemployment, and Nonparticipation and Percent of Men with 52 Weeks of Nonemployment, Men Ages 18 and Over

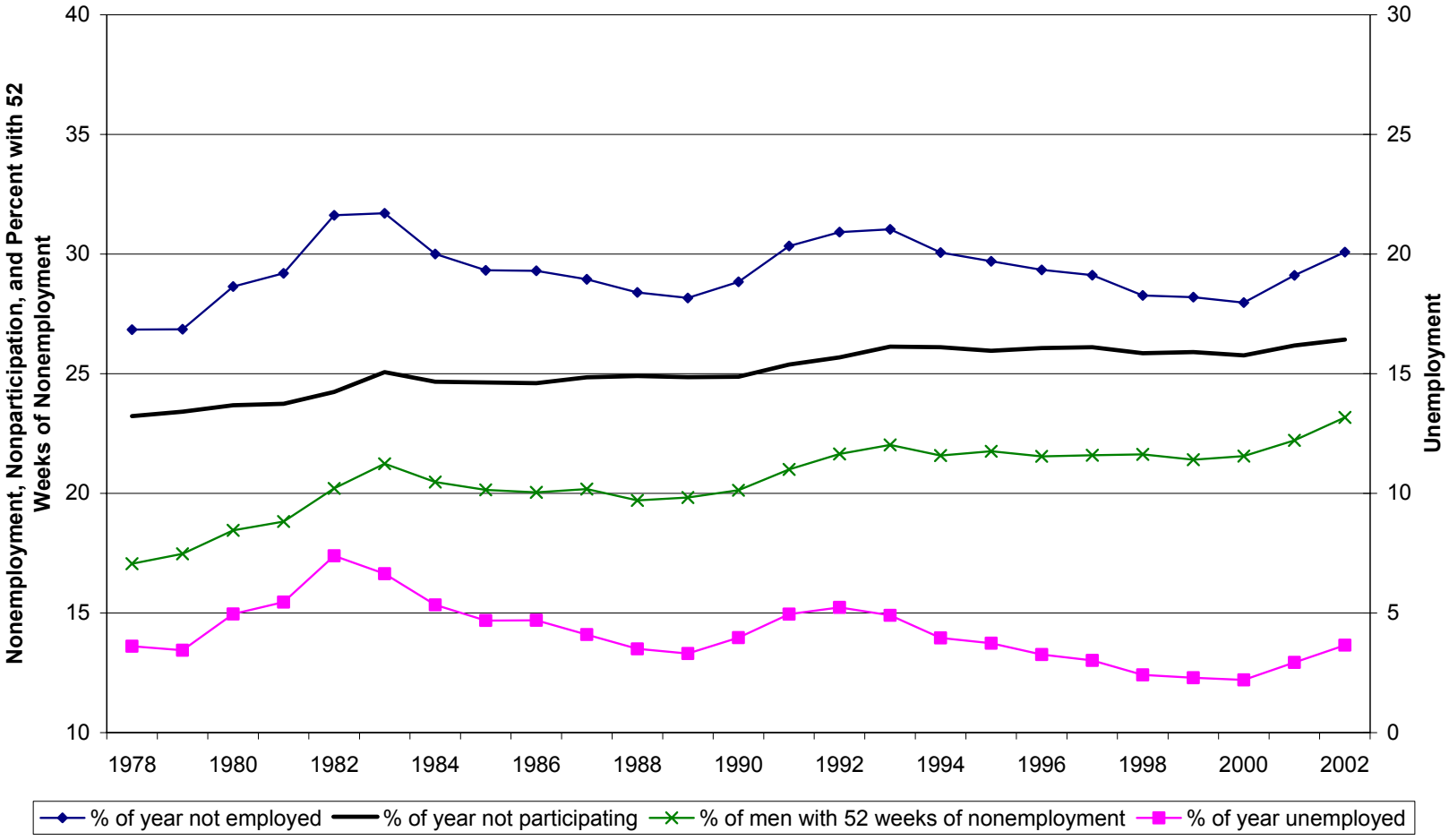


Figure 1b: Percent of Weeks per Year Spent in Unemployment, Nonemployment, and Nonparticipation and Percent of Men with 52 Weeks of Nonemployment, Men Ages 30 to 50

