UI BENEFITS STUDY

Trends in the Structure of the Labor Market and Unemployment: Implications for U.S. Unemployment Insurance

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EXECUTIVE SUMMARY

The American Unemployment Insurance (UI) system has been in place since its establishment as part of the Social Security Act of 1935. While the labor market and the nature of unemployment have changed dramatically over the decades, the UI system has remained largely unchanged. Since its inception, the UI system has served the U.S. economy well by performing two crucial functions: providing workers with essential income protection when they are temporarily unemployed as a result of a layoff and helping unemployed workers maintain their consumption during recessions, thereby giving the national economy an important stimulus in periods when overall unemployment is high or rising.

Any proposed modification of the UI system must take into consideration three competing objectives:

- Provide adequate income to eligible claimants;

- Control total program costs; and

- Minimize the adverse incentive effects of the UI program on workers' job search behavior.

Conflicts among these three objectives are inevitable. Changes in the system that improve the protection available to laid-off workers will often increase program costs or worsen the adverse incentives created by the system.

The paper contains six sections. The first five sections address the major trends in the labor force and the U.S. economy affecting the UI system over the last seven decades. The last section identifies potential directions for change in UI that might make it more effective in the new environment.

1. Changes in the Composition of the Labor Force

Shifts over time in the composition of the labor force affect both the need for UI and the take-up of UI benefits. Married couple households are now more likely to have two working spouses than was the case in the earlier post-war period. Families with two earners can smooth consumption in the face of a layoff more easily than households with only a single breadwinner. On the other hand, changing living arrangements have reduced the percentage of adult Americans who are members of traditional married-couple families. Households headed by a single adult are less likely to have a second earner who can help support a family when the main breadwinner loses his or her job.

Older workforce. Since the early 1980s the American workforce has grown older as the proportion of both employed and unemployed workers under age 25 has declined. There has been a rise in the fraction of the workforce between the ages of 25 and 54. These trends tended to reduce the overall unemployment rate after the early 1980s. The aging of the baby boom generation has also increased the proportion of the workforce that is in late middle age and is nearing the standard retirement age. This rise in the fraction of older workers and unemployed is likely to continue for the next two decades. Older workers on average take longer to find new jobs after they are laid-off.

More educated workforce. The educational attainment and skills of the working-age population improved steadily over most of the post-war period, but the gains in educational attainment have slowed sharply in recent years, especially among men. Compared with the less educated, workers with more schooling are less likely to be unemployed and tend to have shorter spells of unemployment.

More racially and ethnically diverse workforce. The labor force has become more racially and ethnically diverse. A disproportionate share of labor force growth has been concentrated in traditionally disadvantaged populations with above-average unemployment rates. An important compositional change has been the rapid growth of the Hispanic workforce, which includes many immigrants. Additionally, a sizeable share of recent immigrants is not authorized to live or work in the United States; many of these work outside the UI-covered sector. The growing size of the illegal immigrant workforce may limit or even reduce the number of UI-covered jobs in some sectors such as construction and household services. However, if illegal immigrants work in UI-covered jobs but do not apply for UI benefits when they are laid-off, the tax contribution made on their behalf will reduce the average UI tax needed for legal residents.

Shift in geographic distribution. The geographical distribution of the population has changed, with workforce growth concentrated disproportionately in states where UI tax burdens and UI coverage rates are low. This geographical shift has reduced the average UI tax burden by about 10 percent, when this burden is measured as the ratio of regular UI benefit payments to total wages in the UI-covered sector.

2. Industrial Shifts and Changes in the Employment Contract

Shifts in employment across industries have reduced the importance of traditionally high-paying industries such as mining, manufacturing, and public utilities and increased the employment share of retail trade and services. Partly as a result of these shifts, temporary layoff unemployment has become less important and permanent layoffs are now relatively more common.

Union representation has declined. It is now less common for employers to negotiate formally with their workers about wages and the terms of employee separations. The decline in union density has had ambiguous effects on the demand and need for UI benefits.

Other changes in the employment contract have been influenced by the evolution of corporate governance. Leveraged buyouts and hostile takeovers are innovations that have made senior managers more sensitive to shareholders' interest in reducing corporate costs, including labor costs. The crucial issue from the perspective of the UI system is the impact of new corporate practices on company separation and hiring policies. Many observers believe that modern companies show less loyalty to their line employees and are more likely to dismiss them to obtain better financial results.

3. Trends in the Business Cycle

Since the early 1980s the U.S. economy has experienced remarkably stable growth relative to the earlier post-war period. The average economic expansion since 1983 has lasted nearly twice as long as expansions in the earlier post-war period, and recent recessions have been slightly

shorter. Increases in the unemployment rate from business cycle peak to recessionary trough have also been smaller than in earlier post-war recessions.

Several explanations have been advanced to explain the greater stability of the economy. One explanation is that financial market deregulation and innovations in consumer finance have relaxed borrowing constraints that once limited businesses' and consumers' ability to spend in recessions. If serious recessions now occur less frequently, state UI programs will not have to deal as often with a sharp rise in state UI rolls. They will have longer periods of low or declining unemployment in which they can build up their trust fund reserves. With more years between recessions, there will be less reason for states to replenish their reserves quickly, giving them greater flexibility in adjusting their tax schedules when reserves run low.

4.   Trends in the Nature and Cost of Unemployment

A number of changes in the nature of employment and in the wider economy have affected the challenges workers face when they are laid-off from a job. Some have made it easier for workers to smooth consumption when their earnings drop as a result of a layoff, but others have increased the cost of joblessness, making it more costly for laid-off workers to suffer long spells without a job. A notable trend in U.S. unemployment is the increasing length of average unemployment spells. At a given level of the overall unemployment rate, today's unemployed have been jobless for longer, and are more likely to exhaust UI benefits after they file a claim for benefits.

The financial resources of the unemployed and their ability to smooth consumption in the face of job loss have improved over time. The wealth and borrowing capacity of many of the unemployed have increased as wage levels and the percentage of unemployed in dual income households have increased. These trends allow workers with relatively short spells of unemployment to maintain their consumption more easily than was possible in earlier decades. Compared with workers in the 1950s and 1960s, today's workers can self-insure more easily against the risk of brief unemployment spells.

One of the most important challenges facing laid-off workers is the loss of crucial fringe benefits, such as health insurance and employer payments into a pension plan. Employer contributions for these two fringe benefits represented only 3.3 percent of wages in the 1950s and just 9.2 percent of wages as recently as the 1970s. In 2006, employers made contributions to employee health and pension plans that were equal to 15 percent of money wages. As a result, the risk of losing health insurance is much more important today than it was a quarter century ago, because the cost of adequate health insurance outside of an employer-sponsored plan has risen steeply in comparison to median wages.

5.   The Current Effectiveness of UI

In the period since 1980, the UI system has provided less countercyclical stimulus to the economy and lower income protection to job losers. Compared with the period before 1980, the amount of countercyclical stimulus provided by the program has fallen by one-fifth or more. That is, when the unemployment rate rises, the proportional rise in UI spending is now smaller by one-fifth than was the case in the earlier post-war period.

In an accounting sense, the falloff in both the countercyclical stimulus and income protection is traceable to two factors. First, a smaller percentage of the unemployed who lost their last jobs is collecting UI benefits. Second, because the income tax treatment of UI benefits has changed, the after-tax value of a UI check has fallen for most recipients. While the pretax replacement rate has remained virtually unchanged for the past five decades, since 1978, UI recipients have been required to pay income taxes on some or all of the UI benefits they receive, lowering the after-tax value of filing a UI claim.

6.   Changes in UI to Make it More Effective in the New Economy

The last section of the paper identifies several potential directions for changes to the UI system that might make it more effective in the new environment. Each of the identified potential changes requires close analysis before any clear recommendation could be offered. Four potential changes are considered in this paper:

1. To address the problem of lengthening unemployment spells, policymakers might consider providing a longer period of regular UI benefit duration or altering the trigger mechanism for Extended Benefits so that workers receive automatic extensions in benefit duration when the unemployment rate is high or rising.

2. To address the increased costs to the UI system associated with longer UI benefit duration, policymakers might also want to consider increasing the duration of the waiting period between the layoff date and the first week in which laid-off workers are eligible to draw a UI benefit.

3. To partially protect workers against the risk of losing employer-provided health insurance when they are laid-off, the UI system might be extended to provide compensation that subsidizes the purchase of COBRA health insurance coverage for UI-eligible laid-off workers who had health insurance on their lost jobs.

4. To encourage long-tenure, laid-off workers to look more energetically for new jobs, the current UI protection might be extended to provide reemployed workers with time-limited earnings insurance benefits.

While each of these potential changes to the UI system may have desirable outcomes, changes to the UI system can also have unintended consequences. Such changes should, therefore, not be implemented without a comprehensive understanding of their full benefits and costs. This comprehensive understanding of costs and benefits can only be achieved through careful analysis.

TRENDS IN THE STRUCTURE OF THE LABOR MARKET AND UNEMPLOYMENT: IMPLICATIONS FOR U.S. UNEMPLOYMENT INSURANCE

This paper analyzes critical trends in U.S. demography, labor market institutions, and the economy from the perspective of the optimal design and effective administration of unemployment insurance (UI). In particular, it provides an assessment of the implications of recent labor market developments for the operations of the existing UI system and for the optimal design of a UI system that offers workers good and cost-effective protection against the earnings loss that follows involuntary unemployment.

The United States offers valuable insurance to workers who lose their jobs as a result of a temporary or permanent layoff – unemployment compensation. The federal-state UI system was established in the Great Depression as part of the Social Security Act. It assumed its present-day form and scale shortly after World War II. The system serves two crucial functions. First, it provides workers with essential income protection when they are temporarily unemployed as a result of a layoff. Second, by helping unemployed workers maintain their consumption during recessions, it gives the national economy an important stimulus in periods when overall unemployment is high or rising.

Workers who lose their jobs through no fault of their own can collect UI benefits if they file claims and meet their state's monetary and non-monetary eligibility requirements. In order to become and remain eligible for benefits, workers must have an adequate work history, be ready and able to accept a suitable job, and search actively for work. Benefits are financed out of state trust funds which in turn are funded with payroll taxes imposed on employers. In most states, the maximum duration of regular benefits is limited to 26 weeks, and benefits replace 30 to 50 percent of lost wages up to a maximum weekly amount. Among states there are wide variations in benefit levels and maximum amounts, as well as in eligibility and work test requirements. States must now identify individuals at risk of exhausting UI benefits, and workers who face a high risk of benefit exhaustion are required to register for and receive additional services to help them find new jobs.

The paper contains six sections. The first describes changes in the American labor force and considers how these changes have affected the need for and take-up of UI benefits. The second considers changes in the character of demand for U.S. workers and the nature of employment that is insured by the UI system. The third section analyzes changes in U.S. business cycle dynamics and considers how these changes have affected the cyclical pattern of unemployment and demand for UI benefits. The next section describes changes in the nature of unemployment and characteristics of the unemployed. It assesses the economic losses that workers experience when they are laid-off and describes how changes in the legal and institutional environment have affected the size of these losses. The fifth section presents summary statistics on UI effectiveness. How well does the UI system perform in insuring workers against short-term earnings loss? How much does UI spending increase when unemployment rises? The final section evaluates the implications of the analysis for changes in UI that might make it more effective in the new environment.

I.   Composition of the Labor Force

New work patterns among women, shifts in household living arrangements, and changing demography have dramatically affected the American workforce and the composition of the unemployed. The working population is now older, more female, and more racially and ethnically diverse than it was in the first decades after World War II. It is also more educated and highly skilled. Many of these changes affect both the need for UI and the take-up of UI benefits.

Gender and household living arrangements. The principal goal of UI is to replace part of the earnings that are lost as a result of involuntary job loss. Workers who share their earned incomes with other potential earners can partly duplicate this insurance function through income sharing within the family. If a husband and wife share earnings equally, then the earnings lost when one spouse is laid-off may be partially offset through increased earnings by the other spouse. Even if the spouse who remains employed cannot earn higher wages, the loss of one spouse's earnings will not result in complete cessation of the family's earned income. Families with two earners can partially smooth consumption in the face of the shock of losing one earner's income.

Workers who live alone or with non-working family members do not enjoy this kind of income protection.

Changes in women's work patterns have increased the proportion of American adults who obtain de facto insurance through earnings sharing within the family. Married couple households are now more likely to have two working spouses than was the case in the earlier post-war period (see Figure 1). Among married couples where there is at least one working spouse, more than two-thirds of the families now have both a working husband and a working wife. In the mid-1960s more than half of these families had only a single earner, almost always the husband. In the early post-war period, when only one-fifth of married women were in the labor force, the fraction of married couples with two earners was much lower. The increase in the proportion of dual-income, married couples has reduced the percentage of couples who rely solely on one spouse's earnings. When spouses in dual-income families lose their jobs, they are usually better able to support themselves without UI benefits than adults who are the sole breadwinners in their families. U.S. Bureau of Labor Statistics (BLS) analysis of unemployment experience in married-couple families shows that when a member of such a family becomes unemployed there is a high probability that at least one other family member, usually the spouse, will still be employed. In 2006, for example, 82 percent of married-couple families with at least one unemployed family member reported that another family member was employed.[1] This percentage was clearly much lower shortly after World War II when only one-in-five married women were in the workforce.

The growing importance of dual-earner households is inextricably linked to the rising importance of paid work in the lives of American women. In 1948, women accounted for a little more than a quarter of the employed population ages 25 and older. A half century later, this fraction had risen to almost half (see Figure 2 and first column in Table 1). Women now account for more than half the workers under the age of 20. At higher ages the participation rates of women are lower than those of men the same age, but the gap between the two sexes has narrowed over time. The proportional rise in labor force participation has been steeper among married women than among never-married women and women who are separated, divorced, or widowed (see Figure 3). This pattern suggests that women can now expect to contribute substantially to their

Figure 1. Source of Earnings in Married-Couple Families Where at Least One Spouse Works, 1967-2003

Percent of population
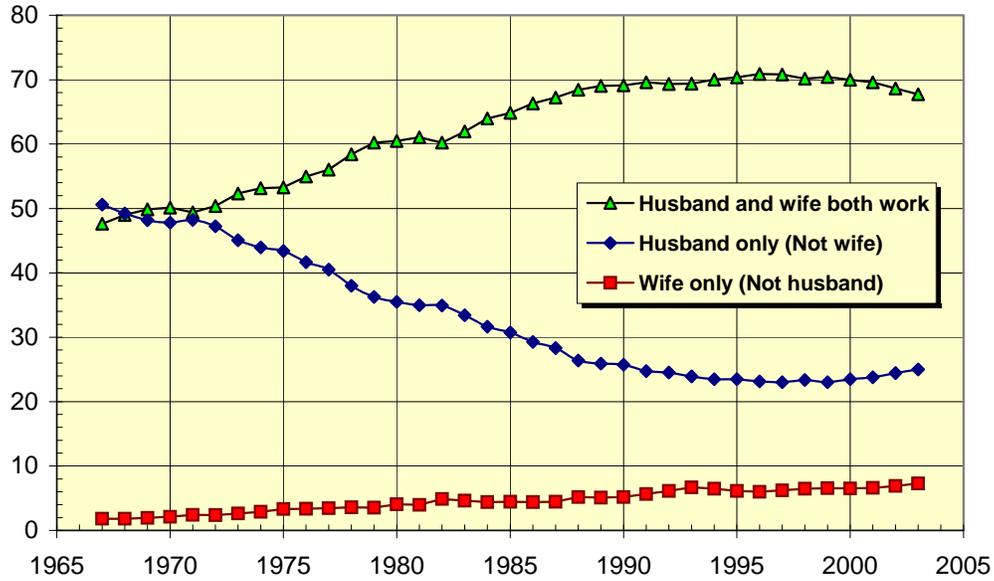
Source: BLS (2005), *Women in the Labor Force: A Databook*, Table 23.

Figure 2. Percent of Employed Population that Is Female, 1948-2006

Percent
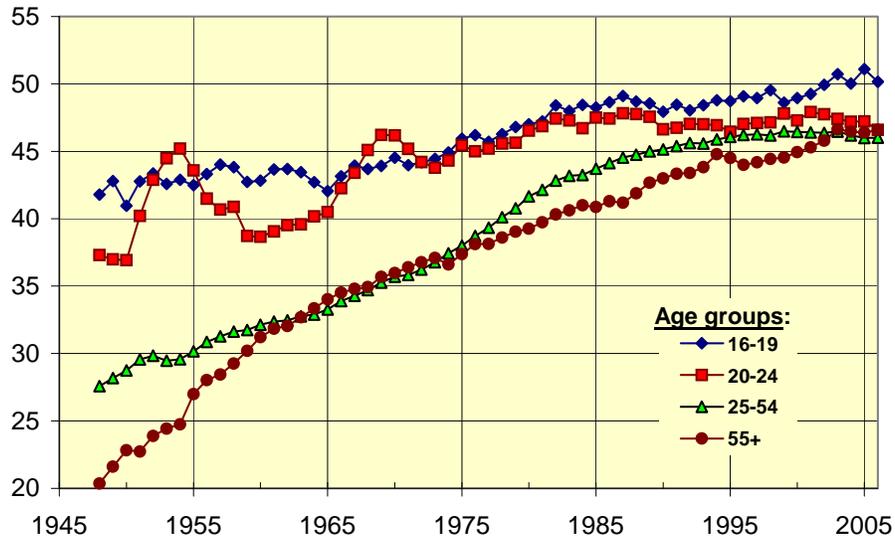
Source: U.S. Bureau of Labor Statistics.

Table 1. Age and Sex Composition of the Labor Force Age 16 and Older, 1950-2006

Year	Percent female	Percent in age group				
		16-19	**20-24**	**25-54**	**55-64**	**65 and older**
			Civilian labor force			
1950	29.6	6.8	11.7	64.3	12.3	4.9
1960	33.4	7.0	9.6	65.4	13.5	4.6
1970	38.1	8.8	12.8	60.9	13.6	3.9
1980	42.5	8.8	14.9	62.3	11.2	2.9
1990	45.2	6.2	11.7	70.2	9.2	2.7
2000	46.5	5.8	10.0	71.1	10.1	3.0
2006	46.3	4.8	10.0	68.4	13.2	3.6
			Unemployed workers			
1950	31.9	15.6	17.1	52.0	11.2	4.2
1960	35.5	18.5	15.1	52.9	10.3	3.2
1970	45.3	27.0	21.2	41.8	7.5	2.5
1980	44.1	21.9	24.0	47.7	5.2	1.2
1990	44.6	17.2	18.4	57.4	5.5	1.5
2000	47.7	19.0	18.0	54.5	6.2	2.3
2006	46.4	16.0	17.6	55.6	8.5	2.3

Source: U.S. Bureau of Labor Statistics.

Figure 3. Labor Force Participation Rate of Women by Marital Status, 1947-2005

Percent of population
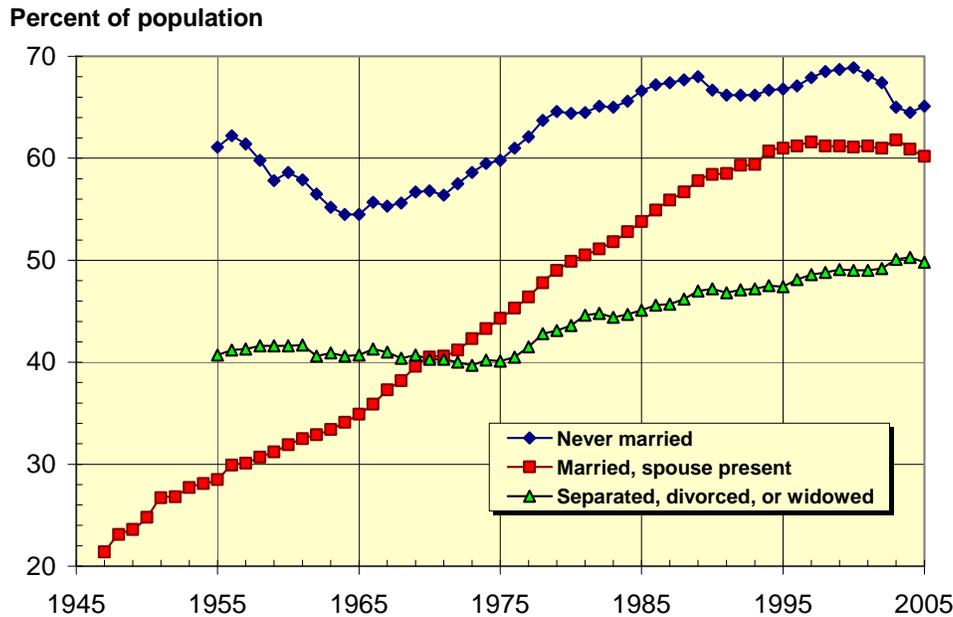
Source: *Statistical Abstract of the United States*, 2007 (Table 584 and supplementary historical tables). [http://www.census.gov/compendia/statab/tables/07s0584.xls and http://www.census.gov/statab/hist/02HS0030.xls]

families' incomes, even when they are married to a working breadwinner who can help support them. In 2003 working wives earned 35 percent of their families' total incomes. In one-third of married-couple families with a working wife, the wife earned more than her husband.[2]

In the 1970s and 1980s, when the rise in female participation was particularly rapid, many unemployed women were trying to enter the full-time workforce for the first time or were reentering the labor force after a long absence. Since many of these women had no recent employment in a UI-covered job, they were jobseekers who were ineligible for UI benefits. After the late 1980s, women's work experience became more similar to that of men the same age. It is now less common for women to reenter the labor force after a lengthy spell without any insured employment. A 35-year-old woman who is unemployed is nowadays more likely to have recently worked in a UI-covered job and to be eligible for UI. Figure 4 shows career employment patterns among successive cohorts of American women. The estimates are based on Social Security earnings records that have been matched to Census interview records from the

Figure 4. Career Pattern of Employment among U.S. Women, by Birth-Year Cohort, 1951-2001

Percent of women who have Social-Security-covered earnings
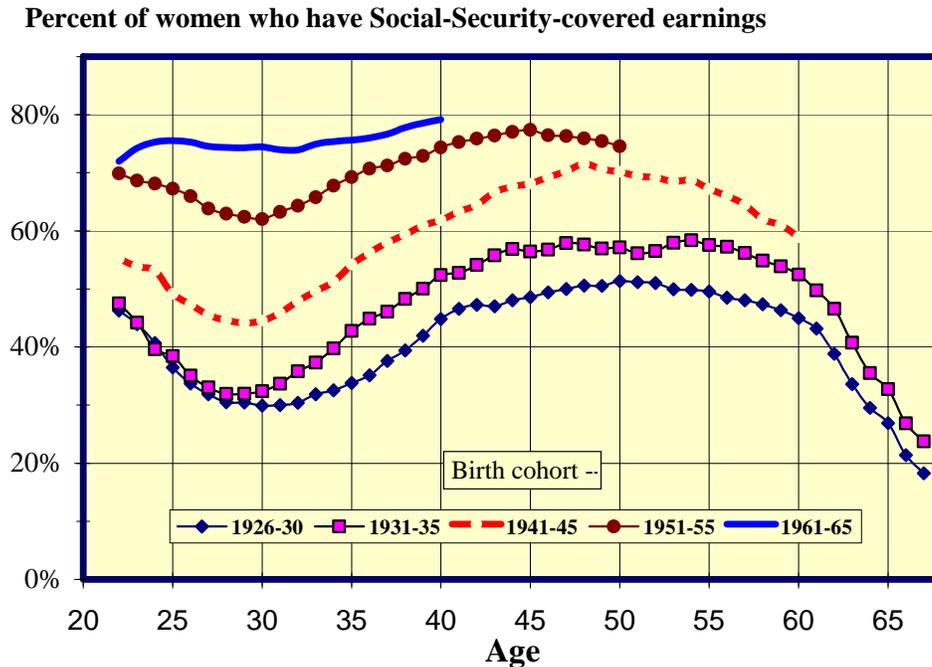
Source: Author's tabulations of 1990-1993 Survey of Income and Program Participation files matched to 1951-2001 Social Security earnings records.