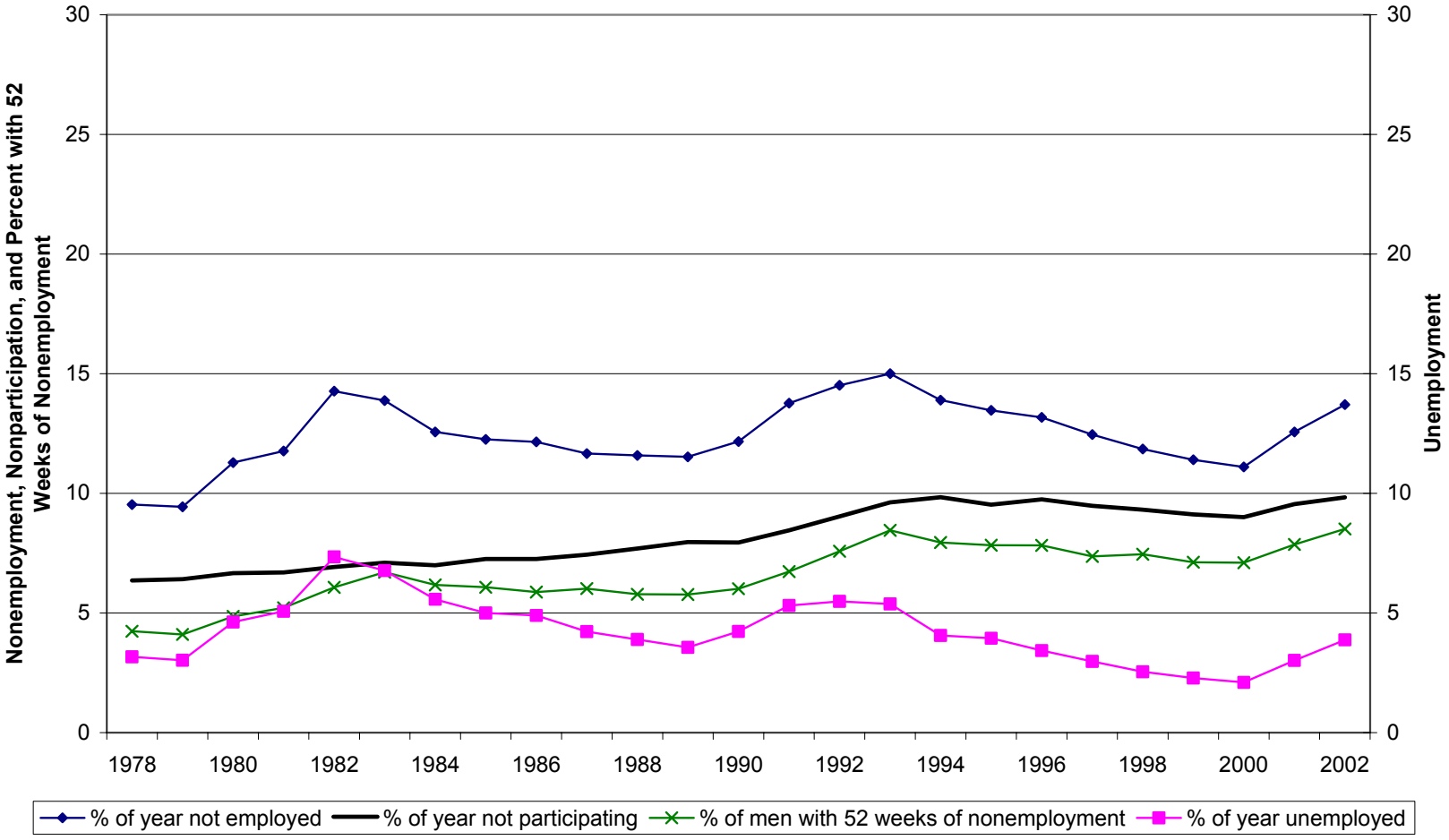


Figure 2a: Percent of Weeks per Year Spent in Unemployment, Nonemployment, and Nonparticipation and Percent of Women with 52 weeks of Nonemployment, Women Ages 18 and Over

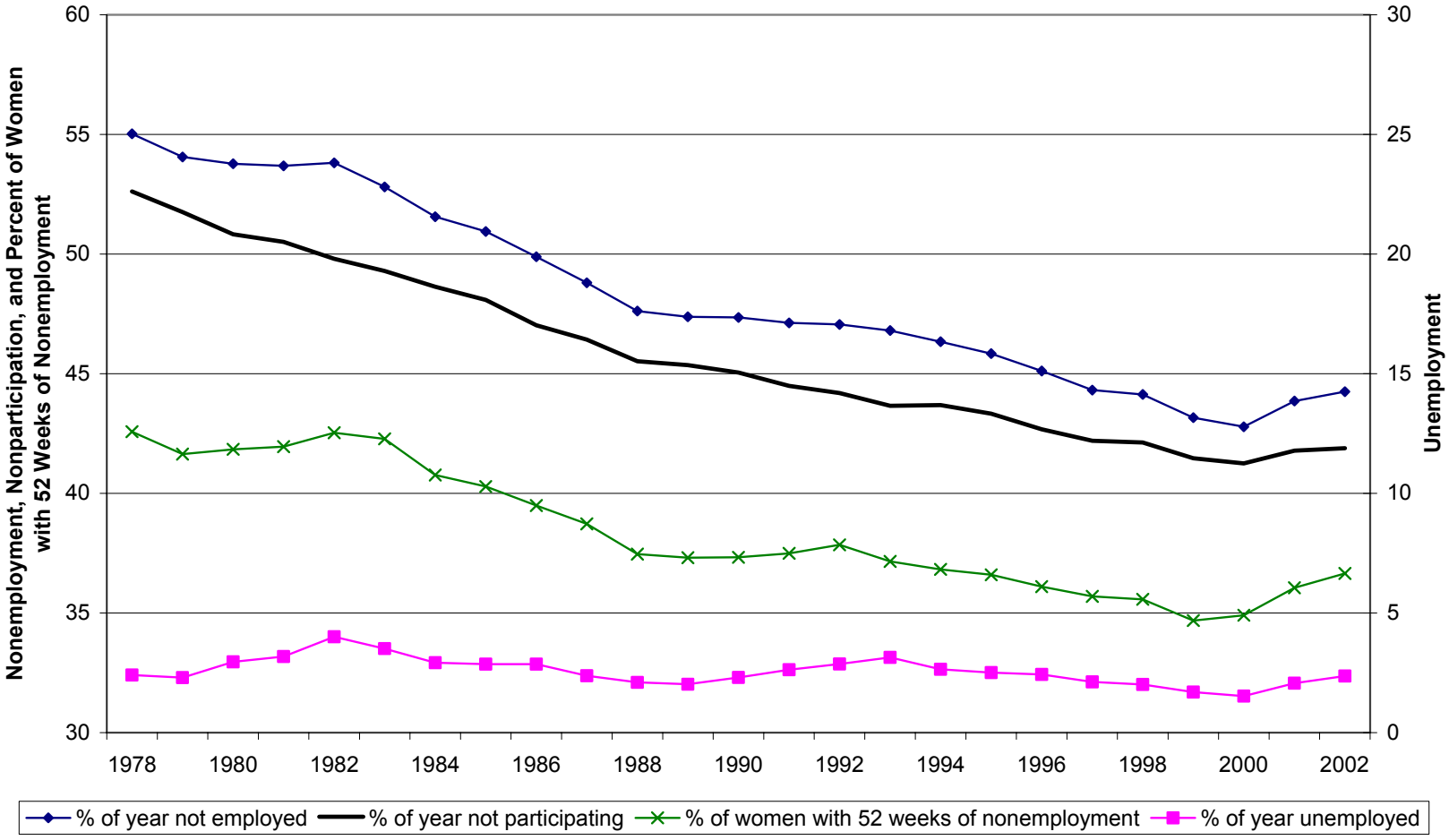


Figure 2b: Percent of Weeks per Year Spent in Unemployment, Nonemployment, and Nonparticipation and Percent of Women with 52 Weeks of Nonemployment, Women Ages 30 to 50

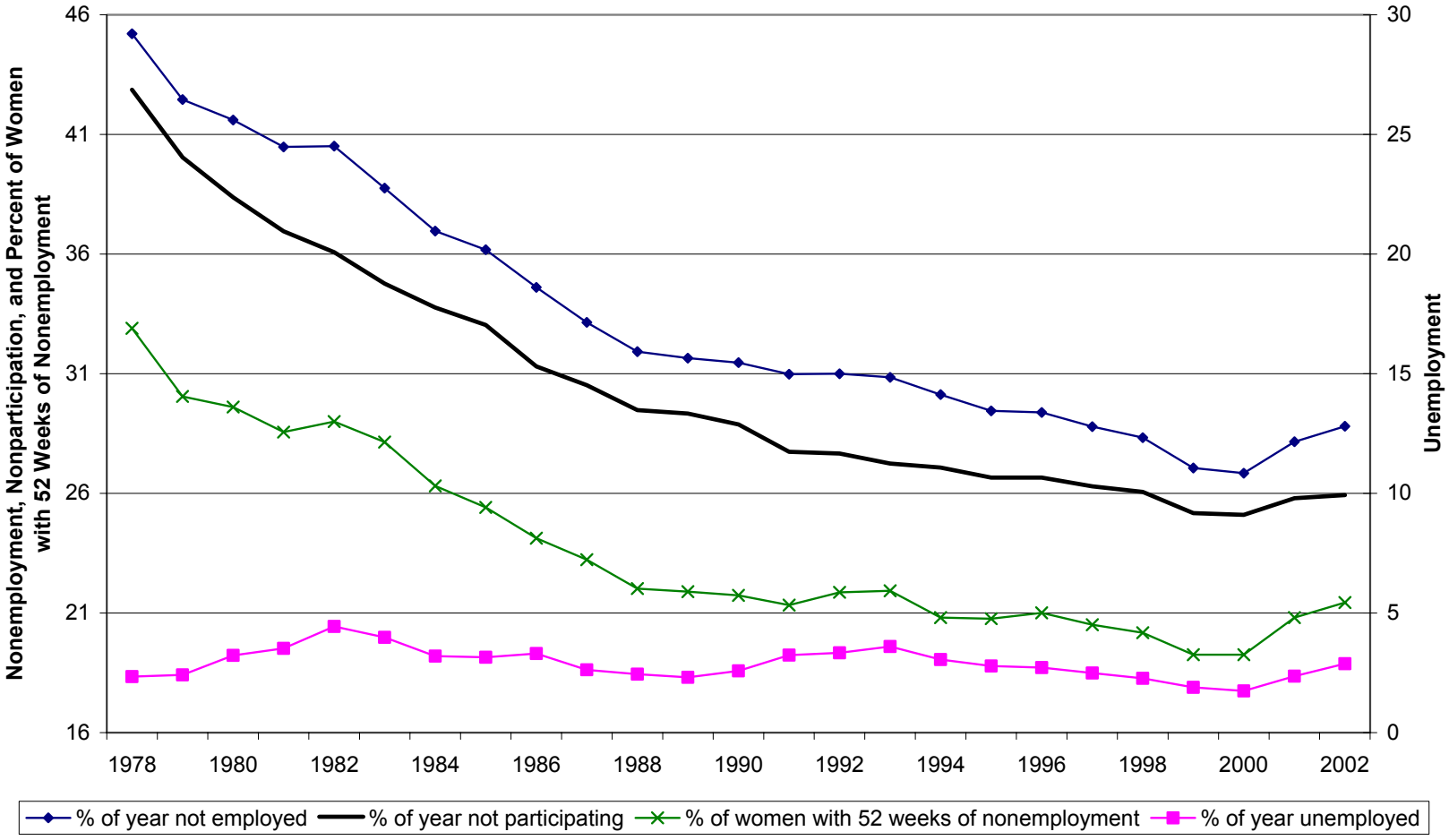


Figure 3: Disability Insurance Applications, Awards, and Beneficiaries per 1000 Insured Workers