Survey of Income and Program Participation (SIPP). The 1951-2001 earnings records of women born between 1926 and 1965 have been tabulated to show the percentage of women in each birth-year cohort who reported Social-Security-covered earnings at successive ages. The line at the bottom shows employment rates for the cohort born between 1926 and 1930. Note that at age 30, less than one-third of these women earned income in Social-Security-covered jobs. When this birth cohort attained age 50, only 51 percent of women had covered earnings. The top line in the chart shows career employment patterns for women born between 1961 and 1965. The line ends at age 40, which is the oldest age observed when the Social Security earnings data end. At age 40, almost 80 percent of this birth cohort had Social-Security-covered earnings, a higher rate of employment than the peak employment rate of cohorts born earlier. The recent high rate of women's employment in Social-Security-covered jobs clearly signals that a large fraction of these women have accumulated insurance coverage under the UI program.

The rise in female participation has been especially striking among married women who are rearing children, including very young children (see Figure 5). In 2005, 68 percent of married mothers with children under 18 were labor force participants. Among married mothers with a child less than age six, 60 percent were employed or looking for work. In 1950, only 15 percent of married women with children under 18 were in the workforce. Many married mothers with very young children work on a part-time rather than a full-time schedule. While the loss of a secondary earner's wages after layoff is harmful to family finances, it is usually less harmful than the loss of income when a family's sole breadwinner is laid-off.

Figure 5. Labor Force Participation Rate of Married Women, Spouse Present, by Age and Presence of Own Children, 1950-2005

Percent of population
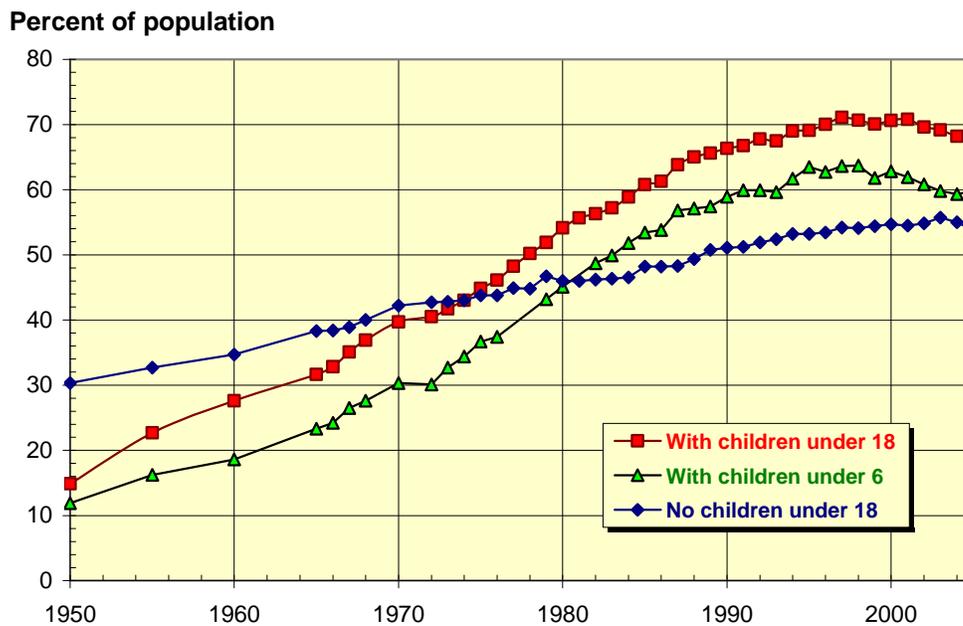
Note: Population is age 16 and older.
Source: *Statistical Abstract of the United States*, 2007 (Table 585) and author's tabulations of unpublished BLS data.

The changing work patterns of married women have increased the proportion of married-couple families with multiple breadwinners. At the same time, however, changing living arrangements have reduced the proportion of American adults who are members of traditional married-couple families. At the end of World War II almost 80 percent of U.S. households were headed by a husband-wife couple. By 2006, that percentage had fallen to slightly more than 50 percent of households. Seventeen percent of households were families headed by an unmarried man or

woman, and 32 percent were non-family households, that is, adults living alone or with one or more unrelated persons.[3] People in these kinds of living arrangements often do not have the income-sharing possibilities open to workers in married-couple families. When a household includes only one adult member, the household's earned income can fall to zero after the breadwinner loses his or her job. BLS tabulations show, for example, that among households maintained by an unmarried woman, when the earner becomes unemployed, more than half of the affected households have no other earner.[4] An increasing share of working-age Americans live in nontraditional households, without a current spouse. For many adults in these circumstances, UI benefits provide a crucial source of support when a breadwinner loses a job.

Workforce aging. Swings in fertility and immigration, increases in the school-leaving age, and changes in retirement behavior have produced notable, though gradual, shifts in the age distribution of both the workforce and the unemployed (see Table 1). Low birth rates in the 1930s and early 1940s produced comparatively slow labor force growth in the 1950s and early 1960s. The fraction of the workforce under age 25 shrank, while the age distribution of the unemployed remained roughly constant. The entry of the large baby boom generation into the working-age population between the mid-1960s and early 1980s accelerated the growth of the workforce and lowered the average age of labor force participants. Since teenagers and young adults have much higher unemployment rates than people ages 25 and older, this development also pushed up the jobless rate and significantly reduced the average age of the unemployed. By the late 1970s, almost half the unemployed were younger than age 25.

Unemployment is common among the young because many of them hold jobs for brief periods, often only a few weeks or months. Many teenagers and workers in their early 20s are combining work with school, so their job holding patterns are strongly affected by school or college schedules. Students may cease to work when a semester begins or when the demands of schooling grow too heavy to combine paid employment with school attendance. Young people who have completed their schooling often move rapidly from one job to the next as they look for work that suits their preferences and aspirations. Many will hold several jobs before finding a position that lasts three or more years. As workers grow older, this kind of turnover declines and unemployment becomes less frequent.[5] Most unemployment spells of the young are not insured by the UI system.[6] Between 2001 and 2006 almost one-third of unemployed workers were

between the ages of 16 and 24, but during the same period less than one-tenth of UI claimants were ages 24 or younger. Unemployed workers under age 25 are grossly underrepresented on the UI rolls. Teenagers who are looking for their first job and young adults seeking work after many months in school do not have enough coverage under the UI system to qualify for benefits. Workers who leave a job voluntarily, either because they want to return to school or because they are dissatisfied with working conditions and pay, are not entitled to claim a UI check. Even workers who are dismissed from a job may be ineligible if they have not accumulated enough work experience to meet a state's UI qualifying requirements.

After the early 1980s the American workforce grew older, and the proportion of unemployed workers under age 25 fell back to levels last seen in the 1950s. There was an increase in the fraction of the workforce and unemployed between the ages of 25 and 54. Compared to the young, prime-age workers who are laid-off are more likely to have recent work experience that qualifies them for UI benefits, and they are more likely to have family responsibilities that make it necessary to replace earnings lost when a layoff occurs.

The aging of the baby boom generation has also increased the proportion of the workforce that is in late middle age and is nearing or past the standard retirement age. The fraction of the unemployed who are ages 55 or older increased from 7.1 percent in the early 1980s to 10.8 percent in 2006. In view of the age structure of today's population, the fraction of aged and near-aged workers among the unemployed is likely to continue rising for the next couple of decades. This trend will be reinforced by the recent tendency of workers past age 62 to gradually increase their age of full exit from the labor force. In the first four decades after World War II, workers with full careers chose to leave the workforce at earlier and earlier ages. This led to a decline in the percentage of labor force participants past the age of 62. Beginning in the mid-1980s the long-term trend toward earlier retirement came to an end and began to reverse. Labor force participation rates of men and women in their 60s are now rising, and this trend is likely to continue as Social Security and employer-sponsored pensions provide weaker incentives to claim early pensions and stronger incentives for pension recipients to keep working.[7]

When older workers are laid-off they face different problems than the young. Before being laid-off they were likely to earn higher wages than workers near the beginning of their careers. Older

unemployed workers are also more likely to have savings to fall back on. A minority may be eligible for an employer-sponsored pension. Asset holdings and pensions allow many older workers to smooth their consumption after job loss, even without claiming UI benefits. Many newly jobless older workers recently held a job that provided fringe benefits. Some of these benefits are particularly valuable to people nearing the end of a career. Health insurance is especially valued by older workers who are not yet eligible for Medicare and do not have access to health insurance through a former employer's plan or some other family member's plan. The UI program does not insure unemployed workers against the loss of these benefits, which may make it more urgent that these workers find a new job that provides such benefits. Finally, older workers experience longer average spells of unemployment after they become unemployed. In 2007 the average length of unemployment spells in progress was 21.9 weeks for unemployed workers between the ages of 55 and 64 versus just 12.9 weeks for jobless workers between the ages of 16 and 24.[8] Compared with the young, older unemployed workers spend more time looking for work either because they are choosier about the jobs they will accept or because employers discriminate against them when filling job vacancies. Older unemployed workers are also more likely to receive UI benefits when they are laid-off and to receive benefits longer.

Skills, educational attainment, and wage differentials. The working-age population has accumulated increasing education over the post-war era (see Figure 6). The percentage of Americans ages 25 and older that completed four years of high school increased from 33 percent in 1947 to 86 percent in 2006. The proportion with four or more years of post-secondary schooling increased from 5 percent to 28 percent of the population. Gains in educational attainment have recently slowed, especially among working-age Americans under age 55. Census Bureau surveys indicate that the high school completion rate in the population between the ages of 25 and 34 has changed little since the early 1980s, while the high school completion rate in the population ages 35-54 has risen little since the early 1990s. After the early 1980s almost all the gain in the college completion rate has been concentrated among prime-age women (see Figure 7). Among men between the ages of 25 and 34 the rate of college completion in 2006 was virtually unchanged from its level in the late 1970s.

Figure 6. Educational Attainment of the Population 25 and Older, 1947-2006
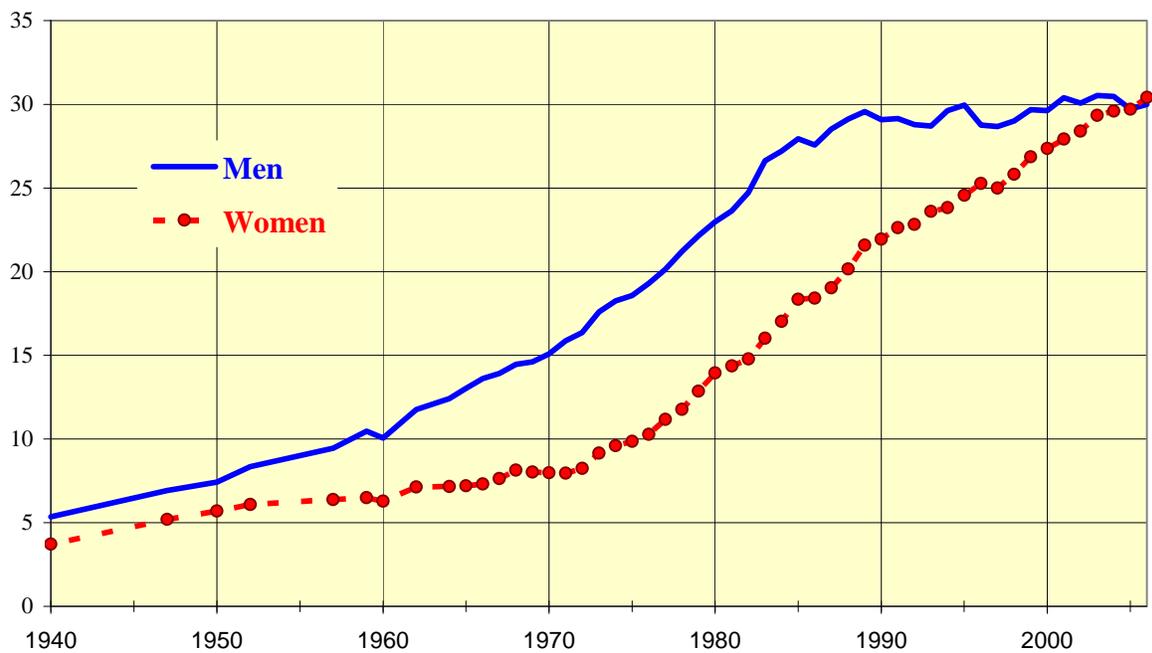
Percent of population 25 and older
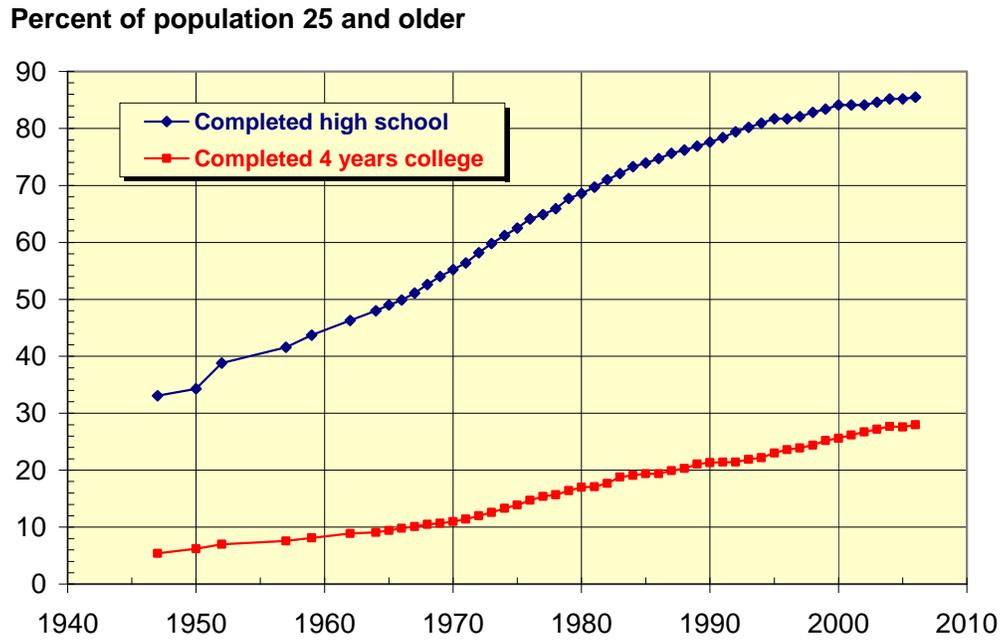
Source: U.S. Census Bureau.

Figure 7. College Completion Rates by Age and Gender, 1940-2006

Percent Who Have Completed College
25-34 year-olds
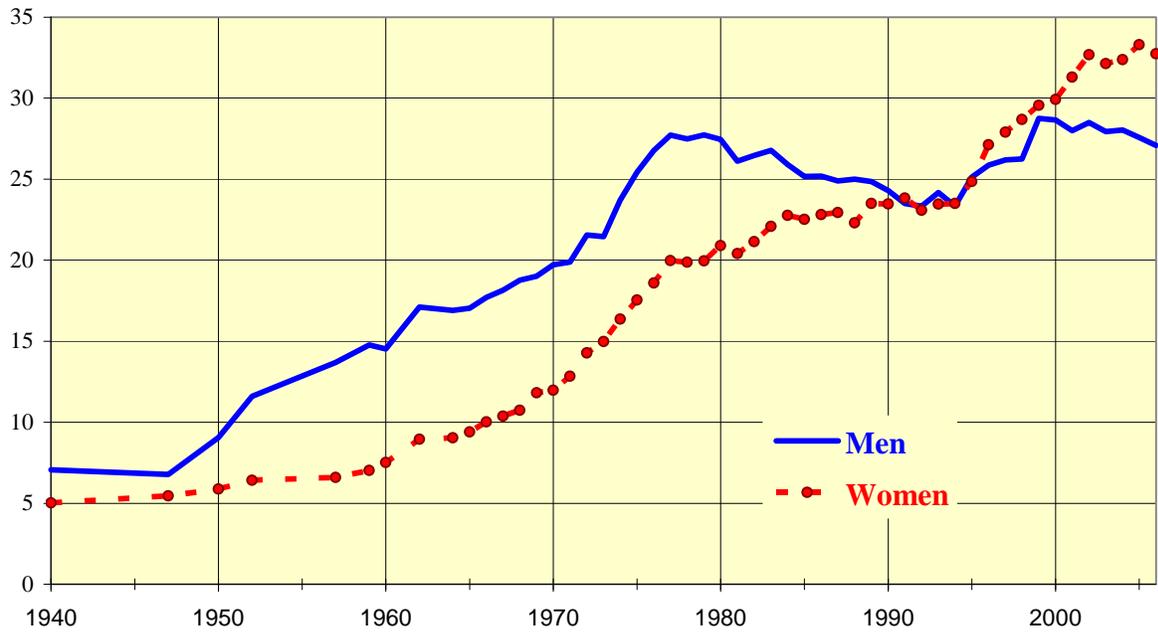
Percent Who Have Completed College
35-54 year-olds

Source: U.S. Census Bureau.

The continuing slow rise in high school and college completion rates shown in Figure 6 results mainly from the fact that younger working-age Americans have higher levels of school attainment than people past the age of 60. If educational attainment among working-age Americans is to continue growing in the future, teenagers and young adults will have to stay in school longer than they currently do.

Long-term gains in the educational qualifications of the nation's workforce contributed substantially to the rise in average productivity and real earnings of U.S. workers. In the first four decades after World War II, economists estimate that increases in average educational attainment explain 11 percent to 20 percent of the overall increase in worker output per hour.[9] Greater investments in education allow workers to perform more complicated and intellectually demanding tasks, help them acquire training for a broader variety of occupations, and contribute to innovation in production processes and the development of new goods and services. Compared to workers who have less education, workers with greater school attainment are less likely to be unemployed and more likely to earn high wages. Since the late 1970s the earnings premium for better educational credentials has increased noticeably. In the late 1970s the average hourly wage received by a college graduate was 43 percent higher than that received by a high school graduate. By 2005 college graduates' pay was 75 percent above the average wage received by high school graduates (see Figure 8).

The growing pay premium for better educational credentials is one of several trends that have pushed up overall earnings inequality in the United States. Figure 9 shows relative changes in the pure price of U.S. labor, which can be measured using the hourly gross wage received by wage and salary employees. The chart displays relative pay trends separately for men, in the top panel, and women, in the bottom panel. It covers the period from 1973, when this kind of wage data was first collected by the BLS, up through 2005. Both panels show three indicators of relative pay. The top line in each panel shows the ratio of hourly pay earned by a worker at the 95th wage percentile and a worker earning the median wage. This ratio is usually referred to as the 95-50 wage ratio. The lower two lines show the 90-50 and the 50-10 wage ratios. The figure provides clear evidence of widening U.S. pay disparities among both men and women over almost the entire period since 1979. There was a distinctive break in one of the trends, however. Whereas the relative earnings differences between middle-rank and top U.S. earners has

Figure 8. Trends in Relative Hourly Earnings of U.S. Workers by Educational Attainment, 1973-2005

Hourly earnings
(Percent of high school graduates' average wage)
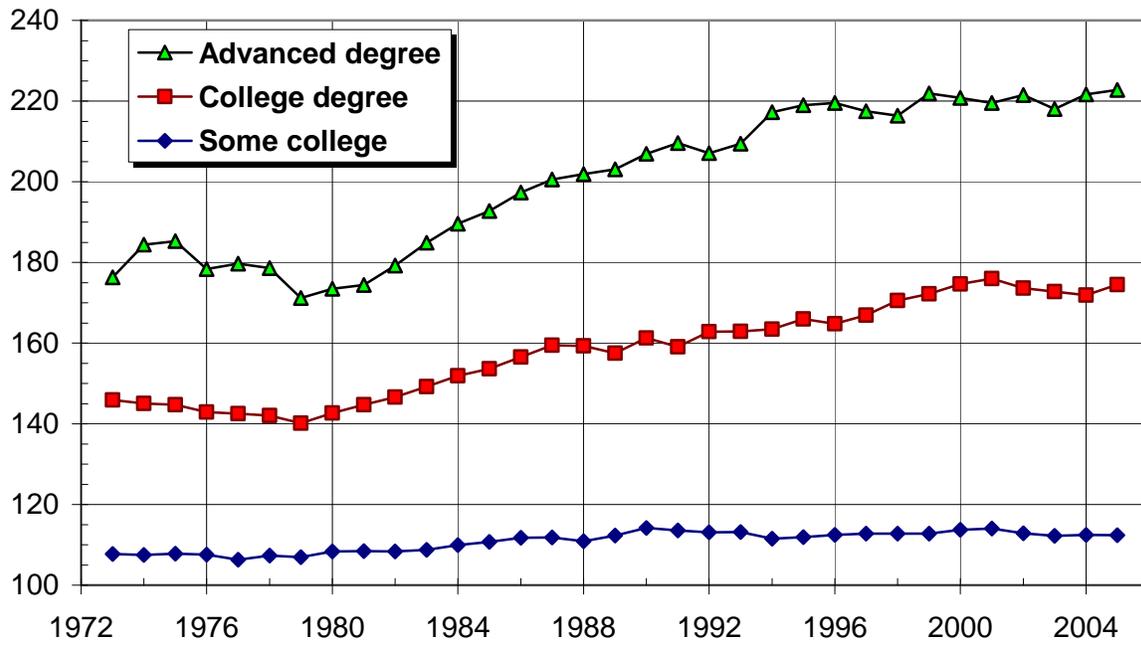
Hourly earnings
(Percent of high school graduates' average wage)
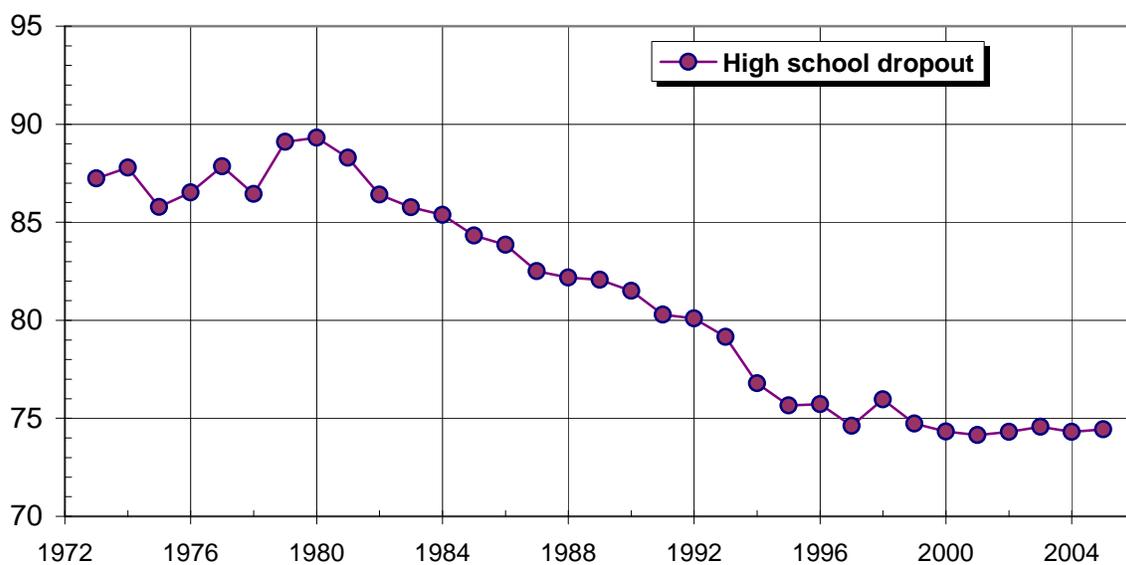
Source: Economic Policy Institute (2007), http://www.epi.org/datazone/06/datazone_2006-full.xls .