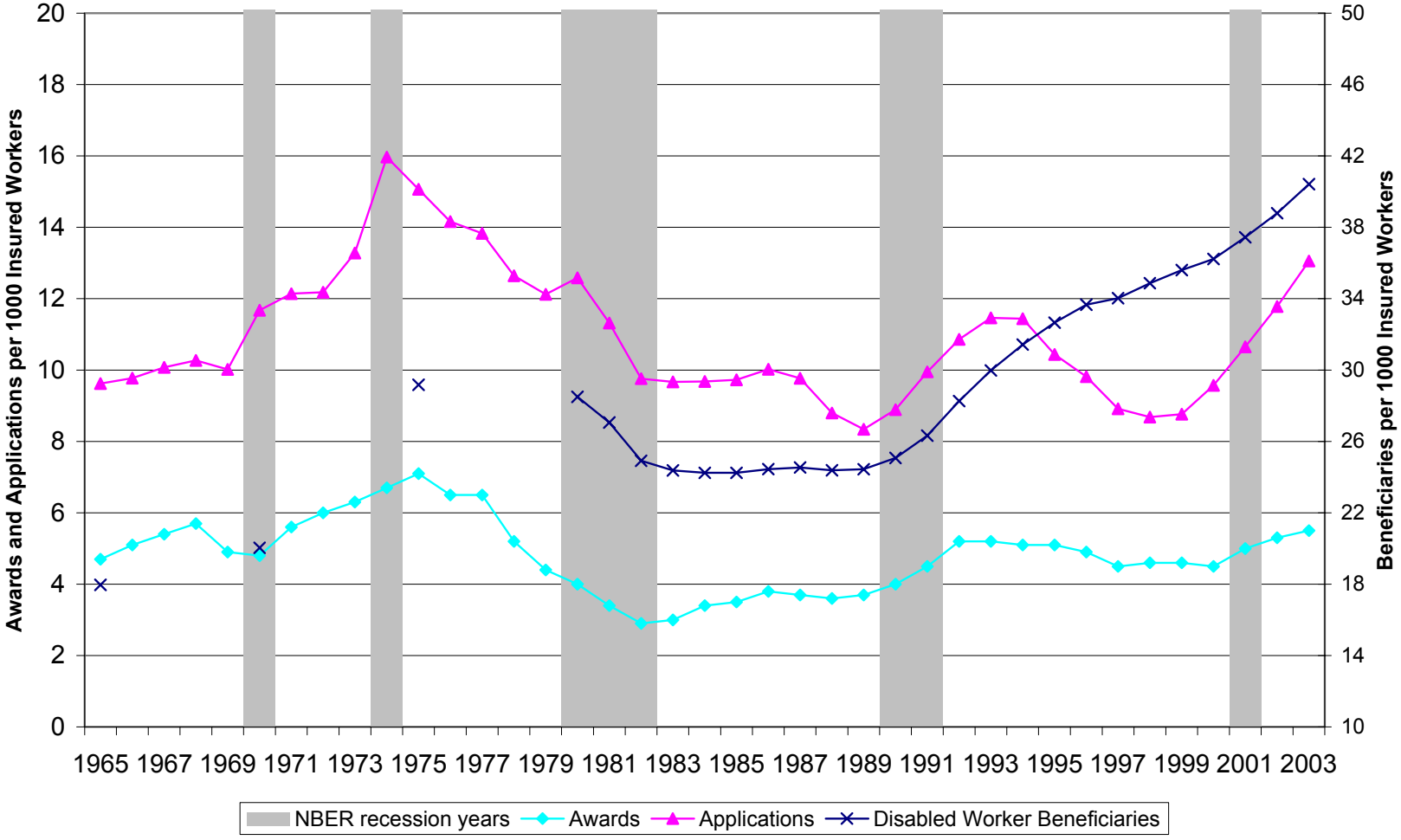
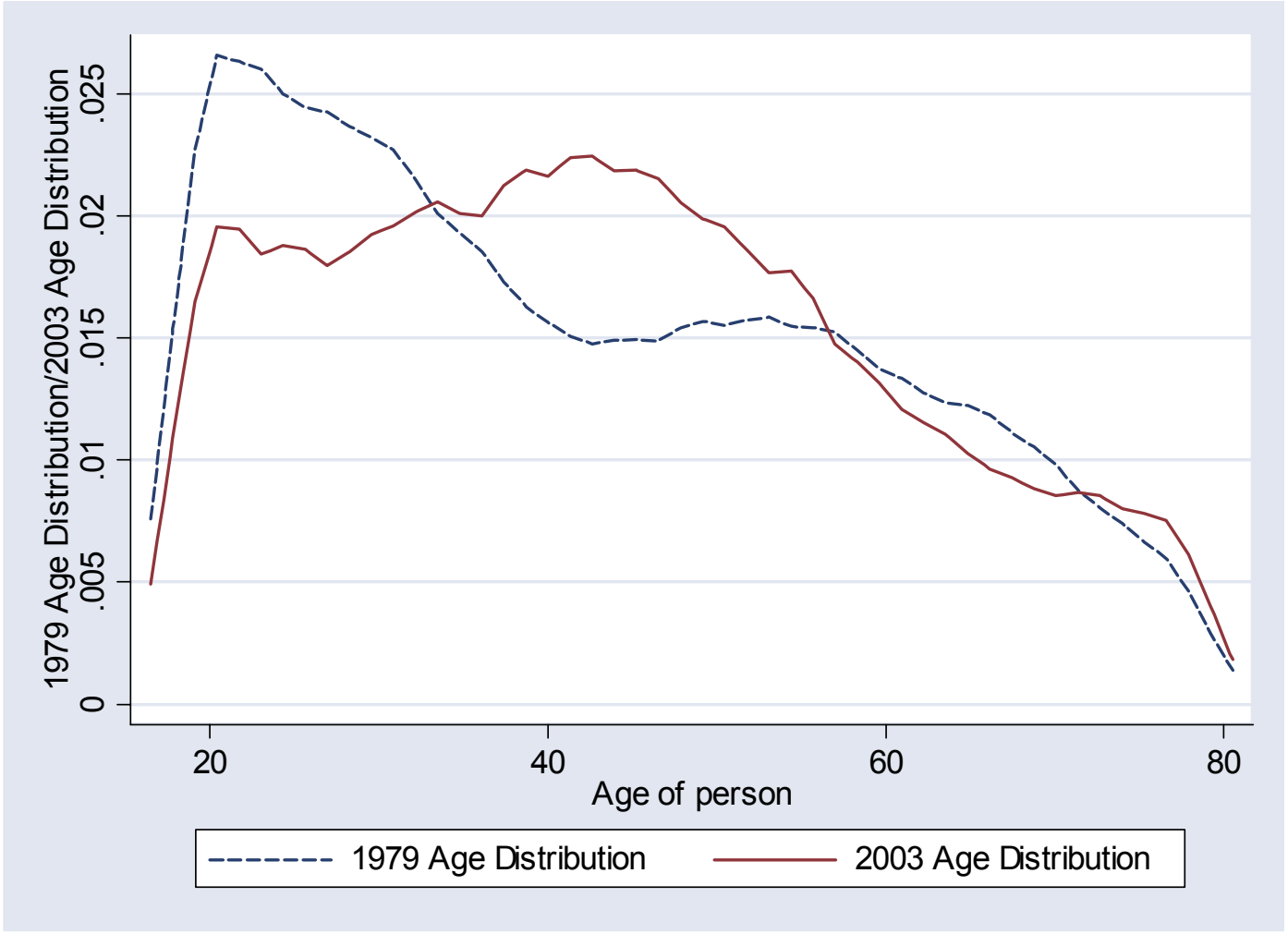


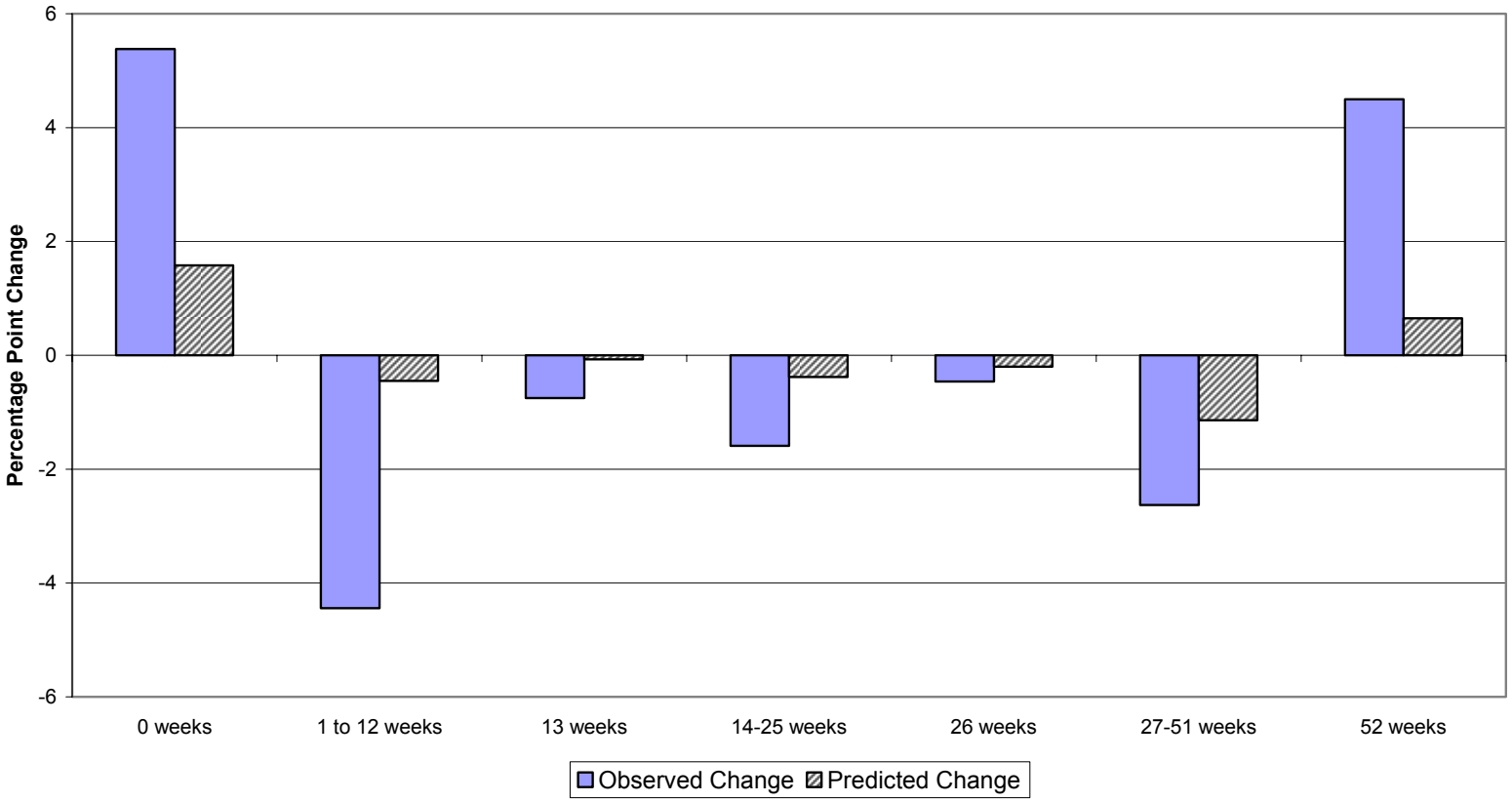
Figure 4

Distribution of the Population by Age 1979 and 2003



Notes: Estimates are based on the population ages 18 to 80 years old and use the Epanechnikov kernel.

Figure 5: Observed and Predicted Changes in the Distribution of Weeks Not Employmed, Men Ages 18 and Over



Notes: The predicted change in the distribution of weeks not employed equals the difference between the predicted distribution in 2000 and the observed distribution in 1978. The predicted 2000 distribution is calculated using the 1978 distribution of weeks not employed reweighted by the 2000 age distribution.

Figure 6: Observed and Predicted Changes in the Distribution of Weeks Not Employed, Men Ages 30 to 50