Figure 9. Trends in Relative Hourly Earnings of U.S. Workers, 1973-2005
a/

Ratio of earnings at selected points in distribution: Men
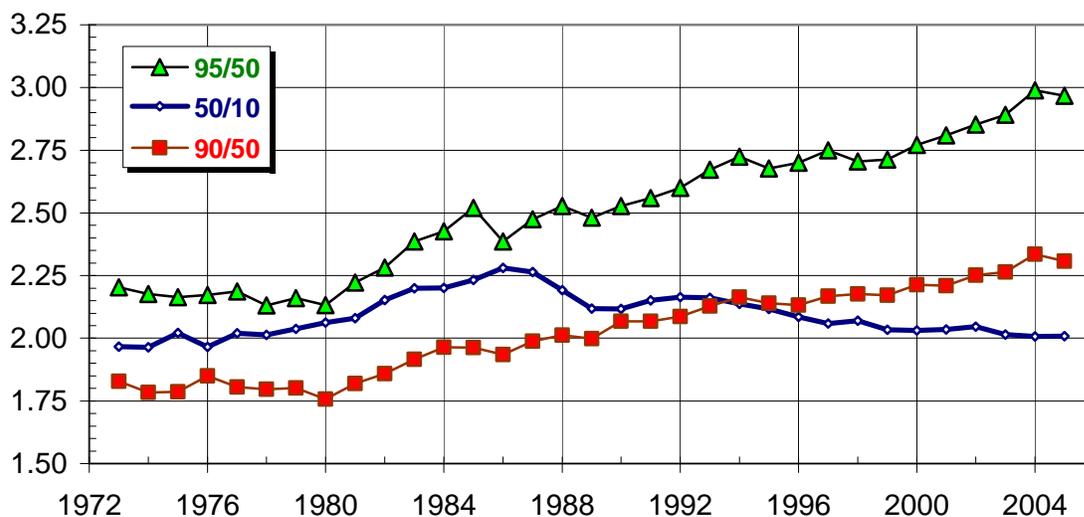
Ratio of earnings at selected points in distribution: Women
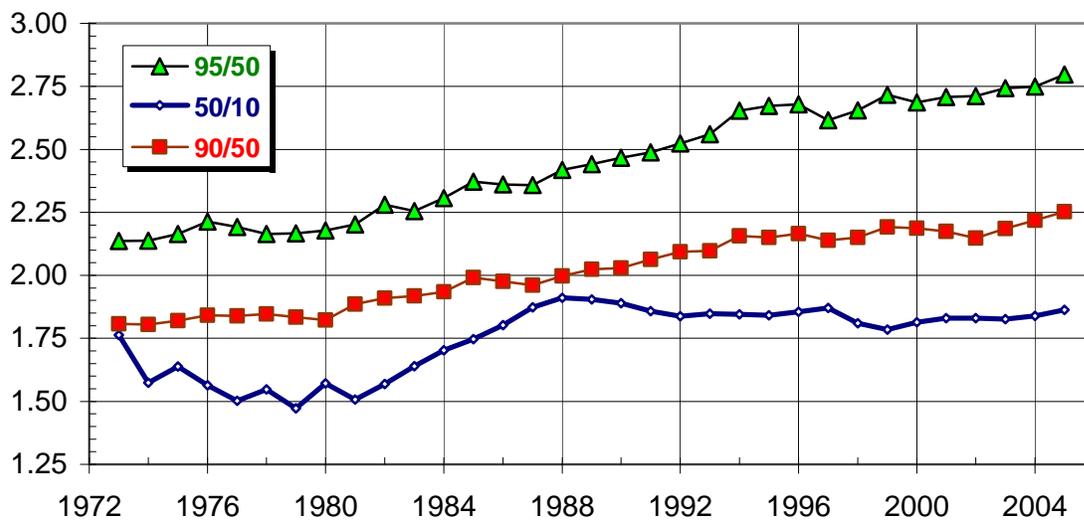
a/ The figure shows trends in the ratio of wages at the 95th and 50th percentiles, at the 50th and 10th percentiles, and at the 90th and 50th percentiles of the hourly earnings distribution.

Source: Economic Policy Institute tabulations of hourly earnings data from the monthly Current Population Survey files (http://www.epi.org/content.cfm/datazone_dznational).

continued to grow over the entire period, the gap between low- and middle-rank earners widened until about 1986-1988 but then shrank or stabilized after the late 1980s. Evidently, the factors that pushed down the relative wages of poorly paid workers in the 1980s became less important after 1988. By 2005 the relative wage difference between poorly paid and average-wage U.S. workers was approximately the same as it had been in the early 1970s.

Many economists interpret the wage inequality trends in Figures 8 and 9 to mean that the demand for workers with high skills has grown faster than the relative supply of such workers. The growing wage premium for advanced diplomas clearly supports this hypothesis. The increase in wage disparities among workers who have the same educational qualifications and job tenures is also consistent with the hypothesis if we believe that employers are increasing the wage premiums they offer to their most skilled workers *within* each educational attainment class. College degree holders whose skills do not keep up with the skill demands in their occupation have paid an increasingly heavy penalty over time. When measured relative to the earnings received by the best paid members of their profession, their pay has fallen significantly since the late 1970s.

The long-term improvement in workers' average educational attainments should have improved the outlook for unemployment if skill demands remained unchanged. Workers who are better educated are qualified to hold a broader range of jobs in a wider range of occupations than workers who have less schooling. It is easier for the better educated to find work when they are laid-off. In fact, between 1992 and 2007 workers with a college diploma or a post-college degree had an average unemployment rate that was more than one-third below the overall unemployment rate. In contrast, the unemployment rate of workers who had not completed high school was about twice the rate for the workforce as a whole.[10]

In spite of the improved educational credentials of the working population and the unemployed, however, average unemployment durations have not fallen over time. On the contrary, holding constant the level of unemployment, the average duration of unemployment spells in progress is now longer than it was in the early post-war decades when the educational attainment of the workforce was lower. Even though unemployed workers who have good education credentials may be qualified to fill a wide range of jobs, many are probably unwilling to accept large pay

cuts or a big loss of fringe benefits in order to become reemployed. Many workers with advanced degrees receive considerable formal and informal training after leaving school. They develop expertise in a particular job or narrow occupational category, and they may be generously remunerated for this expertise. When they are laid-off there are both private and social advantages to help them find new jobs in which their expertise will be used and rewarded. In an economy that has two job vacancies and two unemployed workers, aggregate output will be higher if workers find and fill the job vacancies that best matches their qualifications. By subsidizing job search for up to 26 weeks, standard UI benefits can perform this function about as well for highly educated workers as for the less skilled.

Increases in educational attainment have improved the general skills of the workforce, but they have also encouraged employers to develop specialized jobs that exploit the higher skills of their workers. These specialized jobs often require sizeable investments in formal and informal training.[11] Part of the cost of investment is borne by employers, but part is borne by workers themselves, usually in the form of lower wages while they are learning new skills. When workers are laid-off, it may not make sense for them to forfeit this investment by finding work in an occupation where their training has no value.

Workers typically accumulate job-specific skills during lengthy spells of employment with a single employer. Long employment spells with an employer can signal the economic importance of specific skills picked up on the job. Strikingly, however, average job tenures have declined since the early 1980s for many middle-aged workers. The BLS has obtained consistent survey information about workers' job tenure since 1983 (Table 2). In the years since then, male job tenures have fallen at all ages while the median tenure of women workers has risen modestly, except in the oldest age category where it has also declined. Given the trend in women's job market experience, described above, it is not surprising that men's and women's job tenure patterns look more similar in 2006 than was the case two decades ago. Women are nowadays more likely to remain steadily in the workforce than was the case before 1983. What is surprising is that male and female tenure patterns have converged mainly because average male tenure has *declined* rather than because female tenure has increased. Between 1983 and 2006 the

Table 2. Median Years of Tenure with Current Employer for Employed Wage and Salary Workers by Age and Sex, Selected Years, 1983-2006

Age and sex	January 1983	January 1987	January 1991	February 1996	February 2000	January 2006
Both sexes						
16 years and over	3.5	3.4	3.6	3.8	3.5	4.0
25 years and over	5.0	5.0	4.8	5.0	4.7	4.9
Men						
16 years and over	4.1	4.0	4.1	4.0	3.8	4.1
25 years and over	5.9	5.7	5.4	5.3	4.9	5.0
25 to 34 years	3.2	3.1	3.1	3.0	2.7	2.9
35 to 44 years	7.3	7.0	6.5	6.1	5.3	5.1
45 to 54 years	12.8	11.8	11.2	10.1	9.5	8.1
55 to 64 years	15.3	14.5	13.4	10.5	10.2	9.5
Women						
16 years and over	3.1	3.0	3.2	3.5	3.3	3.9
25 years and over	4.2	4.3	4.3	4.7	4.4	4.8
25 to 34 years	2.8	2.6	2.7	2.7	2.5	2.8
35 to 44 years	4.1	4.4	4.5	4.8	4.3	4.6
45 to 54 years	6.3	6.8	6.7	7.0	7.3	6.7
55 to 64 years	9.8	9.7	9.9	10.0	9.9	9.2

Sources: U.S. BLS (1997), "Employee Tenure in the Mid-1990s," New release USDL 97-25 [ftp://ftp.bls.gov/pub/news.release/History/tenure.013097.news] and BLS (2006), "Employee Tenure in 2006" News release USDL 06-1563 [ftp://ftp.bls.gov/pub/news.release/History/tenure.09082006.news]

median tenure of wage-earning men between the ages of 45 and 54 fell 4.7 years (37 percent), and the median tenure of men between the ages of 55 and 64 fell 5.8 years (38 percent). Workers' average tenure in jobs depends on their willingness to remain in the job as well as employers' job separation policies. If workers' desire to hold on to jobs has remained roughly unchanged, the fall in average job tenure reflects an increased willingness or need on the part of employers to discharge their workers before they accumulate long tenure on the job. The evidence in Table 2 is consistent with the view that permanent job separation is now more common for long-tenure workers than it was before the 1983 tenure survey.

Race, ethnicity, and immigrant status of the workforce. The working-age population has become ethnically and racially more diverse over the past five decades (see Figure 10). The percentage of the labor force that is nonwhite has increased from 11 percent in 1960 to 18 percent in 2006. Labor force participants who are Hispanic comprised 14 percent of the workforce in 2006. (Hispanics may be of any race or no self-identified race at all.) In 1973, the first year Hispanic ethnicity was tabulated, only 4 percent of the labor force was Hispanic.

Figure 10. Race and Hispanic Ethnicity of the Labor Force Age 16 and Older, 1954-2006

Percent of labor force   Percent of labor force
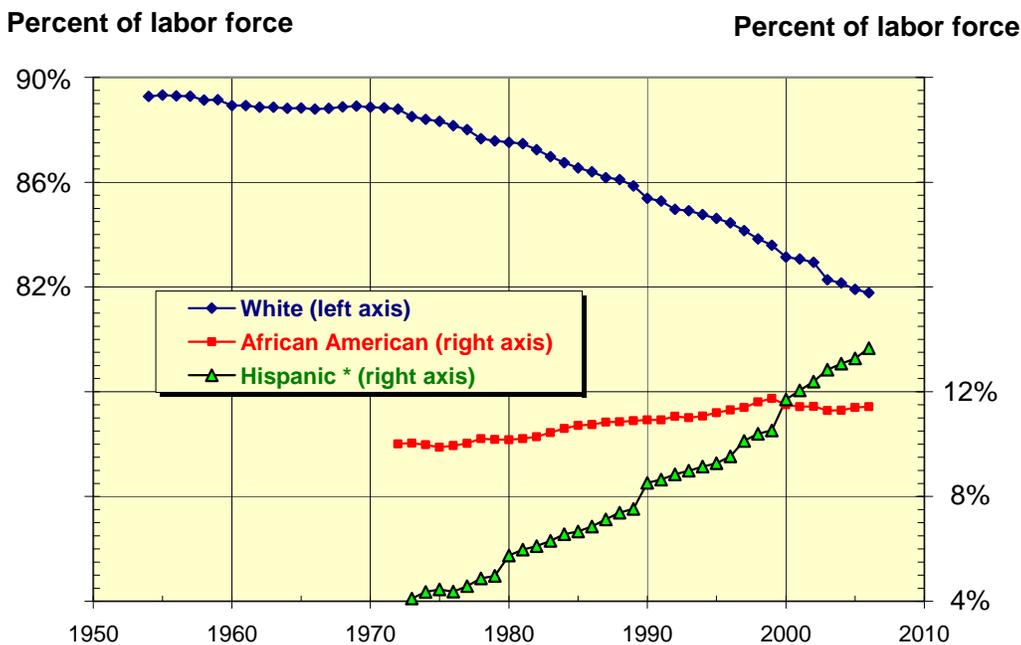
* Hispanics may be of any race.
Source: U.S. Bureau of Labor Statistics.

The racial and ethnic composition of the unemployed population has followed these same trends. The percentage of the unemployed that is African American has edged up gradually over the post-war period and is now slightly higher than 20 percent. The fraction of the unemployed which is Hispanic increased even more sharply, rising from 6 percent to 15 percent between 1973 and 2006. These two minorities have historically faced a higher rate of unemployment than non-Hispanic whites and Asian Americans. Since the early 1970s the African American unemployment rate has been about twice the rate of the labor force as a whole, and the Hispanic rate has been about half, again higher the national unemployment rate. The employment

problems in these communities are due partly to employer discrimination and partly to low average levels of educational attainment. So long as these barriers remain in place, the rising importance of African Americans and Hispanics in the labor force will contribute toward higher overall rates of joblessness. Interestingly, however, the unemployment rates of both groups have tended to move toward the overall unemployment rate in recent years. The trend is relatively modest in the case of African Americans, but the recent rapid convergence of the Hispanic unemployment rate toward the average rate has been striking. Between 1973 and 1999 the Hispanic unemployment rate was on average one-half above the overall unemployment rate. In 2000-2006 it was only a little more than one-quarter above the overall rate, and in 2006 it was less than one-eighth higher than the national unemployment rate.

The diversity of the population has increased in part because birth rates differ across racial and ethnic groups. A more important reason for the rising number of nonwhite and Hispanic labor force participants is the rising number and changing character of immigrants into the United States. In the 1960s, the country granted legal permanent resident status to 320,000 immigrants per year. About half of legally admitted immigrants came from Canada or Europe. Since 2000 about 1,000,000 new entrants a year have been granted permanent resident status, and over 80 percent of legally admitted permanent residents originate outside of Canada and Europe, mainly from Latin America.[12] The surge in immigration after the 1960s increased the share of the foreign-born in the working-age population (see Figure 11). Low rates of immigration between the 1930s and the 1960s had gradually reduced the fraction of foreign born to less than five percent of the working-age population by 1970. Rising immigration after 1970 reversed that trend. The foreign-born population now represents almost 15 percent of the population between the ages of 15 and 64, three times the proportion in 1970. According to the Census Bureau estimates based on the 2004 American Community Survey, 14.5 percent of labor force participants are foreign born, and another 6.7 percent are the children of immigrants.[13] By implication, more than one worker out of every five is currently either an immigrant to the United States or the child of an immigrant.

Figure 11. Percent of the U.S. Population Age 15 to 64 that Is Foreign Born, 1950-2004
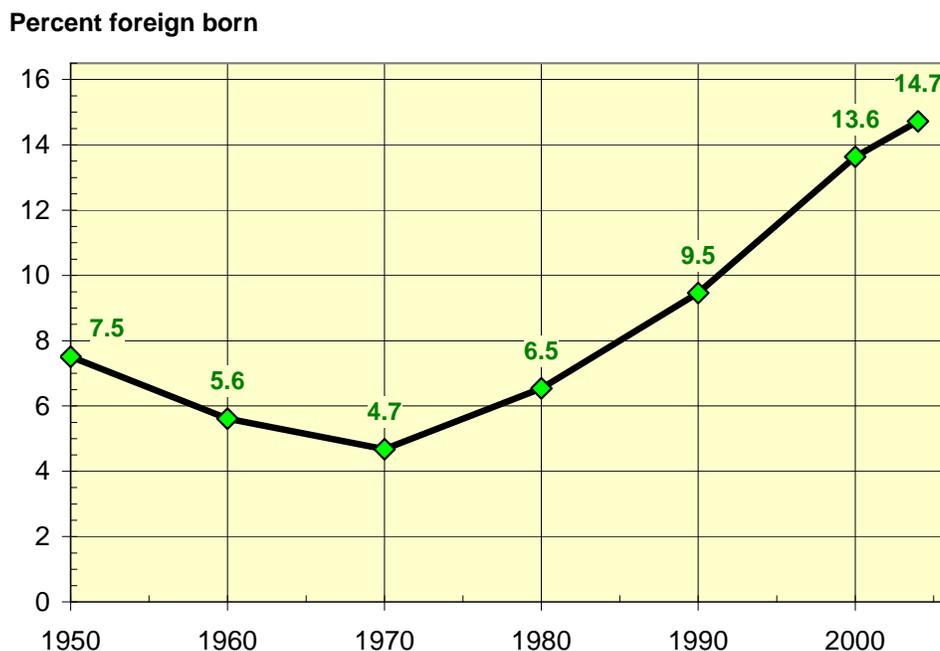
Percent foreign born

Even if all immigrant workers in the United States were legal residents, their immigrant status would present challenges to the UI system. Many recent immigrants do not speak English well, making it difficult for them to learn how to apply and remain eligible for benefits when they are laid-off. A more serious challenge is the entry of immigrant workers who do not have the legal right to live or work in the United States. The Census Bureau's estimate of the immigrant population probably includes many immigrants who are illegal residents. An unknown number of unauthorized immigrants are not counted in the Census statistics, however. The Department of Homeland Security estimates there were 11.6 illegal immigrants in the United States in 2006, an increase of 2.1 million over the estimated total in 2000. More than half are immigrants from Mexico, and a large percentage are from Central and South America.[14] Hispanic immigrants comprise an overwhelming share of the illegal immigrants currently residing in the United States, and their presence helps to explain the rapid growth of Hispanics in the workforce.

A large but unknown percentage of illegal immigrants is employed. Some, though not all, of these workers are employed in Social-Security- and UI-covered jobs. Their employers pay

Social Security and UI tax contributions based on their wages. If illegal immigrants are laid-off from UI-covered jobs it is not clear what fraction of newly unemployed workers applies for UI benefits. It is likely to be a smaller percentage than the proportion of legal residents which files UI claims. Assuming that most laid-off illegal immigrants refrain from claiming UI benefits, even when they have accumulated enough earnings credits to claim benefits, the UI system receives a windfall from tax collections on behalf of illegal immigrant workers. The tax contributions based on these workers' wages finance UI benefits for laid-off workers who are legal residents of the United States.

If illegal immigrants work mainly in jobs that are uncovered by UI, their presence poses a different kind of challenge to the UI system. Many unauthorized immigrants who work in uncovered jobs perform work that is also performed in the UI-covered sector. Immigrants who work informally in construction, home maintenance, and gardening, for example, are producing goods and services that are also produced by formal-sector firms that employ workers covered by the UI system. To the extent that informal-sector workers and contractors gain market share at the expense of formal-sector employers, more work will be performed by employees who are not covered by UI and less will be performed by UI-covered workers. If the cost advantage enjoyed by producers in the informal sector is large, employers in the formal sector will be tempted to reduce costs by contracting labor services from informal-sector producers, that is, from firms or individuals employing unauthorized immigrants. The UI tax base will shrink as a percentage of total wages. More ominously, UI-covered employees and employers will be placed at a competitive disadvantage relative to workers and employers outside the system.

This challenge to UI-covered employment is not entirely new. Before 1956, UI coverage only extended to employers in industry and commerce with eight or more workers. Smaller employers were not covered by the program and did not have to contribute UI taxes on behalf of their workers. Depending on the level of the UI tax, the difference in mandatory UI coverage gave a cost advantage to smaller firms. Of course, the UI program provides valuable benefits to workers who are concerned about the risk of involuntary unemployment. Workers who value UI protection might accept a somewhat lower wage from a UI-covered employer compared with an employer that is outside the system. However, the situation of unlawful immigrants is not quite the same as that of workers deciding between employment in the covered and uncovered sectors
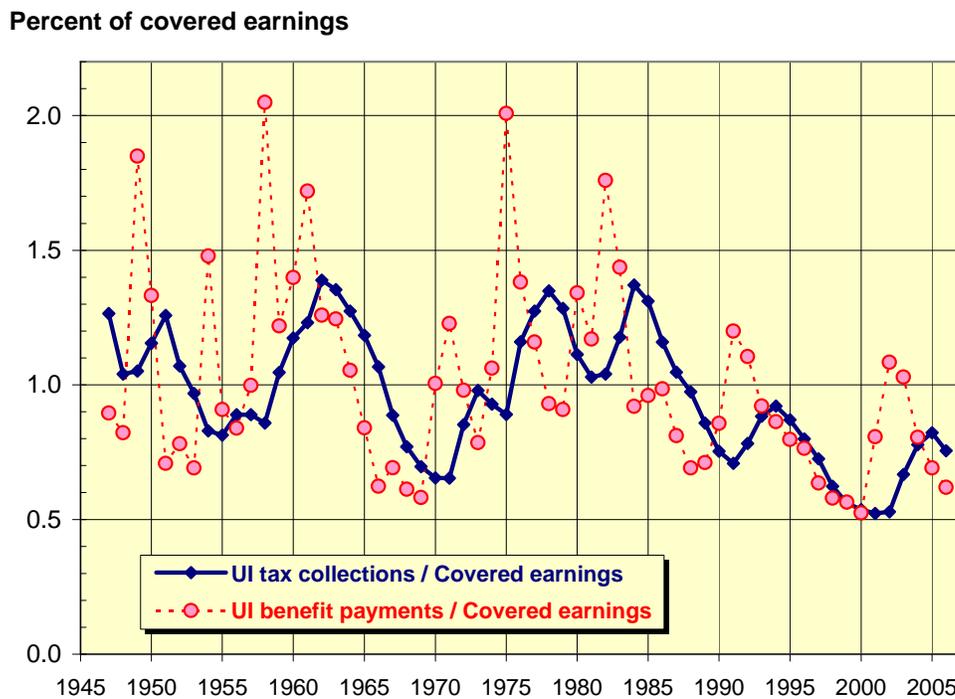
before 1956. If laid-off illegal immigrants do not claim UI benefits even when they work in UI-covered jobs, the theoretical advantages of UI protection are irrelevant. Unauthorized immigrants will choose the employment option that provides the best combination of wages, working conditions, and protection from discovery by law enforcement agents. The immigrant's expected UI benefits are the same under either option—zero. The best choice will often be a job outside the UI-covered sector. Since we do not have reliable estimates of the number of active workers who are unauthorized immigrants or the percentage of these immigrants who hold jobs outside the UI-covered sector, it is not easy to assess the current impact of illegal immigration on the UI system.

Geographical distribution of employment. Internal immigration, the settlement patterns of immigrants from outside the United States, and differential birth rates across the 50 states have significantly changed the geographic distribution of the U.S. workforce during the past 60 years. In 1950, 56 percent of the nation's population lived in the Northeast and Midwest, and 44 percent lived in the South and West. By 2000, 58 percent lived in the South and West, and just 42 percent lived in the Northeast and Midwest. If the nation had a single UI system that offered uniform benefits and applied identical eligibility requirements across the states, the geographical shift in the population would have little significance. However, benefit levels, eligibility rules, and filing requirements are determined separately by each state, with federal requirements applying mainly to employer coverage and to the timeliness and accuracy of state benefit determinations. State-level employment security agencies are responsible for determining eligibility, for calculating and paying weekly benefits, for providing employment services to the unemployed, and for ensuring that UI claimants make good faith efforts to find work. Although the procedures states follow are broadly similar, the differences are important enough to produce sizeable differences in UI application and denial rates. State legislatures make laws setting payment levels and eligibility standards for benefits. There is enough variation in payment levels and eligibility standards so that the generosity of the UI program differs considerably across states. Most UI benefits are financed out of state UI payroll taxes, and these, too, vary across states.

Analysts have used a variety of ways to measure the benefit generosity and tax burden of the UI program.[15] One straightforward measure of benefit generosity is total UI payments divided by

total wages earned in jobs covered by the program. This measure captures two aspects of program generosity, the replacement rate (that is, the ratio of average weekly benefits to average weekly wages) and the probability of collecting benefits in the event of unemployment. A measure of the tax burden imposed by the system is the total contributions collected from covered employers and workers divided by total wages. These measures would yield identical ratios if tax collections were exactly the same as total benefit payments every year. This is rarely the case, however, because tax collections usually fall short of benefit payments when unemployment is high and exceed benefit payments when unemployment is low (see Figure 12). In a particular year, benefits may be high in relation to wages in covered employment because the local unemployment rate is high rather than because the state program is generous. In years of low unemployment the benefit ratio will be low because few workers are unemployed and collecting UI. Averaging across years of high and low unemployment, however, the benefit ratio and the tax collection ratio provide approximate indicators of the program's generosity and the average tax burden imposed on employers.

Figure 12. UI Benefit Payments and Tax Collections under Regular State Programs as a Percent of UI-Covered Earnings, 1947-2006

Percent of covered earnings

Source: Author's tabulations of data reported in U.S. Department of Labor (2007), *Unemployment Insurance Financial Data Handbook* (http://www.workforcesecurity.doleta.gov/unemploy/hb394.asp).

State UI programs show persistence in offering relatively generous or less generous benefits over time. This is reflected in the consistency of their benefit ratios and tax collection ratios over a number of decades. One way to see this is to average each state's benefit and tax collection ratios over successive decades and then determine the correlation of states' rankings in different decades. Table 3 displays the results of this exercise for the period from 1950 to 2006. The 57-year period is divided into five decades and a final seven-year period that covers 2000-2007. In each period the arithmetic average of a state's UI benefit ratio is calculated. The top panel in Table 3 shows the correlation matrix of states' average UI benefit ratios across the six periods. For example, the correlation of the state average benefit ratios during the 1950s and their average benefit ratios in the 1960s is 0.762. If there were no persistence in states' benefit generosity, this ratio would be close to zero. The correlation of average benefit ratios in the 1950s with average benefit ratios since 2000 is 0.686, indicating strong persistence in state benefit generosity. Not surprisingly, there is a similar persistence in the burden of state UI tax collections, shown in the bottom panel of Table 3. These results imply that the benefit generosity and tax burdens imposed by the state-federal UI system can be significantly affected by the distribution of U.S. employment and unemployment across states. If states in the South and West have less burdensome programs than states in the Northeast and Midwest, the system will offer less generous and less expensive protection in recent years than it did in the early post-war period.

Table 3. Persistence of State-level UI Benefits and Tax Collections over Successive Decades, 1950-2006

Correlation matrix of state UI benefit ratios 1/

	1950-59	1960-69	1970-79	1980-89	1990-99	2000-06	1950-2006
1950-59	1.000						
1960-69	0.762	1.000					
1970-79	0.701	0.755	1.000				
1980-89	0.600	0.626	0.512	1.000			
1990-99	0.757	0.738	0.883	0.675	1.000		
2000-06	0.686	0.632	0.773	0.756	0.871	1.000	
1950-2006	0.875	0.866	0.886	0.788	0.937	0.882	1.000

Correlation matrix of state UI collection ratios 2/

	1950-59	1960-69	1970-79	1980-89	1990-99	2000-06	1950-2006
1950-59	1.000						
1960-69	0.797	1.000					
1970-79	0.748	0.853	1.000				
1980-89	0.511	0.683	0.693	1.000			
1990-99	0.629	0.766	0.809	0.832	1.000		
2000-06	0.589	0.726	0.795	0.831	0.884	1.000	
1950-2006	0.811	0.915	0.922	0.857	0.918	0.891	1.000

1/ The benefit ratio is UI benefit payments under regular state programs divided by total wages paid in UI-covered employment. It excludes benefits and wages for "reimbursable" covered employment.

2/ The collection ratio is UI tax collections, including those from covered employers and covered workers, for regular state programs divided by total wages paid in covered employment. It excludes collections and wages for "reimbursable" covered employment.

Source: Author's tabulations of data reported in U.S. Department of Labor (2007), *Unemployment Insurance Financial Data Handbook* (http://www.workforcesecurity.doleta.gov/unemploy/hb394.asp).

To see whether the geographical distribution of covered employment has affected average program generosity, the nationwide benefit-to-total-wage ratio is calculated under the assumption that each state's benefit ratio had remained constant over the 57 years between 1950 and 2006. One way to implement this idea is to calculate the 57-year average benefit-to-total wage ratio for each state, and then assume this average level of generosity remains unchanged over the full period.[16] Any change in the predicted nationwide benefit-to-total-wage ratio must be due to changes in the distribution of UI-covered workers across more generous and less generous states.

The top panel in Figure 13 shows the results of the exercise just described. The line showing substantial year-to-year variability indicates the actual evolution of UI benefit payments relative to total covered earnings in the national UI program. The other line shows the predicted evolution of this ratio if state benefit-to-total-wage ratios remained unchanged while the distribution of UI-covered workers across states evolved in the way indicated in UI administrative statistics. Over the 57-year period, the prediction shows a drop in the national benefit-to-total-wage ratio of 0.085 percentage points, or about nine percent. If the assumptions of this exercise are valid, the redistribution of the U.S. workforce toward states with less generous UI programs has reduced the expected ratio of benefit payments to total covered earnings by roughly nine percent. The estimated effect may seem small when compared with the annual fluctuations in the *actual* ratio of benefit payments to total wages. However, it represents about one-quarter of the long-term decline in the observed ratio of benefit payments to total wages.[17] The lower panel of Figure 13 shows the results of performing the same exercise in an analysis of the long-term change in the ratio of UI contributions to total earnings in UI-covered jobs. Over the 57-year period, we see a drop in the national contributions-to-total-wage ratio of 0.104 percentage points, or 10 percent. The predicted effect of the shifting geographical distribution of the employed population explains about one-quarter of the long-term decline in the contributions-to-total-wage ratio.

The implication of this analysis for UI program effectiveness is straightforward. The movement of workers away from high-generosity states and into low-generosity states has reduced the nationwide cost of UI benefits relative to total wage payments. The system is now less burdensome on employers than it was in the early post-war period, and it probably provides less

Figure 13. UI Benefit Payments and Tax Collections under Regular State Programs as a Percent of UI-Covered Earnings, 1947-2006

UI benefits as percent of covered earnings
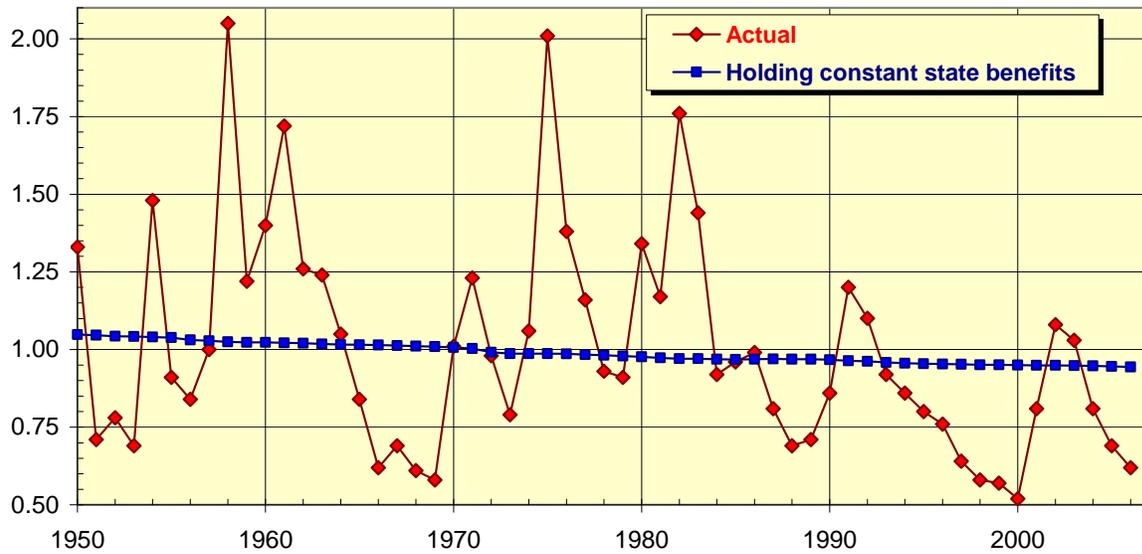
UI contributions as percent of covered earnings
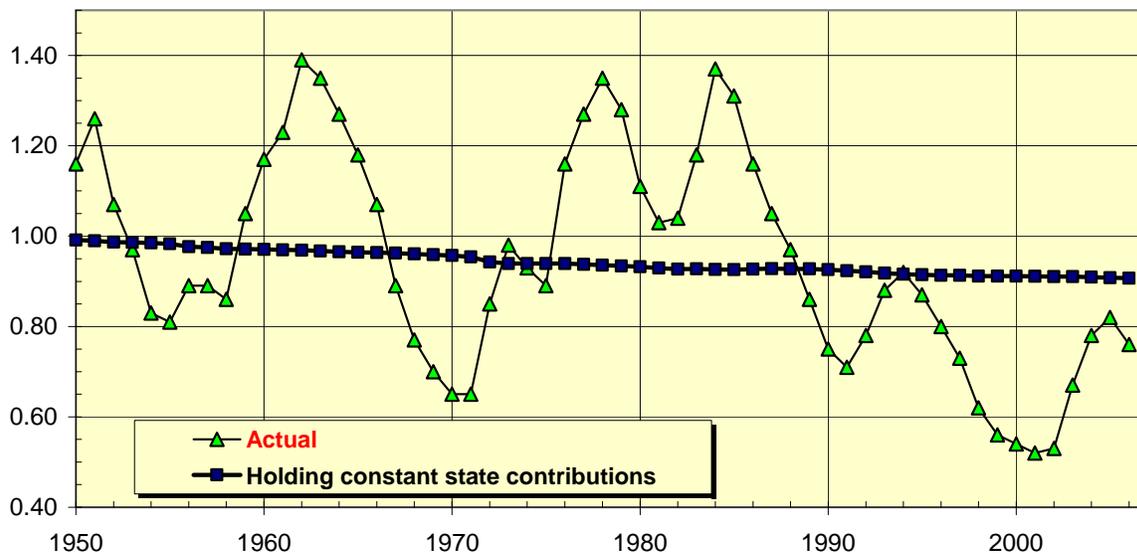
Source: Author's tabulations of data reported in U.S. Department of Labor (2007), *Unemployment Insurance Financial Data Handbook* (http://www.workforcesecurity.doleta.gov/unemploy/hb394.asp).

income protection for workers who lose their jobs. The reduction in the cost of the system may be due to either a lower benefit replacement rate for workers who receive UI benefits or a lower probability that workers will receive UI benefits when they become unemployed.

Administrative data can be used to measure the long-term trend in UI benefit replacement rates. Administrative data combined with BLS statistics on the geographical distribution of the workforce can then be used to determine the impact of population movements on the average replacement rate. The standard measure of the replacement rate is the average weekly benefit payment divided by the average weekly wage in UI-covered employment. At the national level there have been cyclical fluctuations in the UI replacement rate but virtually no long-term trend in the average rate over the period since the 1950s (see top panel of Figure 15). The replacement rate has remained within a narrow range around 35 percent. Moreover, the geographical redistribution of UI-covered workers across states has had very little effect on the nationwide replacement rate. Changes in the geographical distribution of the workforce have affected the long-term trend in UI costs mainly through their effects on the probability that workers will receive UI benefits when they are unemployed.

To examine the impact of shifts in the geographical distribution, the UI replacement rates and coverage rates in the 50 states and District of Columbia for selected years between 1977 and 2005 were calculated. The replacement rate was calculated in two ways. The first measure is the ratio of the average weekly UI benefit to the average weekly wage in covered employment. Both the numerator and denominator in this estimate are derived from U.S. DOL Employment and Training Administration (ETA) estimates. The second measure of the replacement rate divides the ETA estimate of the weekly UI benefit by the median weekly earnings of wage and salary workers as estimated in the March Current Population Survey files.[18] Since the median wage in a state is lower than the average wage, the replacement rate estimated using the second procedure is 8.4 percentage points higher than the estimate based on the first procedure. However, the correlation between the two estimates is 0.9, and the results of the analysis are virtually indistinguishable using both estimates of the replacement rate. The remainder of the discussion focuses on the results based on ETA's estimate of the replacement rate. The UI coverage rate is estimated using a combination of historical state-level data from ETA's *Unemployment Insurance Financial Data Handbook* and state unemployment data published by

the BLS. The numerator of the UI coverage rate is the average number of UI recipients receiving compensation per week over the course of a year. The denominator is the average number of unemployed persons in a state as estimated by the BLS. Thus, the UI coverage rate is an estimate of the percentage of unemployed workers in a state who are actually receiving UI benefits in a typical week.

For each state, estimates of the states' replacement rates and UI coverage rates for 1977-79, 1987-89, 1998-2000, and 2004-05 were derived. These were years of moderate or declining unemployment, usually near the peak of a business cycle. In these years UI coverage rates are generally below the rates observed in recessions. The distribution of state UI coverage rates is displayed in Figure 14.[19] The eleven-year unweighted average coverage rate for all 50 states and the District of Columbia is 30.6 percent. There is a wide variance around this mean. In the three states with the lowest coverage rates, South Dakota, Florida, and Colorado, only 17 percent of the unemployed received UI benefits in the eleven selected years between 1977 and 2005. In the state with the highest coverage rate, Alaska, almost two-thirds of unemployed workers received UI benefits. Interestingly, there is very little correlation between states' UI coverage rates and their replacement rates. On average in the eleven selected years the correlation was -0.11, but this average reflects some variation in the relationship in different periods. In 1977-79 the correlation between state replacement rates and UI coverage rates was -0.17; in 1987-89 it was +0.04; in 1998-2000 it was -0.07; and in 2004-05 it was -0.03.

Figure 14. Average UI Coverage Rates in 50 States and the District of Columbia, 1977-2005

Number of states with coverage rate in the indicated range
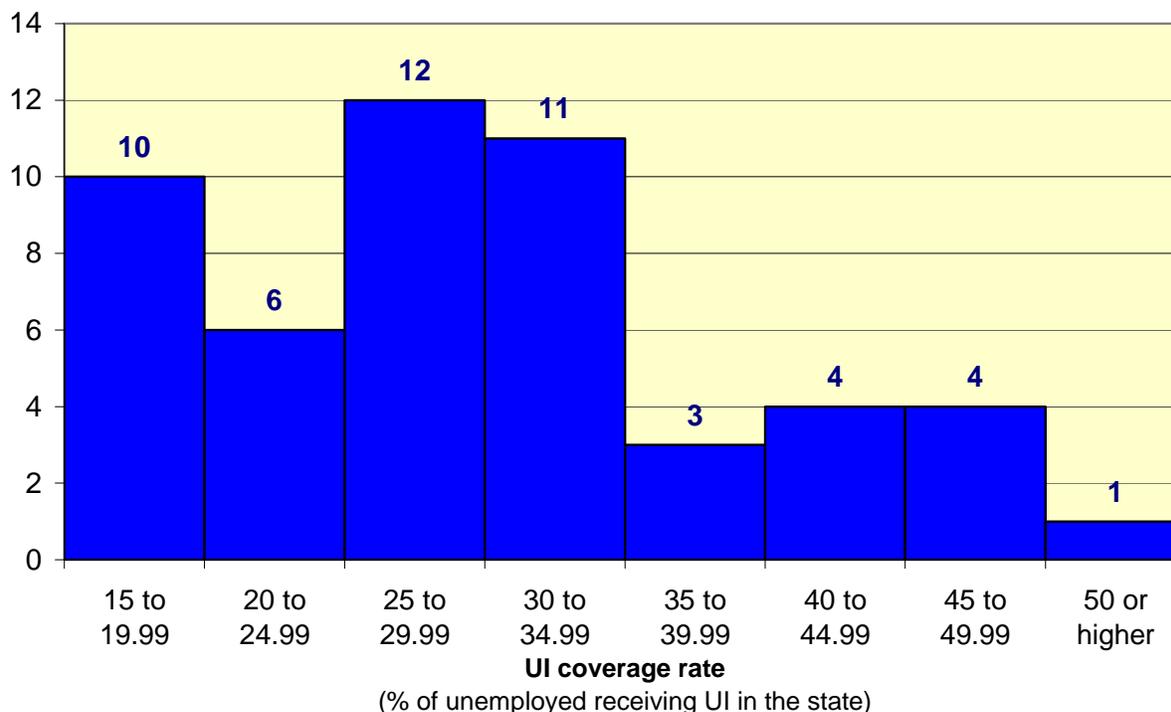
UI coverage rate
(% of unemployed receiving UI in the state)

Source: Author's tabulations of data reported in U.S. Department of Labor (2007), *Unemployment Insurance Financial Data Handbook* (http://www.workforcesecurity.doleta.gov/unemploy/hb394.asp); and state unemployment data from the U.S. BLS.

If the covered workforce moved from states like Alaska to states like South Dakota, Florida, or Colorado, the nationwide UI coverage rate could fall noticeably. Similarly, if the workforce moved from Iowa and North Dakota, which have relatively high benefit replacement rates, to Arizona and California, which have comparatively low replacement rates, the national replacement rate could decline. To determine the potential size of these effects, each state's UI coverage rate and benefit replacement rate were assumed to remain unchanged over the 1956-2006 period at the average levels estimated in eleven years 1977-79, 1987-89, 1998-2000, and 2004-05. The impact of geographical shifts can then be estimated by varying the weights applied to each state's coverage or replacement rate to reflect the state's changing weight in the U.S. employment total in successive years between 1956 and 2006. The top panel of Figure 15 shows results for the benefit replacement rate, while the lower figure in the table shows results for the UI coverage rate. One line in each figure shows the actual evolution of the national-level replacement rate or UI coverage rate, while the other line shows estimates adjusted so that only

the geographical distribution of nonfarm payroll employment varies over time. The shift in the working population toward states with low replacement rates tended to push down the national replacement rate, but the effect was very small – 0.6 percentage points, or 1.6 percent of the average replacement rate over the 1956-2006 period (see top panel of Figure 15). The impact of geographical shifts on the UI coverage rate was considerably larger – 2.4 percentage points of the unemployed population, or 7.1 percent of the average UI coverage rate over the 1956-2006 period (bottom panel of Figure 15). This drop in the UI coverage rate represents roughly one-quarter of the trend decline in the national UI coverage rate since 1956.

Thus, the shift of the working population toward states with low UI coverage rates seems to be a major factor behind the declining cost of UI benefits when benefit costs are measured as a percentage of total wages earned by workers in UI-covered jobs. There is little evidence that the population is moving to states that have lower UI replacement rates.

Figure 15. UI Coverage and Replacement Rates, Actual and Predicted, 1956-2006

Percent of unemployed workers collecting UI
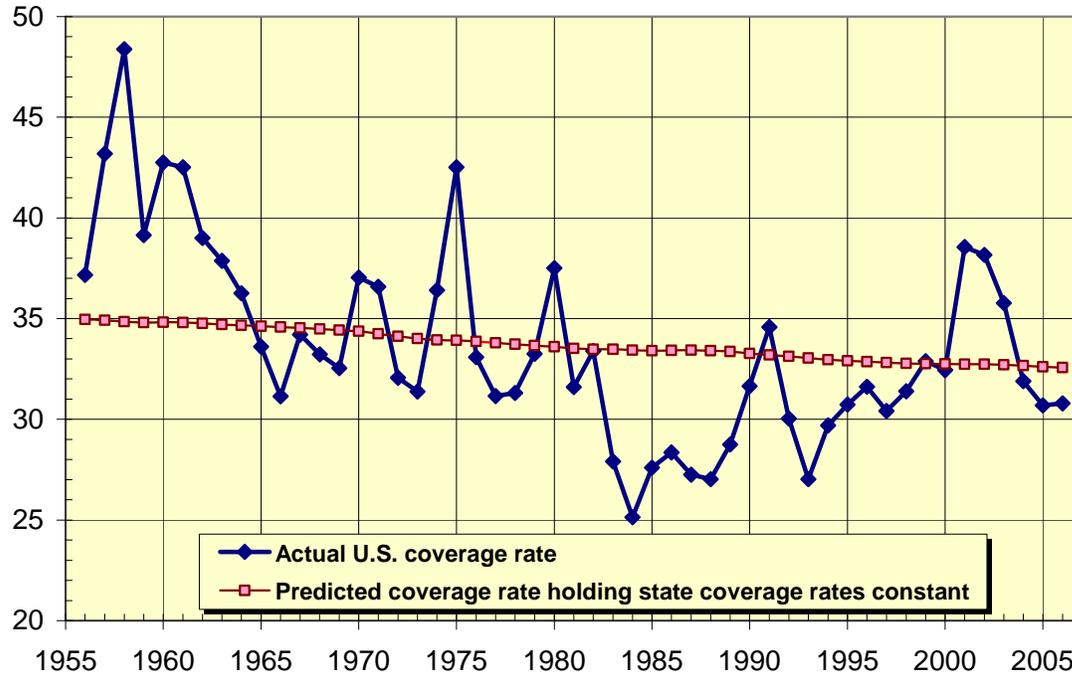
**Average weekly UI benefit as % of average
weekly wage in covered employment**
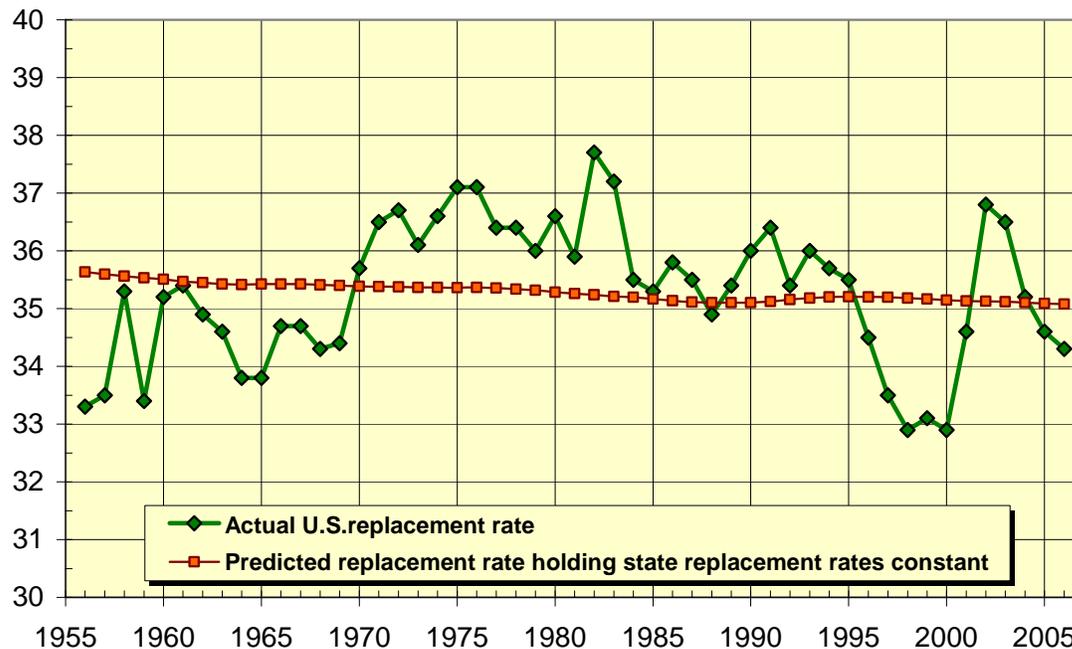
Source: Author's tabulations of data reported in U.S. Department of Labor (2007), *Unemployment Insurance Financial Data Handbook* (http://www.workforcesecurity.doleta.gov/unemploy/hb394.asp); and state unemployment data from the U.S. BLS.