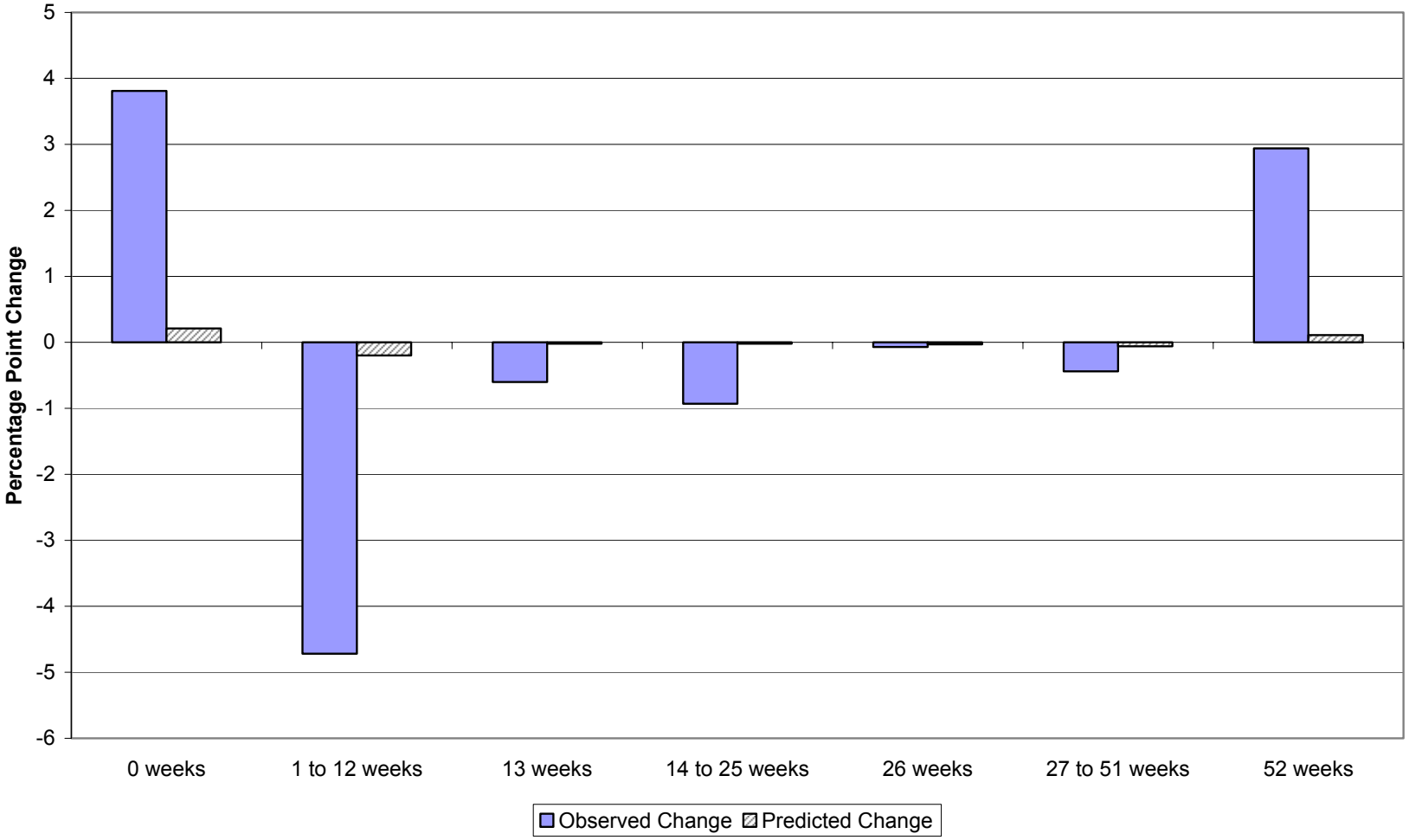


Table 1
Hourly Wage Distribution by Business Cycle Period

	10th Percentile	Median	90th Percentile
		Men	
Peak 78-79	6.19	15.09	29.10
Trough 82-83	5.66	14.44	29.66
Peak 88-89	5.50	14.50	31.15
Trough 91-92	5.47	14.19	30.73
Peak 99-00	6.24	15.60	36.91
Trough 01-02	6.46	15.90	39.18
		Women	
Peak 78-79	4.57	9.20	17.75
Trough 82-83	4.45	9.34	18.78
Peak 88-89	4.44	10.21	21.47
Trough 91-92	4.62	10.34	22.23
Peak 99-00	5.20	11.96	26.80
Trough 01-02	5.47	12.42	28.42

Notes: Distributions are for adults 18 years of age and older based on authors' calculations from the March Current Population surveys. See text for additional sample restrictions. All wages are reported in real 2003 dollar based on the Personal Consumption Expenditures, chain-type price index.

Table 2
Demographic Characteristics of Persons Aged 18 and Over by Business Cycle Period

	Peak 78-79	Trough 82-83	Peak 88-89	Trough 91-92	Peak 99-00	Trough 01-02
			Men			
Age in years						
Mean	42.2	42.1	42.7	43.2	44.0	44.3
Median	39	39	39	40	42	43
Race/Ethnicity						
White	88.6	87.5	86.3	85.7	84.1	83.5
African-American	9.6	10.0	10.4	10.6	11.1	10.6
Hispanic	4.9	5.8	7.6	8.2	10.9	12.7
Marital Status						
Married spouse present	66.2	63.7	61.3	60.2	57.9	57.2
Married spouse absent	0.7	0.8	0.8	0.9	1.5	1.6
Widowed	2.7	2.6	2.7	2.8	2.7	2.6
Divorced	5.0	6.0	7.2	7.6	8.8	8.7
Separated	2.0	2.0	2.1	2.1	1.7	1.8
Never married	23.3	25.1	26.0	26.4	27.3	28.1
Education						
Elementary	14.2	12.0	9.6	8.8	6.5	6.5
High school	16.0	14.6	13.4	11.8	10.7	10.9
HS graduate	31.0	32.1	32.7	33.2	31.8	31.1
Some college	21.0	21.4	22.4	24.1	26.1	25.8
College graduate	17.9	20.0	21.8	22.1	24.9	25.7
			Women			
Age in years						
Mean	43.7	43.8	44.4	44.9	45.6	46.0
Median	41	40	41	42	43	44
Race/Ethnicity						
White	87.3	86.1	85.0	84.4	82.5	81.6
African-American	10.9	11.3	11.7	12.0	12.7	12.4
Hispanic	4.7	5.7	7.1	7.6	10.3	11.3
Marital Status						
Married spouse present	59.7	57.5	56.2	55.5	53.7	53.2
Married spouse absent	0.8	0.7	0.7	0.7	1.3	1.3
Widowed	12.9	12.4	12.2	11.6	10.6	10.4
Divorced	6.9	8.1	9.2	10.0	10.9	11.4
Separated	3.0	3.0	2.9	3.0	2.5	2.6
Never married	16.8	18.2	18.8	19.1	21.1	21.2
Education						
Elementary	13.8	11.6	9.2	8.5	6.2	6.0
High school	16.6	15.0	13.3	11.9	10.3	10.0
HS graduate	38.3	38.6	37.7	36.9	33.3	32.5
Some college	19.2	20.9	22.9	25.2	28.1	28.1

College graduate	12.1	13.9	16.9	17.5	22.2	23.4

Notes: Authors' calculations based on March Current Population Surveys. See text for further sample restrictions. Hispanics may be of any race. For consistency over time, age is top-coded at 80 years.

Table 3a
Weeks Working by Age Group for Men, 1978 and 2000

	Share of Population 18 and over		Percent working 52 weeks last year		Average number of weeks worked last year		Percent working 0 weeks last year	
Age Group	1979	2001	1979	2001	1979	2001	1979	2001
18 to 24	18.54	13.69	38.15	42.99	34.28	32.19	9.32	19.52
25 to 29	11.99	8.92	66.17	74.12	45.03	44.83	3.94	7.33
30 to 34	10.80	9.75	73.96	80.34	47.28	46.63	3.16	6.02
35 to 39	8.78	11.03	76.35	81.11	47.84	47.03	3.12	5.47
40 to 44	7.54	11.49	76.25	79.85	46.98	46.14	4.71	7.51
45 to 49	7.54	10.21	76.04	78.36	46.23	45.39	5.90	8.86
50 to 54	7.83	8.80	73.40	76.11	44.84	44.00	8.54	11.68
55 to 59	7.47	6.58	67.27	67.66	40.97	39.42	15.67	19.43
60 to 64	6.16	4.97	50.13	49.54	32.58	29.87	29.17	35.60
65 to 69	5.28	4.57	20.65	24.28	15.57	16.36	61.06	61.57
70 to 74	3.65	3.84	11.13	14.28	9.36	9.84	74.71	76.44
75 to 79	2.38	3.08	7.52	9.42	6.38	6.33	82.96	85.27
80 and older	2.03	3.06	3.69	5.17	2.92	3.41	92.65	92.22
Total (18 and over)	100.00	100.00	56.80	62.18	38.04	37.46	17.06	21.56

Notes: Authors' calculations based on March Current Population Surveys for 1979 and 2001. We exclude men in the military and men who live in group quarters.