II. Employers and the Nature of the Employment Contract

If the composition of the workforce has changed since the early post-war era, the character and expectations of employers have undergone major change as well. Shifts in employment across industries have reduced the importance of traditionally high paying industries like mining, manufacturing, and public utilities and increased the employment share of retail trade and services. Partly as a result of these shifts, temporary layoff unemployment has become less important and permanent layoffs are now relatively more common. Union representation has also declined. It is now less common for employers to negotiate formally with their workers about wages and the terms of employee separations. Several of these trends have increased the likelihood that workers who suffer a layoff will spend longer periods in unemployment looking for their next job.

Shifts in industrial employment. In the early 1950s employment in goods-producing industries accounted for 40 percent of all wage and salary employment and almost half of wage and salary workers in the private sector (see Table 4). Employment in the traditionally high-paying industries of mining, construction, manufacturing, transportation and public utilities, and wholesale trade accounted for 58 percent of private employment. Over the next 50 years the employment share of goods-producing industries fell by approximately half, and the employment share of the traditionally-high paying industries fell nearly as fast. By 2000 wage and salary employment in mining, construction, manufacturing, transportation and public utilities, and wholesale trade represented only 35 percent of U.S. private employment. During the same period retail trade and services became much more important sources of employment. The growth of these two historically low-paying industrial groups is almost a mirror image of the decline of traditionally high-paying industries. As a fraction of private sector employment, employment in retail trade and services increased from 32 percent in 1950 to 57 percent in 2000.

One index of the quality of employment in an industry is the average wage paid to a full-time equivalent worker in the industry. The national income and product account (NIPA) tables provide information on the full-time equivalent wages paid by the major industries. The data can be used to calculate relative wages in each industry. These estimates are displayed in the bottom

panel of Table 4. Although the industrial wage structure has varied over time, most industries have consistently offered either above-average or below-average wages throughout the post-war period. To approximate the impact of shifting employment shares on the trend in wages, one must hold relative industrial wages constant and determine how much the average wage would have changed given the shift in the percentage of the workforce employed in each industry. Figure 16 shows the results of these calculations based on NIPA estimates of wage and salary employment and full-time equivalent earnings by industry.[20] Two sets of estimates are displayed in the chart. The first is based on the assumption that the industrial wage structure remained constant at the structure observed at the beginning of the period, in the years between 1948 and 1950. The second is based on the assumption that the industrial wage structure remained constant at the average structure observed over the full period from 1948 to 2000. Both assumptions yield almost identical conclusions about the impact of employment shifts across industries on the level of U.S. wages. The overall wage level in 2000 was about 5½ percent lower than would have been the case if employment shares in each industry had remained fixed after 1948. The implied decline in relative wages was gradual and erratic between the late 1940s and late 1960s, but since 1970 it has been relatively rapid and constant.

This result should not be over-interpreted. Employment shares and relative wages changed because productivity growth proceeded at a different pace in each industry. Final demand for the goods and services produced in different industries also changed over time, affecting the demand for workers in different industries. If employment shares in each industry had remained unchanged, it would have been difficult or impossible to accommodate these productivity trends and shifts in final demand. The value of output would have been lower, and average wages would have risen more slowly.

Nonetheless, the relative wage paid in each industry offers a straightforward indicator of the quality of jobs in the industry. The fact that relative wages in an industry have consistently remained above average offers a crude indication that jobs in the industry are more attractive than jobs elsewhere in the economy. Over the past half century employment shares in better paying industries have shrunk while the employment shares of worse paying industries have grown. This trend makes it harder for workers in shrinking industries to find jobs of equal or higher pay when they are laid-off. Some low-pay industries have grown smaller, of course.

Table 4. Employment Shares and Relative Wages in Major U.S. Industries, 1950-2000

Year	Agriculture, forestry, fishing	Mining	Construc-tion	Manu-facturing	Transpor-tation, public utilities	Whole-sale trade	Retail trade	Finance, insurance, real estate	Services	Government
Percent of all full- and part-time employees in industry										
1950	4.8	1.8	4.7	29.1	7.8	5.1	12.8	3.6	13.7	16.8
1960	3.3	1.1	4.7	26.7	6.4	5.1	13.2	4.2	15.6	19.5
1970	1.9	0.8	4.6	24.4	5.7	5.1	14.2	4.6	17.3	21.4
1980	1.9	1.1	4.6	20.8	5.3	5.4	15.7	5.5	20.2	19.6
1990	1.6	0.6	4.5	16.3	4.9	5.3	17.1	5.8	25.4	18.5
2000	1.7	0.4	5.0	13.4	5.1	5.1	17.2	5.6	30.1	16.6
Average wage and salary accruals per full-time equivalent worker *(Average for all employees = 100)*										
1950	50	114	111	110	117	125	89	108	73	100
1960	42	119	119	115	121	119	81	102	76	96
1970	54	122	127	108	121	119	76	101	83	103
1980	54	149	118	114	135	119	69	101	85	102
1990	61	145	106	114	126	120	61	122	94	107
2000	58	152	98	118	122	126	57	156	94	104

Note: Calculations in the table are based on the 1972 Standard Industrial Classification.
Source: Author's tabulations of U.S. Department of Commerce, Bureau of Economic Analysis, data from the National Income and Product Accounts tables. http://www.bea.gov/bea/dn/nipaweb/index.asp (Downloaded August 26, 2007)

Figure 16. Impact of Shifts in Industry Employment on Average Full-time Equivalent Wages, 1948-2000

1948-1950 = 100

Legend:
- With constant wage structure (1948-2000)
- With constant wage structure (1948-1950)
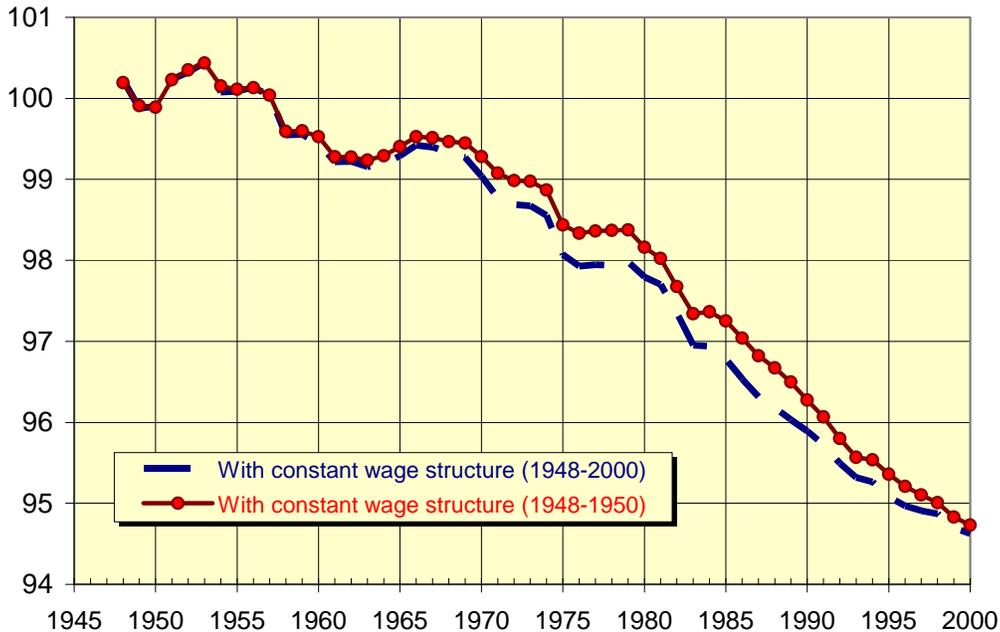
Source: Author's calculations using U.S. Department of Commerce, Bureau of Economic Analysis, national income and product accounts data on wage and salary employment and full-time equivalent earnings by industry. Calculations are based on the 1972 Standard Industrial Classification.

Between 1950 and 2000, full-time employees in agriculture, forestry, and fishing earned between 42 percent and 61 percent of the full-time pay of an average employee. Wage and salary employment in agricultural industries sank, falling from 4.8 percent to 1.7 percent of total employment between 1950 and 2000. This decline forced some workers once employed in agriculture to find jobs outside the agricultural sector. Their search may have been made easier by the fact that other industries typically pay higher wages than those in agriculture. The reverse is true when workers in shrinking high-wage industries are forced to find work in expanding but low-wage industries. Not only must these workers forfeit any investments they may have made acquiring job-specific skills in their old jobs, they must also accept a less generous pay scale in an industry that pays below-average wages. It would not be surprising if the development led to an increase in the duration of job search.

Temporary versus permanent layoff unemployment. The shift of wage and salary employment out of mining and manufacturing has contributed to a decline in layoff unemployment. The BLS defines a person on temporary layoff as one who has been given a definite date for returning to work or who expects to return to work within six months. Temporary layoffs are relatively common in manufacturing, especially durable manufacturing, where cyclical swings in product demand can induce employers to temporarily reduce their payrolls to accommodate lower demand. Most workers put on temporary layoff can expect to be recalled to their jobs when product demand returns to normal. Manufacturing employment now represents a much smaller share of total employment, and one result is that temporary layoff unemployment has become relatively less common.

Figure 17 shows the proportion of unemployed job losers who are on temporary layoff. The percentage typically rises in a recession, and then falls in the subsequent recovery as laid-off workers are recalled to their old jobs. Underlying this cyclical pattern is a long-term trend toward less temporary layoff unemployment. The trend is indicated by the straight broken line. Between the mid-1960s and 2006 the fraction of job losers who are out of work because of a temporary layoff has fallen about 6 percentage points or one-fifth. Other job losers entered unemployment because they were permanently dismissed from their jobs or because they held a temporary job which came to an end.

The increasing share of job losers who permanently lost their previous jobs poses two kinds of challenges for the UI system. First, permanent job losers unlike workers on temporary layoff may require extensive job search help from the employment service. Workers with a reasonable expectation of being recalled to an old job receive weekly UI checks but do not need help in finding another job. Second, permanent job losers often spend more time on the UI rolls than workers who expect to be recalled to their old jobs. This is one explanation for the long-term rise in UI benefit duration and the increase in the average duration of unemployment spells.

Figure 17. Unemployed Workers on Temporary Layoff as a Percent of Job Losers, 1967-2006

Percent of all job losers

Decline in unions. In the 1950s the BLS estimated that union membership represented about one-third of employment in private nonagricultural establishments. Although union membership continued to increase, it grew more slowly than private sector employment. By the early 1970s, union membership had dropped to about one-quarter of employment in private nonagricultural establishments.[21] These estimates of union membership rely on unions' own figures. Since 1973 union membership has been estimated using household survey responses obtained in the Current Population Survey. The survey shows a continued decline in the fraction of the private wage and salary workers who are union members (see Figure 18). In 2006, only 7.4 percent of private sector workers said they were members of unions, and just 8.1 percent said they were covered by a union contract. Part of the decline in union density is explained by changes in the industrial attachment of American workers. Private industries in which unions were traditionally important, such as manufacturing, transportation, and public utilities, employ a smaller percentage of the workforce than they did in the 1950s. However, union density has fallen

Figure 18. Wage and Salary Workers Affiliated with Unions, 1973-2006

Percent of private wage and salary workforce
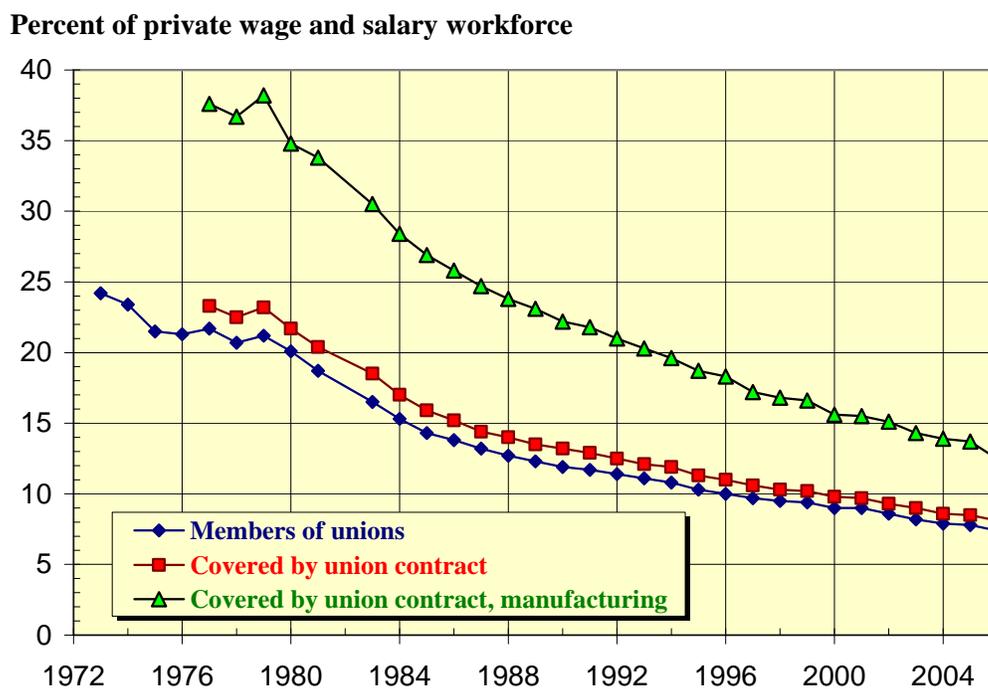
Source: Bureau of Labor Statistics; and Barry T. Hirsch and David A. Macpherson
(http://www.trinity.edu/bhirsch/unionstats/All%20Wage%20and%20Salary%20Workers.xls).

steadily in those industries where it was once high. Between 1979 and 2006, the percentage of the manufacturing workforce covered by a union contract fell from 38 percent to 12½ percent.

Unions historically played an intermediary role not only between workers and their employers but also between laid-off union members and the UI system. Union representatives provided information to laid-off workers about their rights under the UI system and helped acquaint them with the procedures needed to file a successful claim. A smaller percentage of laid-off workers now receive this kind of guidance. One result may be that the educational role once filled by unions must now be filled by employees of the UI system, adding modestly to the cost of administering the system. A more important effect may be a reduction in the percentage of laid-off workers who file a successful UI claim. Not all laid-off workers who are eligible for UI benefits file a claim.[22] Some whose claims are initially denied may not know how to make a successful appeal. Union representatives, many of whom have lengthy experience dealing with the UI system, once acted as advisors and advocates, helping inexperienced workers file UI

claims and assisting workers whose UI claims were denied. Fewer unemployed workers now receive this kind of help.

The decline in union membership has led to a sharp fall in union influence over wages, fringe benefits, job dismissals, and other conditions of employment. Unions have traditionally negotiated for (and won) better wages and fringe benefits for their members, achieving the biggest gains on behalf of workers with comparatively modest skills.[23] Unions had less impact on the relative wages of better educated and more highly skilled workers. Even for these workers, however, union-negotiated pay scales usually made wage increases more predictable. For both skilled and unskilled workers, unions fought for better job security, seeking the strongest protections for the most senior workers. By establishing formal grievance procedures to challenge dismissals and other disciplinary actions, unions reduced managers' discretion to fire or reassign workers and to reduce an individual worker's pay.

The gradual disappearance of unions from the private workplace has meant that private-sector workers have less collective control over the terms and conditions of their employment. Their influence over pay and fringe benefits depends on individual negotiation with a manager and a worker's willingness to leave an employer who offers poor pay and working conditions. Declining union influence over wage determination is part of the explanation for the growth in earnings inequality documented in Figures 8 and 9. Workers with limited skill have little bargaining power as individuals. With no union to negotiate on their behalf, workers with below-average skills have less influence over their pay, and consequently they have seen their relative wages decline.

This trend has ambiguous effects on the demand and need for UI benefits. On the one hand, the decline in union influence over the terms of employment may have contributed to the rise in permanent layoff as opposed to temporary layoff unemployment as well as to a decline in job security. These effects increase the burdens on the UI system by increasing the number of permanently dismissed workers who must be served. On the other hand, by reducing the percentage of the workforce earning union-negotiated wages, the decline in unions has reduced the percentage of laid-off workers who received a union pay premium. Since workers in nonunion establishments do not receive the union pay premium, their reservation wage when

they are laid-off will be lower than it would have been if they had worked in a unionized firm.[24] With a lower reservation wage, they may find an acceptable job more easily and suffer shorter spells of unemployment.

Nonstandard and contingent work. The UI system covers nearly all wage and salary employment in the United States. The House Ways and Means Committee estimates that UI programs covered 99.7 percent of wage and salary jobs in 2001.[25] It is widely believed that standard wage and salary jobs have become less common in recent decades. According to this view, a growing percentage of the labor force is working for larger firms as consultants or self-employed contractors, is employed in wage and salary jobs for temporary help agencies, or is working for ordinary firms but as temporary or contingent workers. In fact, there is little evidence that nonstandard employment is making major inroads on the standard employment contract. Wage and salary workers comprise about 93 percent of the employed labor force in private nonagricultural establishments. This percentage is about four points higher than it was in 1960 and one point higher than it was in 1980. The percentage of private sector nonagricultural workers who are wage and salary employees has been essentially flat since the early 1990s. Thus, there is no evidence that self employment has become more common relative to wage and salary employment over the past several decades.

Payroll statistics on the temporary help industry indicate it has grown rapidly since the 1970s. Between March 1990 and March 2007 the industry added about 1.45 million workers, more than doubling in size. In spite of this rapid growth, workers in the industry represent only about 2.3 percent of nonagricultural private employees, up from 1.3 percent of private sector employees in 1990 and less than 0.5 percent of private employees in the late 1970s. Although employment in temporary help agencies is comparatively novel, it is still wage and salary employment. Temporary help companies have the same responsibilities toward their employees as other companies, including the obligation to withhold income and payroll taxes and to make contributions to the UI program. Temporary help agency employees who are dismissed from their jobs are eligible to receive UI benefits if they meet the earnings and other qualifying requirements for eligibility.

It is harder to obtain evidence on the prevalence of new kinds of employment contracts among workers who are not employees of temporary help agencies. The BLS has conducted periodic household surveys asking about alternative work arrangements since 1995, with the most recent survey conducted in 2005. It contains little evidence that alternative work arrangements, including contingent work, temporary work, or independent contract work, have become more common over the past decade. In fact, several kinds of nonstandard work arrangements, including temporary jobs, are now less common than they were in 1995.[26]

Outsourcing and the evolution of corporate governance. In many large businesses changes in corporate governance have altered the traditional relationship between shareholders and company executives and between senior managers and line employees. As recently as the 1970s many scholars and senior executives believed that stockholders exerted only limited influence over corporate managers. According to a popular theory taught in business schools, stockholders were too numerous and poorly organized to exercise effective control over company management or to remove underperforming managers. As a result, mediocre corporate executives could survive as long as they kept their companies out of bankruptcy. By the middle of the 1980s it was clear that this view was seriously incomplete. Innovations such as leveraged buyouts and hostile takeovers made it possible for a small number of well-organized shareholders and outside investors to take control of a public company and dramatically change its direction – for example, by modifying historical pay patterns in the company, trimming fringe benefits, selling off unprofitable divisions, and outsourcing the production of important company inputs.

This kind of innovation can clearly affect personnel practices and pay norms inside a firm. Under personnel policies that were standard in the 1960s and 1970s, managers were slow to change traditional pay patterns in their firm and reluctant to slash company payrolls. If maintenance staff historically received the same pay as workers on the assembly line, or if semi-skilled workers traditionally earned exactly one-half the wage paid to their supervisors, orthodox managers were reluctant to tamper with the historical pay ratios. So long as the company remained out of bankruptcy, traditional pay patterns could be maintained. This kind of personnel policy could not survive once managers recognized that they could be removed by organized shareholders or outside investors who were determined to minimize costs. When maintenance

workers can be hired at a lower wage than the one paid to assembly line workers, or when routine office tasks can be contracted out to other companies that offer lower wages, these options will be chosen over traditional corporate policies by managers who are determined to minimize costs. Leveraged buyouts and hostile takeovers can lead to the removal of senior company managers who fail to take these cost-minimizing steps. Obviously, new corporate practices can also lead to bigger pay disparities within the firm and a slimmer corporate payroll. The number of corporate employees will fall when work formerly done inside the firm is purchased from outside producers or when unprofitable divisions of the company are spun off, sold, or closed down.

These changes in corporate practice can yield financial gains for shareholders and outside investors, but they also bring major disruption for managers and line workers who were comfortable with the traditional corporate policies. Some workers and managers may be dismissed, and others may find themselves employed by a new, smaller, and less profitable company that has been spun off as a result of corporate realignment.

The crucial issue from the perspective of the UI system is the impact of new corporate practices on company separation and hiring policies. Many observers believe that modern companies show less loyalty to their line employees and are more likely to dismiss them to obtain better financial results, even when a firm is profitable and faces no immediate risk of bankruptcy.[27] This conjecture is not easy to test with existing data. Do large businesses fire more of their long-service workers today than they did in the past? Close observers of corporate practice may have their suspicions, but there is little hard evidence.

Recent evidence on the size distribution of firms does not support the idea that new corporate personnel practices have made it less likely that Americans will work for large firms. The Small Business Administration (SBA), using data supplied by the Census Bureau, tabulates the size distribution of firms and the reasons for change in firm employment size. These data show that 49 percent of private-sector wage and salary workers are employed by companies with 500 or more employees. This percentage is somewhat higher than the comparable figure in the late 1980s, when 46 percent of workers were employed in large firms. SBA analysts distinguish among four sources of change in firm-level employment: The creation of new firms, the death of

old firms, the expansion of old firms, and the contraction of old firms.[28] The data allow us to see the relative importance of these sources of growth and contraction for small firms (with fewer than 20 employees), middle-size firms (with 20 to 499 employees), and large firms (with 500 or more employees). Not surprisingly, the creation of new firms generates a much larger proportional effect on employment in small and medium-sized companies than it does on the number of workers employed in firms with 500 or more employees. Similarly, the destruction of old firms also produces a bigger proportional drop in employment in small and medium-sized firms than it does in large firms.

Interestingly, however, the impact of employment contractions in existing firms is proportionately bigger for large firms than for medium-sized firms. Firms with between 20 and 499 employees at the start of a year which survived to the beginning of the next year but shrank in size had payroll reductions that averaged about 3.8 million workers per year between 1989 and 2004.[29] This was equal to 11.5 percent of start-of-year employment in all firms employing 20 to 499 workers. Over the same period, contracting firms with more than 500 employees at the start of a year reduced the size of their payrolls by an average of 6.3 million workers a year. This represents 12.7 percent of the start-of-year employment in large firms. The year-to-year impact of firm contractions on employment in large, medium-size, and small firms is displayed in Figure 19. The chart clearly shows that big companies that shrink their payrolls have a larger proportional effect on employment than small and medium-size firms that reduce their payrolls. The chart does not, however, show the impact of firm deaths on employment. As noted above, the disappearance of firms causes proportionately larger employment losses in the case of small and medium-size firms than it does for large firms. The chart also does not show whether the proportional difference in firm layoff policy between large, medium, and small firms is any different in the past decade and a half than it was in the period before 1980. The estimates do suggest, however, that employment losses in surviving large firms are sizeable, are larger than those in surviving small and medium-size firms, and on average have been larger since 1998 than they were in 1989-1997, a period that also included a recession.

Figure 19. Percent Drop in Employment among Contracting Firms by Firm-Size Class, 1989-2003

Drop in employment as percent of start-of-year employment in firm-size class
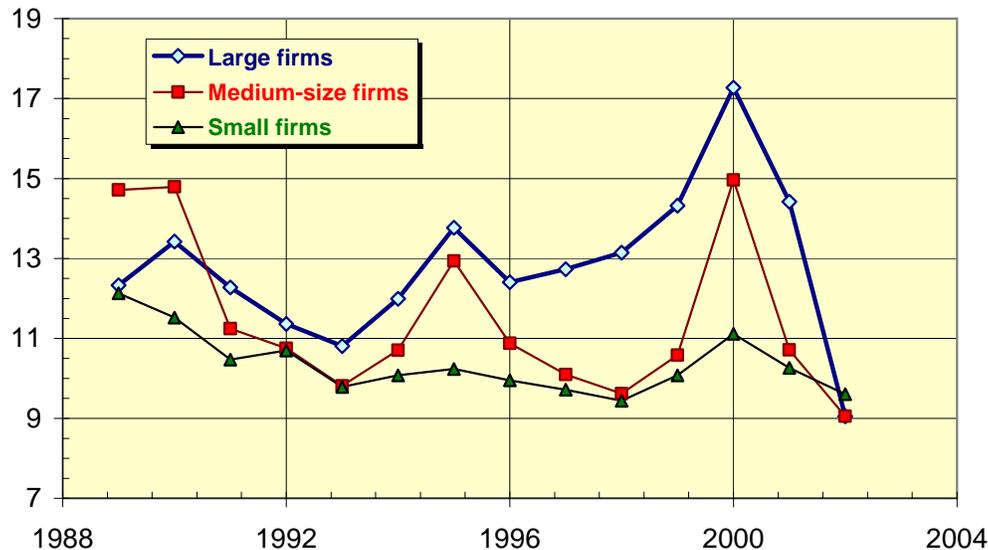
Source: Author's calculations based on Small Business Administration (2007), http://www.sba.gov/advo/research/data_uspdf.xls.

Earnings losses upon reemployment. The original goal of UI was to offer short-term insurance to workers to protect them against the loss of earnings that occurs during a spell of unemployment that follows a layoff. It does not insure workers for the loss of income that occurs after a worker becomes reemployed in a job offering lower wages or poorer fringe benefits than the job that was lost. Evidence on these losses suggests that they are sizeable.[30] Louis Jacobsen and his colleagues found that when experienced workers are displaced from long-tenure jobs, their eventual earnings losses, including earnings lost while unemployed, can amount to as much as one-quarter of previous pay.[31] Most of the losses occur after workers become reemployed, and they are a result of the drop in weekly earnings on the post-displacement job. Younger workers, workers with less job tenure, and workers in low-wage industries are less likely to experience big weekly wage losses, mainly because their pre-displacement wages do not have as far to fall. On the other hand, displaced workers who earn average or above-average pay and formerly worked in high-pay industries often suffer bigger economic loss as a result of earning a smaller weekly paycheck than they do as a result of experiencing unemployment for weeks or months after they were displaced.

One source of information about workers' experiences after suffering permanent job loss is the BLS' Displaced Worker Survey, a periodic supplement to the Current Population Survey that has been administered every other year since 1984. Henry Farber recently analyzed responses from all the surveys to estimate the economic losses that workers experience after suffering permanent job loss.[32] He found that the rate of job displacement is strongly cyclical, with sharply higher displacement rates during and immediately after recessions and lower rates during the later stages of an economic expansion. The reported displacement rate was nearly as high in the early 1990s and in 1999-2003 as it was in the recession of the early 1980s, when the peak unemployment rate was considerably higher. To measure earnings losses suffered by reemployed workers, Farber examined the pre- and post-displacement weekly earnings of displaced, full-time workers who became reemployed in full-time jobs. Note that this calculation excludes the earnings losses of workers forced to accept part-time positions. It also ignores the earnings loss experienced while workers were jobless, which presumably was partly replaced by UI benefits. Farber's tabulations show that reemployed workers who lost their jobs during and immediately after a recession suffered the biggest drop in weekly earnings. Their average losses ranged between 11 percent and 14 percent of workers' pre-displacement wage. Workers who lost jobs toward the end of an economic expansion suffered considerably smaller percentage losses in weekly pay. Bear in mind that Farber's estimates show the average wage losses suffered by displaced workers. Some reemployed workers suffer much bigger percentage cuts in pay, while others enjoy gains in weekly earnings. For workers who suffer the biggest drops in pay, the UI system provides no income protection except in the weeks immediately following their layoff when they were out of work.

III. Trends in the Business Cycle

There have been ten recessions and nine completed economic recoveries since World War II. From the low point in the unemployment rate (near the peak of an economic expansion) to the high point in the unemployment rate (in the following recession), the quarterly unemployment rate has increased 2.9 percentage points in an average recession. The post-war unemployment rate has shown very little long-term trend, so on average the jobless rate has fallen by the same percentage amount during economic expansions as it has risen in recessions. Economic expansions have lasted longer since the early 1980s than they did in earlier post-war period. In the 445 months between October 1945 and November 1982, the U.S. experienced eight full business cycles, with an average cycle lasting 56 months. The expansion phase of the typical cycle lasted 45 months and the recession phase lasted 11 months. In the 298 months since November 1982 there have been two completed business cycles and one not-yet-complete economic expansion. The two completed expansions lasted an average of 106 months, and the two recessions each lasted 8 months.[33] The average economic expansion since 1983 has lasted nearly twice as long as recessions in the earlier post-war period, and the recent recessions have been slightly shorter. Recent increases in the unemployment rate from business cycle peak to recessionary trough have also been smaller than in earlier post-war recessions.

Not only has the economy suffered less frequent recessions since the early 1980s, it has also experienced more stable economic growth. James Stock and Mark Watson estimate that the variance in the quarterly growth of U.S. GDP declined about 40 percent in years after 1983 compared with the period from 1960-1983.[34]

A variety of theories have been advanced to explain the "great moderation" in U.S. business cycle dynamics. Many observers believe the most plausible explanation is that U.S. monetary policy has become more effective. According to this view, the Federal Reserve is now more skilled in its management of short term interest rates and more consistent in its control over inflationary expectations.[35] Three other explanations have also been offered. The first is that industrial shifts in the U.S. economy have reduced the employment and output of sectors that show the greatest cyclical variability. As we have seen, manufacturing employment has shrunk and employment in the cyclically less sensitive services industries has increased. Stock and

Watson (2003) point out, however, that these sectoral shifts had only minor effects on the expected cyclical variation of the overall economy. The reductions in economy-wide variability are traceable to declining variability of output within most sectors, including sectors, like home construction, which historically had large cyclical variation.

Another explanation for the "great moderation" is that businesses have applied new information technology in order to improve inventory management. One reason for past drops in output is that producers made poor forecasts of future demand. When confronted with bulging inventories in their own factories, in wholesalers' warehouses, or in retail stores, producers slashed output and cut payrolls. With better and timelier management of inventories, these kinds of interruptions of normal production have become less common. There is reason to be skeptical of this theory. At the level of the firm, managers do not seem to be less liable to make large errors in inventory accumulation than they were in the past.[36]

One last hypothesis is that financial market deregulation and innovations in consumer finance have relaxed borrowing constraints that once limited businesses' and consumers' ability to spend in recessions. As a result of financial market innovations, such as home equity loans, credit is now easier for homeowners and credit card holders to obtain, even when they are unemployed. Financial market deregulation has permitted banks and other institutions to attract deposits and lend funds without reference to a legal maximum on the interest rate they can pay to depositors or charge to borrowers. Compared with workers and small businesses in the 1960s and 1970s, today's workers and businesses can more easily borrow funds, even when their immediate financial prospects are poor. Relaxed borrowing constraints mean that consumers and businesses can more easily smooth their spending in the face of shocks to their income.

From the point of view of the UI system, the explanation for the "great moderation" of U.S. business cycles may not matter. If serious recessions now occur less frequently, state UI programs will not have to deal as often with a sharp rise in state UI rolls. They will have longer periods of low or declining unemployment in which they can build up their trust fund reserves. With more years between recessions, there will be less reason for states to replenish their reserves quickly, giving them greater flexibility in adjusting their tax schedules when reserves run low. It is unknown, however, whether the greater stability of U.S. growth is a dependable

feature of the new economy. Stable growth and lengthy economic expansions may have been fortuitous byproducts of a temporarily benign environment. If they are permanent features of the new economic landscape, one policy goal of the UI system may be less critical today than it was in the past. As noted in the introduction, a central objective of the program is to help stabilize the economy by supporting consumption when mass joblessness reduces the incomes of millions of worker households. If other changes in the economic environment have doubled the length of an average expansion and reduced the average severity of recessions, the countercyclical function once performed by the UI system is now less important to the wider economy. By implication, the humanitarian and efficiency goals of the program are now relatively more important.

IV. Trends in the Nature and Costs of Unemployment

The composition of the nation's unemployed has shifted over time in line with changes in the composition of the labor force more generally. Like the working population, the unemployed are now older, more female, and more racially and ethnically diverse than was the case in earlier post-war decades. Like the working-age population in general, the unemployed are now more educated and highly skilled. A number of changes in the nature of employment and in the wider economy have affected the challenges workers face when they are laid-off from a job. Some have made it easier for workers' smooth consumption when their earnings drop as a result of a layoff, but others have increased the cost of joblessness, making it more costly for laid-off workers to suffer long spells without a job.

The duration of unemployment. A notable trend in U.S. unemployment is the increasing length of average unemployment spells. The increase has occurred for workers entering unemployment as a result of job loss as well as for other reasons.[37] At a given level of the overall unemployment rate, today's unemployed have been jobless for a longer period and are more likely to exhaust UI benefits after they file a claim for benefits. BLS statistics show a clear and steady increase in the proportion of jobless workers who have been unemployed for six months or longer (see Figure 20). Although the average duration of unemployment spells in progress

Figure 20. Indicators of Long-term U.S. Unemployment, 1960-2006

Percent of all unemployed

Weeks of unemployment
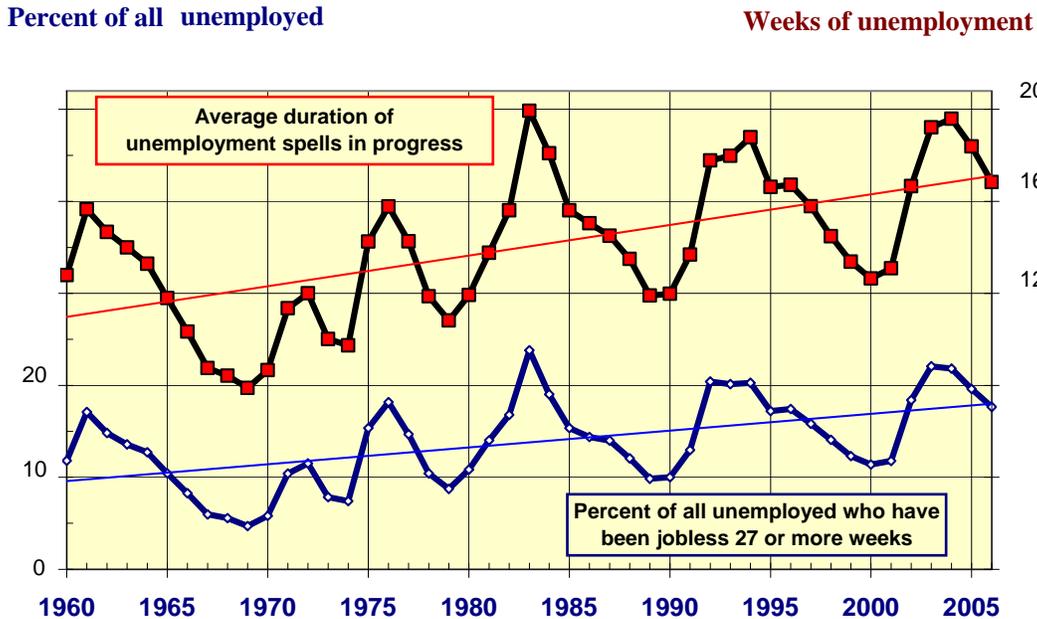
Source: Author's tabulations of BLS data from http://data.bls.gov (downloaded 6-Aug-2007).

increases in every recession and declines (with a lag) after the job market starts to improve, unemployment spells have tended to grow longer in successive business cycles. Average spell duration has increased 1.33 weeks each decade since 1960. Compared with unemployed workers 45 years ago, the unemployed today have been jobless an additional six weeks. The growth in the duration of unemployment spells has increased the percentage of unemployed who are in spells of six months or more. The increase is about 8.2 percentage points over the past 45 years. This evidence, based on household interview responses collected in the CPS, is consistent with administrative data from the UI system itself. Administrative records show that the percentage of UI claims that end with benefit exhaustion—usually after 26 weeks of eligibility for regular unemployment benefits—has increased significantly since the 1960s and 1970s (see top line in Figure 21).

Figure 21. Unemployment Insurance Benefit Exhaustion and the Adult Male Unemployment Rate, 1960-2006

Percent of UI claimants exhausting benefits

Percent of labor force

Legend:
- % exhausting regular UI benefits (left axis)
- Adult male unemployment rate (right axis)

Calendar Year
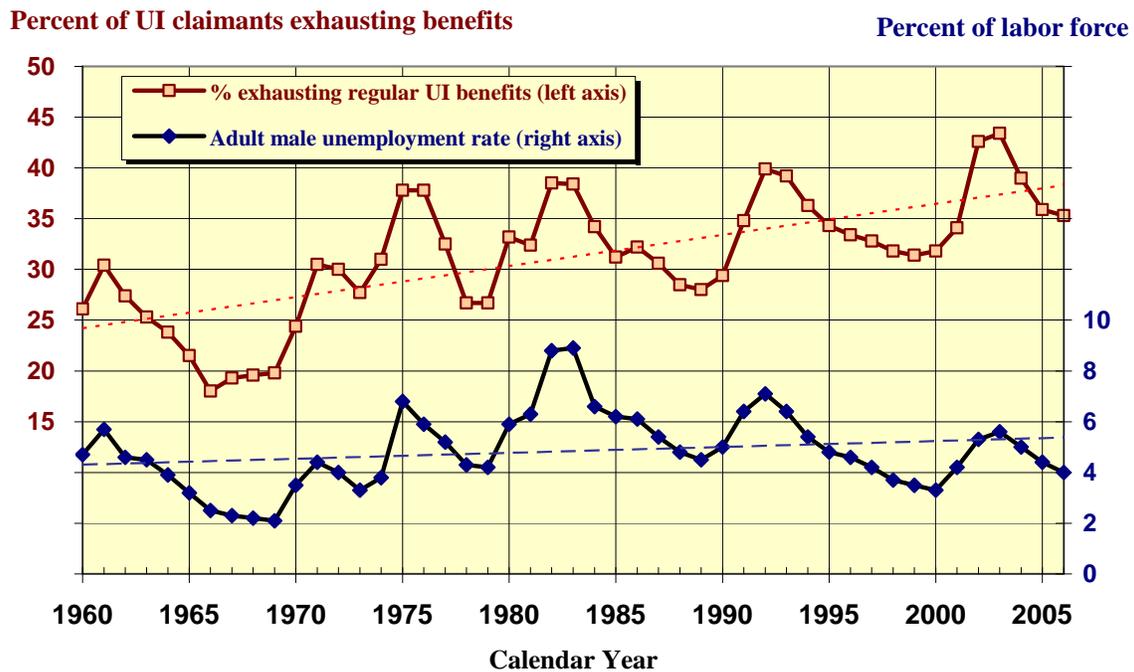
Source: Adult male unemployment rate estimates from http://data.bls.gov and UI benefit exhaustion data from http://workforcesecurity.doleta.gov/ unemploy/finance.asp (downloaded 7-Aug-2007).

Both survey findings and administrative data thus agree in showing an increase in unemployment spells that last six months or more. Virtually none of the unemployed who have been jobless longer than six months qualify for regular UI benefits. They are only eligible for benefits if an extended or emergency compensation program is in effect and if, earlier in their unemployment spells, they qualified for benefits under the regular UI program. Why are unemployment spells longer today than they were in the past? One reason is the declining importance of temporary layoff unemployment noted in Section II. Industries, such as steel and autos, that historically placed workers on temporary (and hence short-term) unemployment now have fewer employees and account for a smaller percentage of unemployment than they did in the past. Many companies are nowadays more inclined to discharge workers permanently rather than temporarily. Whatever the causes for the long-term rise in unemployment durations, the increase in average durations means that one cost to workers of becoming unemployed has grown larger. On average it now takes unemployed workers longer to find their next jobs.

Credit constraints and sources of income for the unemployed. The financial resources of the unemployed and their ability to smooth consumption in the face of job loss have probably improved over time. The wealth and borrowing capacity of many of the unemployed have increased as wage levels and the percentage of unemployed in dual income households have increased. Because of financial market innovations, credit is now easier for homeowners and credit card holders to obtain when they are jobless. These trends allow workers with relatively short spells of unemployment to maintain their consumption more easily than was possible in early post-war decades. Compared with workers in the 1950s and 1960s, today's workers can self-insure more easily against the risk of brief unemployment spells.

A shift in the employer-sponsored pension system has also made more resources available to laid-off workers if they were enrolled in a company pension plan. Before the mid-1980s most employer-sponsored pensions were defined-benefit (DB) plans. Employers contributed to these plans on behalf of their covered employees, and the plan guaranteed workers a retirement benefit that depended on their wages and years of service in the plan. Because of the way pension credits were earned in these plans, it was impractical or impossible for workers to make withdrawals from the plan if they were laid-off before reaching the pensionable age. (If they were vested in the pension, they could begin to collect benefits under the plan when they reached the pensionable age.) In 1980, workers enrolled in a DB plan and in no other kind of plan accounted for 60 percent of all workers enrolled in an employer-sponsored plan. By 2004 this percentage fell to just 11 percent of workers in employer-sponsored plans.[38] At the same time, the fraction of workers enrolled in a defined-contribution (DC) plan, often a 401(k) plan, soared. By 2004, 61 percent of pension plan enrollees were enrolled in a DC plan and in no other kind of pension. An additional 28 percent of pension-covered workers were enrolled in both a DC and a DB plan. In contrast to DB plans, most DC plans make it easy for workers to take withdrawals from their accounts after a layoff occurs. If the worker is younger than 59½, there is generally a tax penalty on withdrawals, but workers can still gain access to their pension savings if they need to support consumption during a long spell of joblessness. About half of 21-64 year-old wage and salary workers (and 57 percent of the full-time workforce) is enrolled in an employer-sponsored pension.[39] For workers who are enrolled in a DC plan and are dismissed from their jobs, pension plan savings offers a source of financing for consumption during a layoff.

Partly counterbalancing the trend toward DC pension plans is the erosion of severance pay as an employee benefit offered by employers. On the whole, the availability of severance pay has declined since the early 1980s, with the biggest declines occurring in the service sector. Based on information gathered in BLS surveys, it appears that overall coverage by a severance pay package has declined about 5 percentage points, falling from 31 percent to 26 percent of the wage and salary workforce covered by the survey.[40]

Other changes in household structure or in the availability of income transfers may have affected the ability of workers to smooth consumption when their earnings are interrupted by unemployment. As noted in Section I, a larger percentage of married couples now have two earners, reducing their dependence on a single worker's wages. Working in the opposite direction is the decline in marriage. Fewer households contain a husband-wife couple, and more are headed by an adult who is separated, divorced, never married, or widowed. Workers in these households may have only limited ability to smooth income after job loss.

Wage earners in low-income households may qualify for food stamps and cash public assistance if they become unemployed and meet the asset and income eligibility tests for these programs. Food stamps are equivalent to a negative income tax in which benefit payments are distributed as food coupons. If a family has no other source of income, the coupon allotment is calculated to provide the family with enough coupons to purchase an economical diet. As a family's income from other sources rises, its allotment is reduced. Only a small percentage of households collecting food stamp benefits are simultaneously receiving UI benefits. In 2005, just 204,000 out of the 10.8 million households received food stamps while collecting UI.[41] However, an unknown percentage of recipients may have collected and exhausted UI benefits before receiving food stamps. For most classes of beneficiaries, food stamps can be received as long as the family meets the income test for the program. However, the welfare reform law passed in 1996 placed limits on the duration of eligibility for some working-age childless couples and individuals. In particular, childless couples and single adults between 18 and 49 who are unemployed cannot receive food stamps for more than 3 out of every 36 months. This limit on benefits became effective in 1997. It reduces the income options available to some unemployed workers who exhaust their UI benefits.

The 1996 welfare reform law also placed tighter restrictions on eligibility for cash public assistance benefits, severely limiting the ability of nonworking adults to collect cash assistance for an indefinite period. The restrictions on cash assistance payments reduced the ability of working-age adults, even those with children, to receive no-strings-attached cash benefits for an extended period. Able-bodied adults in recipient households were pushed to find jobs or participate in work-preparation activities if they wanted to continue receiving benefits.

The reforms in the food stamp and cash assistance programs are relevant to the UI program for two reasons. First, they reduced the income-tested transfer payments available to low-income working-age adults, including those whose low income is due to involuntary unemployment. When these workers are laid-off and exhaust their UI benefits, they are offered less income protection under means-tested programs than was available before 1996. Second, the reforms pushed many low-income parents who would otherwise have been outside the labor market into the workforce. As a result, the employment rate of never-married mothers rose sharply in the 1990s. Many of the single mothers who entered the labor force had few skills, and most faced problems finding and holding a job because of child care commitments. If these hard-to-employ workers hold UI-covered jobs long enough, they become eligible for UI benefits. In many cases, however, their employment experiences are erratic. Some do not accumulate enough UI earnings credits to qualify for UI.

While the reforms in means-tested programs have restricted unemployed workers' access to some benefits, more generous eligibility rules for disability programs have increased the percentage of workers who can collect a disability pension and withdraw from the labor force. Between 1984 and 2004 the percentage of working-age men who received Social Security Disability Insurance (SSDI) benefits climbed from 3.0 percent to 4.3 percent, and the percentage of working-age women claiming benefits increased from 1.4 percent to 3.5 percent. The increase in the disability rate is not solely due to population aging, because increases in benefit claiming are also evident in younger age groups.[42] There are two main explanations for this increase. The criteria used to determine disability status have been liberalized, especially for applicants who have disabling conditions with low rates of mortality. Second, the growth in earnings inequality has reduced the relative earnings of low-wage workers. These workers have historically had the highest disability rates. As their wages have declined, the wage replacement rate they receive

under the SSDI program has increased, making it more attractive for them to apply for benefits. If their market wages had remained high and if it were easy to find a job, many would have chosen to continue working, even with a disabling condition. When workers are accepted into the SSDI program they are not allowed to earn more than a modest amount of wages. Few SSDI recipients have any earnings at all. The expansion of the SSDI rolls has removed a substantial number of hard-to-employ workers from the labor force. By doing so it has probably reduced modestly the number of UI claimants and the unemployment rate.

Fringe benefits. The UI system replaces part of the money wages that workers lose when they are laid-off. It does not insure workers against the loss of health insurance or other fringe benefits that are linked to the lost job. Fringe benefits represent valuable additions to money wages, and their cost to employers has risen substantially over time (see Figure 22). Employer contributions for health and retirement plans, excluding mandatory social insurance, were equal to 15 percent of workers' money wages in 2006. Payments for these fringe benefits were only 3.3 percent of wages in the 1950s and 9.2 percent of wages as recently as the 1970s. For purposes of comparison, employer contributions for state and federal UI programs have averaged 0.7 percent of money wages since 1991. The burden of UI contributions has actually declined over time. Between 1950 and 1990, employers' contributions for UI averaged 1.0 percent of their money wage payments.

The loss of fringe benefits is particularly important for workers who depend on their employers for health insurance. Insurance purchased outside an employer's health plan is so costly that few unemployed workers can afford it. Unlike governments in other industrialized countries, the U.S. government does not provide, or require employers to provide, health insurance to workers or their dependents. In 2004, nearly 46 million Americans—more than one in seven—were not covered by a public or private health insurance plan during the year.[43] Most of the uninsured were workers and workers' dependents, though many of the unemployed were also uninsured, and a large fraction of the unemployed lost their health coverage when they lost their most recent jobs. Uninsured Americans usually have some access to low-cost or free emergency medical care through public hospitals, charity care in private hospitals, or public health clinics. The lack of health insurance coverage nonetheless severely constrains Americans' choice of doctors and hospitals and discourages them from receiving beneficial care.