Table 3b
Weeks Working by Age Group for Women, 1978 and 2000

	Share of Population 18 and over		Percent working 52 weeks last year		Average number of weeks worked last year		Percent working 0 weeks last year	
Age Group	1979	2001	1979	2001	1979	2001	1979	2001
18 to 24	17.71	12.73	28.72	39.92	27.80	30.60	21.78	23.16
25 to 29	11.33	8.49	37.31	56.91	29.79	36.81	26.73	19.36
30 to 34	10.18	9.45	34.72	58.39	27.37	37.40	32.58	18.77
35 to 39	8.48	10.47	37.98	59.97	29.00	37.48	30.95	20.04
40 to 44	7.25	10.88	40.60	62.41	29.42	38.43	32.16	19.09
45 to 49	7.11	9.82	42.05	63.73	28.88	38.95	35.06	18.72
50 to 54	7.53	8.57	39.28	60.58	27.02	37.29	39.09	22.47
55 to 59	7.28	6.55	36.32	50.86	24.16	31.20	46.66	34.29
60 to 64	6.22	5.30	25.31	33.90	17.83	21.79	58.93	52.96
65 to 69	5.86	4.66	9.48	13.91	7.99	10.05	79.20	76.11
70 to 74	4.53	4.50	4.52	7.16	4.01	5.63	89.01	84.77
75 to 79	3.23	4.05	2.54	3.92	2.40	2.65	93.78	93.20
80 and older	3.30	4.53	0.86	1.26	0.84	1.01	97.64	97.36
Total (18 and over)	100.00	100.00	30.05	46.26	23.39	29.75	42.58	34.91

Notes: Authors' calculations based on March Current Population Surveys for 1979 and 2001. We exclude women in the military and women who live in group quarters.

Table 4a: Percent of Men Aged 30 to 50 with 52 Weeks of Nonemployment: Observed Labor Force Status by Time Period Reweighted by Age

		Observed Nonemployment Time Period					
		1 Peak 78-79	2 Trough 82-83	3 Peak 88-89	4 Trough 91-92	5 Peak 99-00	6 Trough 01-02
Demographic Weights	Peak 78-79	4.17	6.45	5.86	7.2	6.95	8.03
	Trough 82-83	4.07	6.39	5.78	7.14	6.85	7.94
	Peak 88-89	4.08	6.37	5.78	7.14	6.86	7.96
	Trough 91-92	4.12	6.37	5.8	7.16	6.92	8.01
	Peak 99-00	4.28	6.4	5.92	7.25	7.11	8.17
	Trough 01-02	4.3	6.42	5.94	7.27	7.14	8.19

Source: Based on authors' calculations using March CPS data. Estimates used to create the weights include a fourth-order polynomial in age.

Table 4b: Percent of Women Aged 30 to 50 with 52 Weeks of Nonemployment: Observed Labor Force Status by Time Period Reweighted by Age

		Observed Nonemployment Time Period					
		1 Peak 78-79	2 Trough 82-83	3 Peak 88-89	4 Trough 91-92	5 Peak 99-00	6 Trough 01-02
Demographic Weights	Peak 78-79	31.46	28.7	22.12	21.75	19.31	21.35
	Trough 82-83	31.36	28.57	22.03	21.72	19.35	21.4
	Peak 88-89	31.31	28.52	21.96	21.63	19.34	21.35
	Trough 91-92	31.33	28.57	21.96	21.6	19.32	21.31
	Peak 99-00	31.46	28.78	21.98	21.5	19.26	21.14
	Trough 01-02	31.53	28.86	22.04	21.54	19.25	21.12

Source: Based on authors' calculations using March CPS data. Estimates used to create the weights include a fourth-order polynomial in age.

Table 5a: Percent of Men Aged 30 to 50 with 52 Weeks of Nonemployment: Observed Labor Force Status by Time Period Reweighted by Age, Race, and Ethnicity

		Observed Nonemployment Time Period					
		1 Peak 78-79	2 Trough 82-83	3 Peak 88-89	4 Trough 91-92	5 Peak 99-00	6 Trough 01-02
Demographic Weights	Peak 78-79	4.17	6.34	5.63	6.86	6.57	7.6
	Trough 82-83	4.12	6.39	5.64	6.91	6.53	7.59
	Peak 88-89	4.19	6.5	5.78	7.05	6.63	7.69
	Trough 91-92	4.26	6.55	5.85	7.16	6.7	7.77
	Peak 99-00	4.58	6.89	6.24	7.59	7.11	8.16
	Trough 01-02	4.63	6.95	6.34	7.69	7.14	8.19

Source: Based on authors' calculations using March CPS data. Estimates used to create the weights include a fourth-order polynomial in age, indicators for race is African American and race is other, an indicator for Hispanic, and a full set of pair-wise interaction terms.

Table 5b: Percent of Women Aged 30 to 50 with 52 Weeks of Nonemployment: Observed Labor Force Status by Time Period Reweighted by Age, Race, and Ethnicity

		Observed Nonemployment Time Period					
		1 Peak 78-79	2 Trough 82-83	3 Peak 88-89	4 Trough 91-92	5 Peak 99-00	6 Trough 01-02
Demographic Weights	Peak 78-79	31.46	28.54	21.75	21.19	18.46	20.17
	Trough 82-83	31.46	28.57	21.87	21.41	18.67	20.42
	Peak 88-89	31.52	28.68	21.96	21.52	18.79	20.51
	Trough 91-92	31.6	28.81	22.05	21.6	18.85	20.55
	Peak 99-00	32.05	29.52	22.55	22.11	19.26	20.92
	Trough 01-02	32.32	29.81	22.84	22.42	19.46	21.12

Source: Based on authors' calculations using March CPS data. Estimates used to create the weights include a fourth-order polynomial in age, indicators for race is African American and race is other, an indicator for Hispanic, and a full set of pair-wise interaction terms.

Table 6a: Percent of Men Aged 30 to 50 with 52 Weeks of Nonemployment: Observed Labor Force Status by Time Period Reweighted by Age, Race, Ethnicity, and Marital Status

		Observed Nonemployment Time Period					
		1 Peak 78-79	2 Trough 82-83	3 Peak 88-89	4 Trough 91-92	5 Peak 99-00	6 Trough 01-02
Demographic Weights	Peak 78-79	4.17	6.1	5.03	5.92	5.41	6.05
	Trough 82-83	4.34	6.39	5.2	6.15	5.53	6.28
	Peak 88-89	4.89	7.12	5.78	6.79	6.06	6.88
	Trough 91-92	5.22	7.48	6.08	7.16	6.35	7.77
	Peak 99-00	5.99	8.31	6.87	8.03	7.11	7.21
	Trough 01-02	6.11	8.49	7.1	8.25	7.14	8.19

Source: Based on authors' calculations using March CPS data. Estimates used to create weights include a fourth-order polynomial in age, indicators for race is African-American and race is other, an indicator for Hispanic, marital status indicators for married spouse absent, widowed, divorced, separated, and never married, and a full set of pair-wise interaction terms.