Figure 22. Employer Contributions for Employer-Sponsored Pension and Health Plans and Federal and State UI Programs, 1950-2006
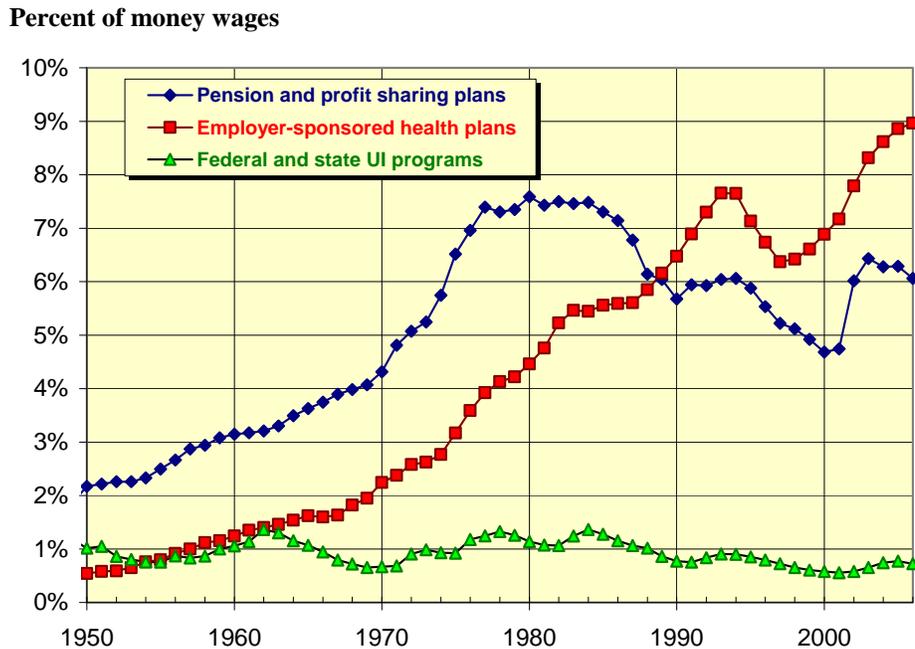
Percent of money wages

Source: Author's tabulations of U.S. Department of Commerce, Bureau of Economic Analysis, data from the National Income and Product Accounts tables. http://www.bea.gov/bea/dn/nipaweb/index.asp (Downloaded

Laid-off workers can now continue receiving health insurance under their former employer's plan under some circumstances. Under provisions of the 1986 Consolidated Omnibus Budget Reconciliation Act (COBRA), employers with more than 20 employees who maintain a health plan for their workers are obliged to offer continuation of coverage to laid-off workers who were not terminated as a result of gross misconduct. Employers must offer continued coverage for at least 18 months after the worker's termination, although they may charge laid-off workers up to 102 percent of the full cost of providing benefits.[44] Since most employers who offer health insurance generously subsidize their employees' purchase of insurance, the cost to laid-off employees of continuing their coverage is ordinarily much higher than the cost they faced while an employee. Many unemployed workers cannot afford to pay the required premiums. They and any family dependents covered by the employer plan often lose their insurance coverage not long after a layoff occurs.

The BLS Displaced Worker Survey can be used to examine the loss of health insurance benefits connected with a job. About three-quarters of long-tenure workers who reported becoming

displaced between 1999 and 2000 were covered by an employer-sponsored health plan in their pre-displacement jobs.[45] One-fifth of these workers lost health insurance coverage following their displacement. Among workers who were reemployed by the date of the Displaced Worker Survey, nearly 85 percent retained health insurance coverage. About a quarter of the once-insured displaced workers had not found a new job, however, and a large proportion of these workers were not covered by a public or private health insurance plan. Among displaced workers who were still jobless and actively seeking work, fewer than half were covered by an insurance plan.

Health insurance is not only a problem for the unemployed, many of whom lose insurance coverage when they lose their jobs. It is also a problem for people who are steadily employed. Though statistics on health insurance coverage are subject to measurement error, the Census Bureau's annual survey on coverage shows a trend toward lower private insurance coverage among working-age adults under age 55 (see Figure 23). Declines in coverage rates occurred primarily in 1990-1992 and after 2000 when the job market was weak. Between 1987 and 2006 coverage under private health plans, mainly provided by employers, declined 2 percentage points to 8 percentage points depending on the age group. Only among adults between 55 and 64 did coverage under employer health plans increase. Low-wage workers who head families containing children may qualify for publicly subsidized health insurance or free insurance for their children. Workers with higher incomes may need to find an employer offering good health insurance if they want to obtain reliable coverage for their families. Many middle-class families cannot afford to purchase a private health insurance plan without the contributions of an employer. A Kaiser Foundation survey in 2005 found that the combined employee and employer premium for a family health plan was nearly $10,900, annually. Of this amount, one-quarter of the total premium is usually paid by the employee and three-quarters by the employer.[46] For purposes of comparison, the average annual wage earnings of Americans who have any earnings at all was $36,950 in 2005. The combined premium for a family insurance plan is thus almost 30 percent of the average U.S. wage.

Since health insurance is expensive to purchase without an employer's help and since most working-age families obtain their insurance through an employer, the steeply rising cost of insurance has increased the price of job loss for many middle class workers. If a breadwinner's

employer offers the only affordable source of insurance available to a family, then the loss of the breadwinner's job will effectively result in the loss of the family's health coverage. The loss of

Figure 23. Percent of Working-Age Adults Insured under Private Health Insurance Plans by Age Group, 1987-2006

Percent in age group covered by employer health plan

coverage was less important when physician and hospital bills were lower, as they were up to the 1970s. The loss of coverage is much more important when even routine hospitalizations can cost several thousand dollars. Of course, workers who qualify for generously subsidized public insurance or who would qualify for such insurance if they were laid-off do not face this problem. The availability of publicly subsidized insurance may have reduced the economic loss these workers sustain when they are laid-off.

V. The Current Effectiveness of UI

The UI system remains a vital part of the nation's social safety net, but its importance has diminished somewhat over the post-war period, both as a source of protection against income loss during unemployment and as a counter-cyclical stimulus when the unemployment rate rises.

Countercyclical effects. Figure 24 shows the relationship between the unemployment rate, on the one hand, and spending on all unemployment compensation benefits, on the other. Spending on unemployment benefits is measured as the ratio of state and federal outlays on all types of unemployment compensation compared to total wage disbursements in the public and private sectors. The chart shows the strong cyclical sensitivity of UI spending. Outlays on all unemployment compensation programs more than doubled between fiscal years 1969 and 1971 and then fell almost 30 percent in the next two years. Spending nearly tripled between 1974 and 1976 and then fell about two-thirds by 1979. Note, however, that the surge in unemployment spending has been smaller in more recent recessions.

Figure 24. Relation of Unemployment Rate and Spending on Unemployment Compensation, Fiscal Years 1960-2006
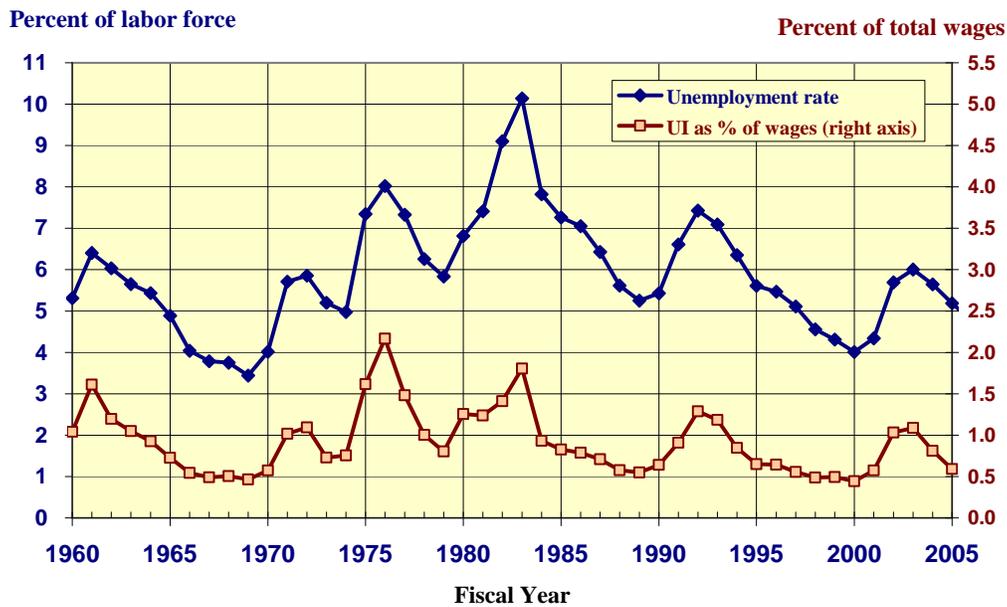
Source: Author's tabulations based on unemployment estimates from http://data.bls.gov, unemployment insurance outlays from U.S. OMB, *Budget of the United States Government, Fiscal Year 2008, Historical Tables*, downloaded 30-Aug-2007, and data on U.S. wage and salary income from U.S. Department of Commerce NIPA estimates.

The falloff in countercyclical stimulus provided by UI can be roughly approximated by regressing the ratio of UI benefit payments over wages on the unemployment rate:

(1) $\underline{UI} = -0.600 + 0.293 \cdot UR - 0.059 \cdot [UR \cdot (D1980\text{-}2006)]$, Corrected $\mathbf{R}^2 = 0.825$;
    $Wage$ (0.107) (0.020)   (0.009)

(2) $\underline{UI} = -0.372 + 0.338 \cdot URM - 0.115 \cdot [URM \cdot (D1980\text{-}2006)]$, Corrected $\mathbf{R}^2 = 0.858$;
    $Wage$ (0.082) (0.020)   (0.010)

where   *UI/Wage* = Ratio of UI benefit payments to total wage bill;
              UR = Average annual unemployment rate, population 16 and older;
            URM = Average annual unemployment rate, males 20 and older; and
    D1980-2006 = Dummy variable equal to 1 for years 1980-2006, 0 otherwise.

Equation 1 above regresses the UI benefit / wage ratio on the civilian unemployment rate for the population 16 and older. Equation 2 uses the civilian unemployment rate of men age 20 and older. This indicator of labor market slack is sometimes preferred to the total unemployment rate because it is less affected by the shifting age composition of the labor force and the long-term rise in the female labor force participation rate, which was heavily concentrated in the period between the mid-1960s and the mid-1990s.[47] Both equations are estimated using 47 annual observations between 1960 and 2006. The dummy variable, `D1980-2006`, is interacted with the indicators of labor market slack to determine whether there was a change in the relationship between UI benefit payments and the unemployment rate in years after 1979. The results of both equations suggest there was a change and that it was large. Before 1980 a 1-percentage-point rise in the unemployment rate of men and women age 16 and older was associated with a 0.293-percentage-point rise in the ratio of UI benefit payments to aggregate wages. In 1980 and later years, the same increase in the unemployment rate was associated with a rise in the UI payment / total wage ratio of only 0.233 percentage points. This decline represents a 20 percent drop in the counter-cyclical effect of UI benefit payments. If we use the unemployment rate of men age 20 and older as our measure of labor market slack, the falloff in countercyclical effectiveness is even bigger, a drop of about one-third.

The decline in unemployment protection is greater than implied by Figure 24. UI spending in the figure is measured as the flow of gross benefits in relation to the money wages earned by

U.S. workers. The calculation ignores the changing tax status of unemployment compensation. Before 1979 unemployment benefits were treated as tax-free income in the federal income tax code. Starting in 1979, however, some or all benefits became taxable for middle- and high-income households. In 1987 all compensation payments were made taxable as ordinary income. An analysis by the House Ways and Means Committee in 1998 showed that the federal income tax on compensation nets the Treasury tax revenues that offset about 18 percent of the cost of benefit payments.[48] Since most states with income tax systems followed the lead of the federal government in defining taxable income, unemployment compensation also became taxable in state tax systems, further reducing the net value of UI payments. The inclusion of UI benefits in the income tax base would not have affected income replacement rates if state legislators had increased weekly benefit amounts by roughly 20 percent when benefits first became taxable. They did not do this, however. The average weekly benefit amount is about 35 percent of the average gross wage in covered employment, and this ratio has remained essentially unchanged for the past 45 years. The after-tax value of UI payments has fallen, however, as a greater share of benefits has become taxable. Money wages have also declined in relation to total worker compensation. As noted in Section IV, health and retirement benefits became an increasingly important part of most employers' pay package. In the 1960s money wages represented 91 percent of total worker compensation. By 2006 money wages accounted for just 81 percent of compensation.[49] By implication, UI benefits now represent a smaller percentage of lost worker compensation than they did in the past.

The decline in UI coverage. The most important reason for the falloff in UI payments as a percentage of total earnings lost in a recession is that a smaller percentage of the unemployed is now collecting a UI check. Figure 25 shows the percentage of unemployment weeks that were compensated under all UI programs, including the regular and Extended Benefits programs and all supplemental and emergency programs. The lower line, which provides estimates for the full 1960-2006 period, measures compensated weeks in relation to an estimate of the total weeks that U.S. workers spent in involuntary unemployment. In the 20-year period through 1979, the percentage of unemployment weeks compensated was 39 percent, on average. In the 27-year

Figure 25. Weeks of Unemployment Compensated by U.S. Unemployment Insurance, 1960-2006

Percent of unemployed weeks compensated by all UI programs
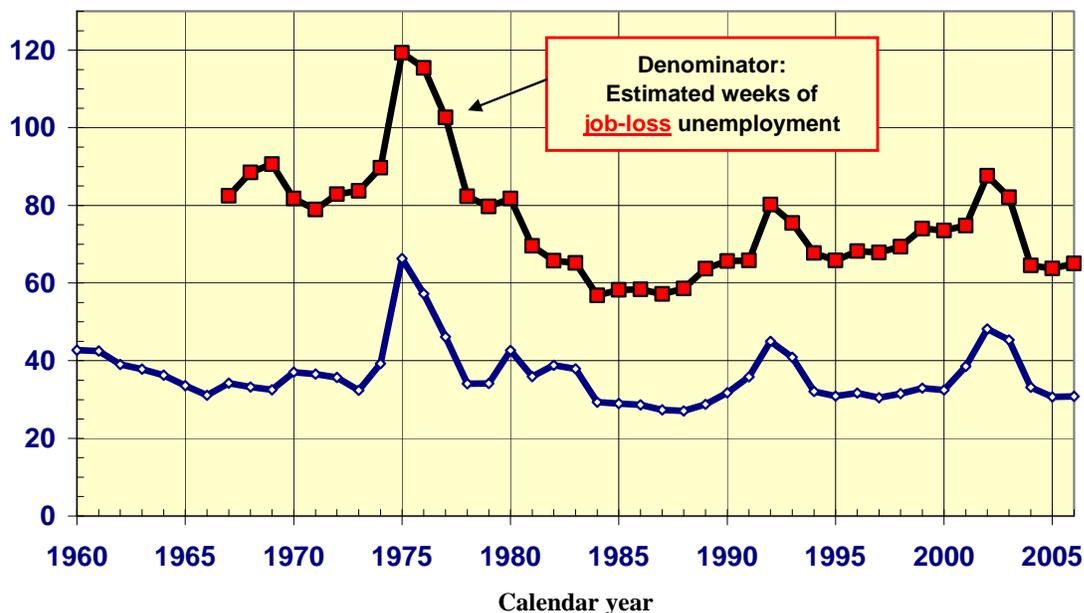
Source: Author's tabulations based on unemployment estimates from http://data.bls.gov, UI finance data from http://workforcesecurity.doleta.gov/unemploy/finance.asp, downloaded 6-Aug-2007, and data on federal supplemental UI claims in *Economic Indicators* (various issues).

period starting in 1980, it was less than 35 percent on average, a decline in insurance coverage of about one-eighth of the unemployed.

Many unemployed workers are supposed to be ineligible for benefits, of course. New entrants and most reentrants to the workforce are ineligible because they have not accumulated recent work experience in a UI-covered job. Unemployed workers who quit their most recent jobs are also ineligible or may be eligible only after a lengthy waiting period. The unemployed who are most likely to collect benefits are job losers, workers who were permanently or temporarily laid-off from their last job or who held a temporary job that came to an end. The top line in Figure 25, which covers the period from 1967-2006, measures compensated weeks in relation to the estimated number of weeks of unemployment experienced by job losers. This measure shows a more dramatic decline in UI coverage after 1979. Between 1967 and 1979, on average slightly more than 90 percent of job losers' unemployment weeks were compensated under the UI system. Since 1980, on average less than 70 percent of job losers' unemployment weeks have

been compensated, a drop in coverage of about one-quarter. This estimated decline lies in between the two estimates obtained in equations 1 and 2 above. Even if we disregard the exceptional coverage rates in 1975-1977, there was an 18-percent fall-off in UI coverage starting around 1980.

A number of analysts have examined the reasons behind the decline in UI coverage of the unemployed.[50] Several changes in the composition of the unemployed have contributed to lower UI coverage ratios. As documented in Section I, a larger percentage of the U.S. workforce now resides in states where UI coverage rates have been low for several decades. A smaller percentage lives in states with high coverage rates. Over the past five decades, this factor accounts for roughly a quarter in the trend decline in UI coverage under regular state programs. A larger percentage of workers (and the unemployed) now consists of women, and women have historically had lower rates of UI participation than men, although this gap has almost certainly narrowed as men and women's job market experience has grown more similar. Part-time employment is also more common than was the case before 1980. The qualifying conditions for UI require workers to have a minimum level of earnings to become entitled to benefits, so laid-off part-time workers are less likely to receive benefits than workers laid-off from full-time jobs. These qualification requirements also reduce the percentage of low-income single mothers who collect UI after they become unemployed, since many of these mothers have short employment spells when they are laid-off. Finally, as unionization rates have fallen, the unemployed are less likely to receive help from a labor union in learning about unemployment benefits or how to apply for them.

Other trends should have increased the percentage of unemployed workers, and especially job losers, who collect UI benefits, however. Both the workforce and the unemployed population contain a smaller percentage of young workers. For reasons discussed earlier, these workers are less likely to be eligible for UI when they become unemployed. In spite of the relative decline in this population, coverage rates under regular state UI programs were lower after 1980 than they were in earlier decades. Some analysts who have examined the data agree that a great deal of the decline in coverage after 1980 stems from a decline in benefit application rates among unemployed job losers who appear to meet the monetary and non-monetary qualifying

requirements for UI.[51] Some of this decline might be traceable to the taxation of UI benefits, which reduced the after-tax value of a UI benefit check.

Longer unemployment durations. One obvious reason for the lower UI coverage of job losers is the increasing average duration of unemployment spells. Few of the unemployed who have been out of work for longer than six months qualify for regular state UI benefits. Under current law they are only offered UI if an extended or emergency UI program is in effect. Since the early 1960s, the increase in the fraction of unemployed who have been jobless for six months or longer should have reduced the fraction of unemployed receiving benefits by about eight percent. This calculation presumes that the unemployment rate is near average, so the only UI benefits available to workers come from the regular 26-week program.

When the state or national unemployment rate is high, jobless workers are supposed to qualify automatically for UI payments beyond the usual 26-week eligibility period. The state-federal Extended Benefits program provides an additional 13 weeks of compensation payments for workers in states where the unemployment rate is higher than a threshold (or trigger) rate. Half the cost is paid out of a federal government unemployment trust fund and half is paid by states in which the program triggers on. In the past two decades the program has rarely, if ever, triggered on in most states, even when the national unemployment rate is high. For example, in June 2003 when the U.S. civilian unemployment reached a peak after the 2001 recession, Extended Benefits were available in only three out of 50 states – Alaska, Oregon, and Washington. While the local unemployment rate was exceptionally high in those states, it exceeded 6.7 percent in six other states, including California, Michigan, and Texas. Michigan's Extended Benefits program triggered on (for five months) beginning in August 2003, but Extended Benefits become available in a total of only six states during and immediately after the 2001 recession – Alaska, Idaho, Michigan, North Carolina, Oregon, and Washington. Extended Benefits were last available in California in July 1983. California's unemployment rate has been eight percent or higher in 45 of the 276 months since July 1983, and it was seven percent or higher in 98 months. In none of those months were California's unemployed eligible for compensation under its Extended Benefits program.

A key factor that has reduced the effectiveness of the Extended Benefits program is the trigger mechanism used to determine whether a state offers Extended Benefits to workers who exhaust regular UI benefits. The trigger mechanism was modified in 1981 to increase the insured unemployment rate (IUR) needed to trigger on a state's Extended Benefit program. At the same time, the 1981 law also eliminated the national-level IUR trigger that triggered on the Extended Benefits program in all 50 states. These changes clearly reduced the likelihood that the Extended Benefits program would trigger on in a given state. At the same time, the decline in the fraction of unemployed job losers collecting UI benefits also reduced the IUR in relationship to the civilian unemployment rate (also known as the "total unemployment rate" or TUR). Starting in 1993 Congress authorized states to adopt an alternative trigger rate for the Extended Benefits program based on the TUR instead of the IUR. As of April 2008, however, only 11 of the 50 states had elected to use this alternative trigger rate. The economic rationale for most states' choice is obvious. States must pay for one-half the cost of Extended Benefits out of their own UI trust fund account. When the national unemployment rate is high, Congress usually authorizes spending for special or emergency UI benefits beyond the 26 weeks of benefits available under regular state UI programs. The special or emergency benefits are wholly financed out of federal funds. Under these circumstances, it is fiscally advantageous for states to rely on federally financed emergency UI benefits rather than partly state-financed Extended Benefits when the local or national unemployment rate is high. This choice means that UI benefits that last longer than regular state UI benefits will only be offered if Congress enacts a special or emergency program. There is nothing "automatic" about the extra protection and counter-cyclical stimulus provided by extended UI benefits.

On both economic and humanitarian grounds it makes sense to provide longer-duration benefits to laid-off workers when the unemployment rate is high. Since unemployed workers usually need more time to find work in weak job markets, there is a compelling equity argument for offering insurance over longer spells of job search. In addition, the countercyclical effectiveness of unemployment compensation is reduced when a large percentage of laid-off workers are dropped from the rolls as a result of benefit exhaustion. For obvious reasons, workers are more likely to exhaust their regular unemployment benefits when the jobless rate is high (see Figure 21). If no extensions of unemployment compensation were available, the percentage of

unemployed who collect benefits would shrink as the length of a recession extends beyond the maximum eligibility period.

The logic of benefit extensions in recessions is apparent to most policymakers and voters. In every recession since the late 1950s, Congress has enacted a federally-funded extension of unemployment benefits in addition to whatever extension might be available under the federal-state Extended Benefits program. The extension in 1975-1977 was particularly generous, providing unemployment claimants who exhausted both regular and extended UI benefits with up to 26 additional weeks of compensation (for a total benefit duration that could last up to 65 weeks). The special benefit extensions in 1982-1985, 1991-1994, and 2002-2004 were less generous but still provided extra federally-financed benefits that could extend a worker's total eligibility period by up to six months. Special programs to extend the duration of unemployment benefits have been in effect during all or parts of 14 out of the 32 years since 1975. Depending on a worker's state of residence and the details of the federal supplemental program in effect, a worker might qualify for 6 to 39 weeks of additional unemployment compensation beyond the 26 weeks available under the regular state insurance program.

VI. Implications for Changes in UI

This paper highlights the major changes in the labor market and in unemployment that affect the insurance value of UI for workers experiencing unemployment and influence the countercyclical effects of the program within the broader economy.

- At a given level of overall joblessness, unemployment durations have increased. In light of the fixed and stable limit on the duration of potential UI eligibility, this trend has reduced the percentage of an average unemployment spell that is covered by UI.

- Rising wealth, innovations in credit and financial markets, and increases in employee coverage under defined contribution (DC) pension plans have increased many workers' capacity to smooth consumption in the face of earnings loss that accompanies a layoff. Compared with laid-off workers in early post-war decades, laid-off workers today are in a better position to self-insure against short-term loss of earnings.

- The geographical shift of workers from states with comparatively high UI coverage rates to states with lower coverage rates has reduced the percentage of newly laid-off workers who receive benefits under the program.

- In addition to the geographical shift in employment and unemployment, other factors appear to have reduced the probability that newly laid-off workers will claim a UI benefit.

- Changes in corporate layoff policy and the industrial mix have reduced the percentage of laid-off workers who are on temporary layoff and increased the percentage who are permanently laid-off. This development has contributed to the upward trend in unemployment durations.