Table 6b: Percent of Women Aged 30 to 50 with 52 Weeks of Nonemployment: Observed Labor Force Status by Time Period Reweighted by Age, Race, Ethnicity, and Marital Status

		Observed Nonemployment Time Period					
		1 Peak 78-79	2 Trough 82-83	3 Peak 88-89	4 Trough 91-92	5 Peak 99-00	6 Trough 01-02
Demographic Weights	Peak 78-79	31.46	29.05	22.45	21.79	19.31	21.02
	Trough 82-83	30.82	28.57	22.21	21.69	19.17	20.92
	Peak 88-89	30.35	28.22	21.96	21.56	19.02	20.77
	Trough 91-92	30.25	28.21	21.95	21.6	18.95	20.69
	Peak 99-00	30.46	28.74	22.31	21.99	19.26	21
	Trough 01-02	30.61	28.95	22.53	22.22	19.39	21.12

Source: Based on authors' calculations using March CPS data. Estimates used to create weights include a fourth-order polynomial in age, indicators for race is African-American and race is other, an indicator for Hispanic, marital status indicators for married spouse absent, widowed, divorced, separated, and never married, and a full set of pair-wise interaction terms.

Table 7a: Percent of Men Aged 30 to 50 with 52 Weeks of Nonemployment: Observed Labor Force Status by Time Period Reweighted by Age, Race, Ethnicity, Marital Status, and Education

		Observed Nonemployment Time Period					
		1 Peak 78-79	2 Trough 82-83	3 Peak 88-89	4 Trough 91-92	5 Peak 99-00	6 Trough 01-02
Demographic Weights	Peak 78-79	4.17	6.54	6.1	7.41	7.67	8.16
	Trough 82-83	4.08	6.39	5.75	6.96	7.1	7.7
	Peak 88-89	4.24	6.61	5.78	6.93	6.85	7.58
	Trough 91-92	4.43	6.81	5.94	7.16	6.94	7.72
	Peak 99-00	4.66	6.89	6.11	7.47	7.11	7.98
	Trough 01-02	4.86	7.16	6.39	7.71	7.32	8.19

Source: Based on authors' calculations using March CPS data. Estimates used to create weights include a fourth-order polynomial in age, indicators for race is African-American and race is other, an indicator for Hispanic, marital status indicators for married spouse absent, widowed, divorced, separated, and never married, indicators for education level elementary, some high school, some college, and college graduate, and a full set of pair-wise interaction terms.

Table 7b: Percent of Women Aged 30 to 50 with 52 Weeks of Nonemployment: Observed Labor Force Status by Time Period Reweighted by Age, Race, Ethnicity, Marital Status, and Education

		Observed Nonemployment Time Period					
		1 Peak 78-79	2 Trough 82-83	3 Peak 88-89	4 Trough 91-92	5 Peak 99-00	6 Trough 01-02
Demographic Weights	Peak 78-79	31.46	30.44	24.99	25.45	23.06	25.37
	Trough 82-83	29.73	28.57	23.45	23.78	21.63	23.9
	Peak 88-89	28.1	26.85	21.96	22.15	20.37	22.41
	Trough 91-92	27.55	26.3	21.45	21.6	19.82	21.82
	Peak 99-00	26.49	25.44	20.69	20.72	19.26	21.21
	Trough 01-02	26.28	25.26	20.56	20.59	19.16	21.12

Source: Based on authors' calculations using March CPS data. Estimates used to create weights include a fourth-order polynomial in age, indicators for race is African-American and race is other, an indicator for Hispanic, marital status indicators for married spouse absent, widowed, divorced, separated, and never married, indicators for education level elementary, some high school, some college, and college graduate, and a full set of pair-wise interaction terms.

Table 8a: Percent of Men Aged 30 to 50 with 52 Weeks of Nonemployment, Observed Change and Change Predicted by Demographic Characteristics for Select Time Periods

Period of Change	Observed Change in Nonemployment	Period of Observed Nonemployment	Demographic Characteristics Used to Construct Weights:	Change in Nonemployment Attributed to Demographic Changes	% of Change in Nonemployment Attributed to Demographic Changes
1978-79 to 1999-2000	2.94	1978-79	age	0.11	3.7
		1999-2000		0.16	5.4
		1978-79	age, race, and ethnicity	0.41	13.9
		1999-2000		0.54	18.4
		1978-79	age, race, ethnicity, and marital status	1.82	61.9
		1999-2000		1.70	57.8
		1978-79	age, race, ethnicity, marital status, and education	0.49	16.7
		1999-2000		-0.56	-19.0
1982-83 to 2001-02	1.8	1982-83	age	0.03	1.7
		2001-02		0.25	13.9
		1982-83	age, race, and ethnicity	0.56	31.1
		2001-02		0.60	33.3
		1982-83	age, race, ethnicity, and marital status	2.10	116.7
		2001-02		1.91	106.1
		1982-83	age, race, ethnicity, marital status, and education	0.77	42.8
		2001-02		0.49	27.2

Source: Authors' calculations based on the estimates presented in Tables 4a, 5a, 6a, and 7a.

Table 8b: Percent of Women Aged 30 to 50 with 52 Weeks of Nonemployment, Observed Change and Change Predicted by Demographic Characteristics for Select Time Periods

Period of Change	Observed Change in Nonemployment	Period of Observed Nonemployment	Demographic Characteristics Used to Construct Weights:	Change in Nonemployment Attributed to Demographic Changes	% of Change in Nonemployment Attributed to Demographic Changes
1978-79 to 1999-2000	-12.2	1978-79	age	0.00	0.0
		1999-2000		-0.05	0.4
		1978-79	age, race, and ethnicity	0.59	-4.8
		1999-2000		0.80	-6.6
		1978-79	age, race, ethnicity, and marital status	-1.00	8.2
		1999-2000		-0.05	0.4
		1978-79	age, race, ethnicity, marital status, and education	-4.97	40.7
		1999-2000		-3.80	31.1
1982-83 to 2001-02	-7.45	1982-83	age	0.29	-3.9
		2001-02		-0.28	3.8
		1982-83	age, race, and ethnicity	1.24	-16.6
		2001-02		0.70	-9.4
		1982-83	age, race, ethnicity, and marital status	0.38	-5.1
		2001-02		0.20	-2.7
		1982-83	age, race, ethnicity, marital status, and education	-3.31	44.4
		2001-02		-2.78	37.3

Source: Authors' calculations based on the estimates presented in Tables 4b, 5b, 6b, and 7b.

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