- The average weekly UI payment has remained fixed relative to the average weekly wage paid in employment covered by UI. This probably implies that workers who receive UI checks are receiving gross replacement for lost earnings that is similar to what workers received in the past. Effective income protection has declined, however, for two reasons:

  ‣ Benefit checks are now taxed as ordinary income. Before 1979 they were not taxed under the income tax; between 1979 and 1986 part of benefits were exempt from taxes. Tax reform has in effect reduced the net replacement value of UI benefits.

  ‣ The money wages paid to workers represent a shrinking share of the weekly compensation they receive. A growing percentage of compensation is provided in the form of employer contributions to health and other benefit plans. The UI program does not insure workers against the loss of these benefits, even though coverage under a health insurance plan may be necessary to maintain workers' consumption during a layoff. It is difficult if not impossible for workers to self-insure against the loss of health insurance.

- UI does not insure workers against the loss of wages or benefits that occurs after they are reemployed. For experienced workers and workers laid-off in high-wage industries, these losses often dwarf the losses they will sustain as a result of being temporarily out of work. The growth in earnings inequality means that workers earning good wages may

nowadays face a bigger percentage loss of earnings if they are forced to obtain employment in a low-pay industry or occupation.

This summary suggests several potential directions for change in UI that might make it more effective in the new environment. The effects of each potential change in the system would require close analysis before a clear recommendation can be offered.

Increase protection for long spells of unemployment. One possible step is to increase the protection available to laid-off workers who suffer long spells of unemployment. This might be accomplished in two different ways—first, by increasing the maximum duration of regular UI benefits and, second, by changing the conditions under which Extended Benefits are triggered when the unemployment rate is high. The first change, if seriously considered, could be relatively straightforward. A crucial question, which could be the topic of formal investigation, is the number of additional weeks that would be permitted for workers who are eligible for the maximum duration of potential benefits. It is important to use caution in raising this maximum, for there is abundant evidence that a longer maximum will induce some workers to increase the amount of time they spend in unproductive search for a new job. Some workers will spend longer before accepting a new job, but their new job will not be any better than the one they would have found with less search.

The second change – a modification in the trigger mechanism for Extended Benefits – is less straightforward. Congress has authorized extra or emergency benefit extensions in every recession since the late 1950s. It is probably undesirable to rely mainly on emergency legislation to increase UI benefit durations in recessions, because the legislative calendar and unrelated political disagreements can delay Congressional action when the unemployment rate is rising. One possible revision in the Extended Benefits program would be to alter the triggering mechanism to authorize payment of Extended Benefits in smaller increments than 13 extra weeks of eligibility. For example, states with moderately high unemployment rates or UI exhaustion rates could be authorized to offer four extra weeks of benefits; states with somewhat higher unemployment or exhaustion rates could be authorized to provide eight extra weeks of benefits; and so on up to a maximum authorization of 13 extra weeks of benefit payments. Congress still retains the legislative authority to appropriate funds for emergency provision of

extra UI payments, but by changing the triggering mechanism for Extended Benefits, extensions in the benefit eligibility period would automatically occur at an earlier stage in future recessions.

Reduce protection for short spells of unemployment. Since most workers now have access to savings or credit that allows them to smooth consumption in the face of short-term earnings loss, it might make sense to reduce UI's insurance protection against short spells of involuntary unemployment. The increased importance of long unemployment spells might suggest to some analysts that regular UI should be reoriented to reduce insurance protection for short unemployment spells and improve the protection available for workers who suffer more than 26 weeks of unemployment. This could be accomplished without incurring additional UI program costs if workers faced a longer waiting period for benefits but were allowed to collect regular UI for a greater number of total weeks. An economic argument for this change is that it is more difficult for workers to self-insure against earnings loss that extends to three, six, or nine months while it is relatively easy for them to self-insure or obtain credit to cover consumption when earnings are interrupted for four weeks or less.

Young workers and workers earning low pay have less capacity to self-insure or to obtain credit when they are laid-off, and this is true even when they only experience short unemployment spells. If voters and policymakers believe protection should be offered in these cases, one way to provide such protection is to require employers to offer severance pay that is linked to workers' wages and months of service with the firm. For example, if the waiting period for UI were increased so that laid-off workers could not collect UI payments for their first four weeks after a layoff, employers might be obliged to provide one day of severance pay for each month of service up to a mandatory minimum amount of 10 days of severance pay. Under this mandate, workers who are involuntarily discharged after 8 months on the job would receive 8 days of pay calculated at their daily rate of pay during their 8 months of service. While an employers' obligation to provide severance pay would not eliminate UI protection or employers' obligation to contribute to the UI system, it could offset the loss of short-term UI benefits if policymakers choose to increase the number of waiting weeks after an initial UI claim is filed. Severance pay can help young workers and poorly paid workers maintain their consumption in the first few weeks after a layoff. Severance pay might also turn out to be preferable to UI benefits both in terms of work incentives and administrative cost. Workers who receive lump-sum severance

payments do not face the adverse reemployment incentives faced by a recipient of standard UI benefits. It may be less costly for employers to administer a severance pay system as part of their regular compensation system than it is for the UI system to pay short duration benefits to laid-off workers who are reemployed after only a short spell of joblessness.

Partially protect workers against the risk of losing health insurance. A growing problem for unemployed workers is the cost of obtaining adequate medical care or health insurance if they lose insurance coverage when they lose their jobs. Employer contributions for employee health plans are now equal to nine percent of the money wages paid to workers.[52] Many small employers do not offer health benefits, of course; other employers offer very inexpensive plans that are not terribly generous. However, for a breadwinner who is the sole family member covered by a generous employer health plan, the employer contribution to a standard health insurance plan may represent one-quarter or more of total compensation. It is difficult or impossible to self-insure against the loss of the employer's contribution to this plan. The UI system makes no provision for such insurance. Workers receiving health coverage on their jobs can purchase group insurance coverage from their former employers if they are laid-off, but they must find enough money to cover both the employer and employee premium contribution. Moreover, they must do this out of a smaller money income than they received while employed.

It surely makes sense to remedy the problem posed by the loss of health insurance coverage through a fundamental change in the nation's health insurance system. Until that is done, however, laid-off workers who collect UI benefits will face the problem of paying for medical care or insurance while they are unemployed. A narrow solution to the problem could be based on the underlying logic of the UI system itself. UI benefits under the present system are financed by taxing employers in proportion to their taxable wage bill, with penalty rates imposed on employers with layoff policies that create high costs for the system. In principle, the nation could apply similar logic to the problem of providing continued health insurance coverage to UI-insured laid-off workers. Employers that offer health insurance coverage to their workers might be required to contribute to an unemployment fund that subsidizes the purchase of COBRA health insurance coverage for laid-off workers. The new protection to UI-covered laid-off workers might be financed with a tax that is imposed on employer contributions to employee health plans. Employers which do not offer health plans would make no contributions;

employers offering expensive or generous plans would make relatively large contributions. As in the current UI program, employers' contribution rates might be experienced rated, so that firms with layoff policies that contribute heavily to program costs would face higher contribution rates than firms which only rarely lay off their workers. The benefit to be offered to UI-covered laid-off workers would be simple: A monthly subsidy payment that covers a portion of the cost of continued COBRA health coverage.

The suggested extension of UI coverage hardly represents an ideal approach to providing health insurance to the nation's working-age population. It is a stop-gap measure to extend insurance coverage to workers who lose their health coverage when they are laid-off from their jobs. Since health coverage is an increasingly valued—and increasingly expensive—component of workers' compensation, the failure of the U.S. safety net to insure unemployed workers against its loss represents a growing hole in the protection offered by the current UI program.

Time-limited earnings insurance benefits. The discussion up to this point has focused on the insurance protection historically provided by the nation's UI system—insurance against the temporary loss of wages or compensation resulting from a layoff. While this kind of insurance is an essential component of overall income protection, we should also recognize that it creates adverse incentives for recipients. Since the UI payment replaces a percentage of the earnings workers lose as a result of unemployment, it reduces the pressure on them to accept another job. This is advantageous both to the worker and the wider economy when it improves a worker's capacity to reject bad job offers and find better ones. By improving the quality of matches between workers and job openings, UI improves the average productivity of the workforce. This function of UI is especially important for workers with extensive skills and experience, for this expertise would go to waste if these workers accepted jobs where their skills have little use. UI also creates important incentive problems, however. It allows workers to postpone serious search for a new job, and it encourages some of the unemployed to reject good job offers even when they are unlikely to obtain better ones. In these cases, taxpayers are obliged to finance additional UI payments to subsidize jobless workers who are not productively engaged in finding a new job.

Partial solutions to these incentive problems are to limit UI benefits to a carefully restricted population, offer insurance payments that replace two-thirds or less of a worker's lost earnings, require workers to show evidence of purposeful job search, and restrict benefits to a limited period of time after a layoff. Whether the balance of these program features in the U.S. system produces an optimal tradeoff between good income protection and sound incentives is an open question. Clearly, the United States has struck a different balance between income protection and job-finding incentives compared with the balance struck in most other rich countries. By providing smaller and shorter-lasting benefits, our system encourages unemployed workers to find jobs quickly. The incentives in our system seem tolerably effective. Even though long-duration unemployment has become more common in the United States, it is still much less common than it is in countries offering more generous income protection to the unemployed.

Is there a way to make job-finding incentives more effective while simultaneously providing better insurance to laid-off workers? For workers who face big cuts in pay when they find new jobs, one option worth considering is time-limited earnings insurance.[53] Financed in the same way as traditional UI benefits, earnings insurance would provide displaced workers with monthly or quarterly earnings supplements to compensate them for a fixed percentage of the wage losses they suffer as a result of displacement. If the program insured workers for 50 percent of their earnings loss, for example, a displaced worker whose previous wage was $4,000 a month would receive a monthly check of $500 if forced to accept a new job that pays only $3,000 a month. The percentage of earnings-loss replacement could be the same for all eligible workers or it could vary depending on a worker's age and previous job tenure. In order to target benefits on displaced workers who have the greatest likelihood of suffering large post-displacement wage losses, eligibility should be restricted to only a fraction of UI-eligible workers, namely, laid-off workers who are displaced by an employer who has employed the worker for some minimum period, such as three years. There might be a good case on equity grounds for providing better insurance to older workers. As noted earlier, older workers usually find it harder than younger ones to obtain a new job. Evidence suggests they are also more likely to be forced to accept a large and permanent cut in their weekly pay.[54] However, eligibility for earnings insurance should only be available to workers who have minimum job tenure (say, two or three years) with their current employers. There is little economic or equity justification for providing earnings

insurance payments to employees who suffer displacement after working only briefly for an employer.

The total amount of compensation provided in any year to a worker should be capped at a ceiling amount, say, $10,000. This would avoid situations in which highly compensated workers receive extraordinary insurance payments. Highly paid workers can be presumed to have more savings than workers earning average- or below-average wages. Explicit provision should probably also be made for displaced full- or part-time workers who are reemployed in a part-time position. The purpose of earnings insurance is to encourage speedier job finding and to compensate workers for part of the wage loss they suffer as a result of job displacement. The goal is not to subsidize the reduction in a worker's weekly hours of employment. A straightforward limitation would be to require subsidized workers to show they hold a full-time job, say, a job where workers are employed at least 32 hours a week.

A crucial element of earnings insurance is that the income supplements would not be payable until a worker becomes reemployed, and supplements would cease within a specified period after displacement occurs (say, after eighteen months). Workers who find new jobs early in their eligibility period would be eligible for larger total payments than workers who delayed accepting a new job. This provides workers with an incentive to search purposefully for a new job and to accept a job quickly. It also encourages workers to face the consequences of permanent job loss immediately after displacement occurs. By encouraging workers to accept this fact right away, earnings insurance could induce workers to take constructive action to become reemployed as soon as possible.

Earnings insurance is not by itself a solution for displaced workers' problems, nor would it solve the problem of income replacement during periods when workers are jobless, a problem that is addressed with traditional UI. Although wage insurance can help improve incentives for workers who earn average and above-average wages before they were laid-off, a different approach is needed to help displaced workers who earned low wages. For displaced workers who earned average or above-average wages, earnings insurance holds promise of encouraging unemployed workers to look energetically for jobs. The sizeable incentive for early job finding may cause some workers to accept jobs they would have rejected in the absence of the earnings supplement.

One potential argument in favor of this policy is that it might boost the job-finding success and net incomes of participating workers without causing a reduction in their own self-support. In comparison with longer or more generous UI benefits, earnings insurance offers a strong incentive for beneficiaries to find work, has positive effects on the earned incomes of people who participate, and provides humane compensation to a group that suffers major hardship as a result of economic change.

Appendix Table 1. Average UI Coverage Rates in 50 States and the District of Columbia, Selected Years, 1977-2005

UI coverage rate (%) a/	*Number of states with coverage rate in indicated range*			
	1977-1979	1987-1999	1998-2000	2004-2005
15 to 19.99	7	11	9	5
20 to 24.99	9	16	9	9
25 to 29.99	6	5	7	13
30 to 34.99	14	8	10	12
35 to 39.99	7	4	5	3
40 to 44.99	5	4	3	1
45 to 49.99	1	0	4	6
50 or higher	2	3	4	2

a/ Percent of unemployed workers in state who collect UI benefits.

Source: Author's tabulations of data reported in U.S. Department of Labor (2007), *Unemployment Insurance Financial Data Handbook* (www.workforcesecurity.doleta.gov/unemploy/hb394.asp); and state unemployment data from the U.S. BLS.

Endnotes

[1] U.S. Bureau of Labor Statistics (2007), "Employment Characteristics of Families," News Release USDL 07-0673 (May 9, 2007), Table 3.

[2] U.S. Bureau of Labor Statistics (2005), *Women in the Labor Force: A Databook*, Report 985, Tables 24 and 25.

[3] U.S. Census Bureau (2007), http://www.census.gov/population/socdemo/hh-fam/hh1.xls (downloaded Aug. 15, 2007).

[4] In 2006, 53 percent of households maintained by an unmarried women where someone was unemployed had no employed household members. U.S. Bureau of Labor Statistics (2007), "Employment Characteristics of Families," News Release USDL 07-0673 (May 9, 2007), Table 3. Previous news releases show that this percentage has varied relatively little since 1992.

[5] Julie A. Yates (2005), "The transition from school to work: education and work experiences," Monthly Labor Review 128(2) (February), 21-32.

[6] U.S. General Accountability Office (2005), *Unemployment Insurance: Information on Benefit Receipt* (March), (Washington, DC: GAO)

[7] Gary Burtless and Joseph F. Quinn (2001), "Retirement Trends and Policies to Encourage Work among Older Americans," in P.P. Budetti, R.V. Burkhauser, J.M. Gregory, and H.A. Hunt, eds., *Ensuring Health and Income Security for an Aging Workforce* (Kalamazoo, MI: Upjohn).

[8] U.S. Bureau of Labor Statistics, http://www.bls.gov/cps/cpsaat31.pdf (accessed April 14, 2008).

[9] Edward F. Denison (1979), *Accounting for Slower Economic Growth: The United States in the 1970s* (Washington, DC: The Brookings Institution); Dale W. Jorgenson (1984), "The Contribution of Education to U.S. Economic Growth, 1948-73," in E. Dean, ed., *Education and Economic Productivity* (Cambridge, MA: Ballinger); U.S. Bureau of Labor Statistics (1993), *Labor Composition and U.S. Productivity Growth, 1948-90,* Bulletin 2426 (Washington, DC: U.S. Government Printing Office); and. Paul T. Decker, Jennifer King Rice, Mary T. Moore, and Mary R. Rollefson (1997), *Education and the Economy: An Indicators Report,* NCES 97-269 (Washington, DC: U.S. Department of Education, National Center for Education Statistics).

[10] The favorable unemployment situation of highly educated versus less educated U.S. workers has been analyzed extensively. See Jacob Mincer (1989), "Human Capital and the Labor Market: A Review of Current Research" *Educational Researcher* 18(4) (May), pp. 27-34, esp. p. 29.

[11] The increased specialization and training requirements of U.S. jobs are documented in successive editions of U.S. Department of Labor, *Occupational Outlook Handbook* (various years), combined with BLS estimates and projections of employment growth by occupation sorted by their educational training requirements. See, for example, George Silvestri and John Lukasiewicz (1991), "Occupational Employment Projections, 1990-2005," *Monthly Labor Review* 114(11) (November), 65-94; and Arlene Dohm and Lynn Shniper (2007), "Occupational Employment Projections to 2016," *Monthly Labor Review* 130(11) (November), 86-125.

[12] U.S. Department of Homeland Security (2007), *2006 Yearbook of Immigration Statistics* (Washington: U.S. GPO), see http://www.dhs.gov/xlibrary/assets/statistics/yearbook/2006/table02.xls (accessed September 1, 2007).

[13] U.S. Bureau of the Census, http://www.census.gov/population/socdemo/foreign/ppl-176/tab05-7.xls (downloaded Aug. 15, 2007).

[14] Michael Hoefer, Nancy Rytina, and Christopher Canpbell (2007), "Estimates of the Unauthorized Immigrant Population Residing in the United States: January 2006," (Washington, DC: Department of Homeland Security).

[15] Christopher J. O'Leary, Robert Tannenwald, Wei-Jang Huang, and Pei Zhu (2000), "Alternative Measures of State UI Systems," Paper prepared for the Society of Government Economists, January 2006. (Kalamazoo, MI: Upjohn).

[16] An alternative approach is to calculate the average state benefit-to-total-wage ratio for years near the beginning of the period, say, 1950-1959, and then determine the impact of shifts in the geographical distribution of UI-covered workers. However, the results of this alternative procedure are very similar to the ones described below.

[17] To derive an estimate of the long-term trend in the national benefit-to-total-wage ratio, I regressed observed values of that variable on a simple time trend. The estimated coefficient on the time trend is -0.0069, implying that the expected benefit-to-total-wage ratio fell 0.38 percentage points between 1950 and 2006. The geographical redistribution of workers in UI-covered employment accounts for 0.107 of this decline.

[18] To calculate median weekly earnings in a particular state, I first estimated each wage and salary worker's average weekly earnings by dividing reported annual wage and salary income in a calendar year by the respondent's reported weeks of work. In order to reduce the sampling variability of these estimates, I combined information on reported wages for two or three successive years, as explained in the main text.

[19] The distribution of state UI coverage rates in each of four periods – 1977-79, 1987-89, 1998-2000, and 2004-05 – is displayed in Appendix Table 1.

[20] The tabulations end in 2000 because of the shift from the SIC industrial classification to the NAICS industrial classification after that year.

[21] *Statistical Abstract of the United States 1959*, Table 301, and *Statistical Abstract of the United States 1977*, Table 679.

[22] Wayne Vroman (1991), *The Decline in Unemployment Insurance Claims Activity in the 1980s*, Unemployment Insurance Occasional Paper 91–21, (Washington, DC: U.S. Department of Labor); and Stephen A Wandner and Andrew Stettner (2000), "Why Are Many Jobless Workers Not Applying for Benefits?" *Monthly Labor Review* (June), pp. 21-32.

[23] See Richard B. Freeman and James L. Medoff (1984), *What Do Unions Do?* (New York: Basic Books); and H. Gregg Lewis (1986), "Union Relative Wage Effects," in Orley C. Ashenfelter and Richard Layard, eds., *Handbook of Labor Economics*, volume 2 (Amsterdam: North Holland), pp. 1139-81.

[24]   For evidence on the relation between reservation wages and the duration of unemployment spells, see Martin Feldstein and James Poterba (1984), "Unemployment Insurance and Reservation Wages," *Journal of Public Economics* 23(1/2), pp. 141-67; and George R. Neumann (1997), "Search Models and Duration Data", in H. Pesaran and P. Schmidt, *Handbook of Applied Econometrics, Vol II: Microeconomics* (Oxford, UK: Blackwell Publishers), pp. 300-351. In general, unemployed workers' reported reservation wages are positively correlated with the wage they earned on their most recent job. Higher wages on the worker's most recent job are strongly associated with a higher reported reservation wage. Labor economists theorize that a higher initial reservation wage is associated with a longer unemployment spell, other things equal, since workers searching for a job are less likely to be offered a job that meets their minimum wage requirements. If unionized workers receive a 25-percent wage premium above the wage earned by workers with identical skills who are not covered by a union contract, when they are laid off they may set a reservation wage that is high in relation to their skills, reducing the likelihood they will be offered an acceptable job in the initial weeks after their layoff.

[25]   U.S. House of Representatives, Committee on Ways and Means (2004), *2004 Green Book: Background Material and Data on the Programs within the Jurisdiction of the Committee on Ways and Means* (Washington: U.S. GPO), p. 4-2.

[26]   U.S. Bureau of Labor Statistics (2005), "Contingent and Alternative Employment Arrangements," News Release USDL 05-1433 (July 27, 2005).

[27] Paul M. Hirsch (1987), *Pack Your Own Parachute: How to Survive Mergers, Takeovers, and Other Corporate Disasters* (Reading, MA: Addison-Wesley); J.C. Coffee, Jr., L. Lowenstein, and Susan Rose Ackerman, eds., *Knights, Raiders and Targets: The Impact of the Hostile Takeover* (New York: Oxford University Press); and Calvin Morrill (1991), "Conflict Management, Honor, and Organizational Change," *The American Journal of Sociology* 97(3) (Novovember), pp. 585-621.

[28]   See U.S. Small Business Administration, http://www.sba.gov/advo/research/data.html#diff and http://www.sba.gov/advo/research/dyn_b_d8904.pdf.

[29]   The firms may have dismissed or lost more than 3.8 million workers in an average year. This is simply an estimate of the difference in the companies' total payrolls between the start and end of the year.

[30]   Louis Jacobsen, Robert LaLonde, and Daniel Sullivan (1993a), "Earnings Losses of Displaced Workers," *American Economic Review* 83(4) (September), pp. 685-709; and 1993b; Jacobsen, LaLonde, and Sullivan (1993b), *The Costs of Worker Dislocation* (Kalamazoo, MI: Upjohn Institute); Ryan Helwig (2004), "Worker Displacement in 1999–2000." *Monthly Labor Review*, vol. 127 (June), pp. 54-68; and Henry S. Farber (2005), "What Do We Know about Job Loss in the United States? Evidence from the Displaced Workers Survey, 1984-2004," Working Paper 498 (Princeton, NJ: Industrial Relations Section, Princeton University).

[31] Louis S. Jacobson, Robert J. LaLonde and Daniel G. Sullivan (1993), "Earnings Losses of Displaced Workers," *The American Economic Review* 83(4) (September), pp. 685-709.

[32]   Farber (2005), "What Do We Know about Job Loss in the United States?" op cit.

[33] The estimates are based on National Bureau of Economic Research (NBER) dating of economic recessions and expansions. See NBER (2007), http://www.nber.org/cycles.html. Unemployment changes are measured using quarterly estimates of the civilian unemployment rate, seasonally adjusted, for the population age 16 and older.

[34] James H. Stock and Mark W. Watson (2003), "Has the Business Cycle Changed? Evidence and Explanations," in Federal Reserve Bank of Kansas City, *Monetary Policy and Uncertainty: Adapting to a Changing Economy* (Kansas City, MO: Federal Reserve Bank of Kansas City)), pp. 9–56. See also Jean-Philippe Cotis and Jonathan Coppel (2005), "Business Cycle Dynamics in OECD Countries: Evidence, Causes and Policy Implications," in Christopher Kent and David Norman, eds., *The Changing Nature of the Business Cycle* (Sydney: Reserve Bank of Australia).

[35] Romer, Christina D., and David H. Romer (2002), "The Evolution of Economic Understanding and Postwar Stabilization Policy," *Rethinking Stabilization Policy* (Kansas City, MO: Federal Reserve Bank of Kansas City), pp. 11–78. Stock and Watson (2003) conclude, however, that improvements in the conduct of monetary explain only a small part of the decline in quarter-to-quarter and year-to-year variance in GDP growth.

[36] See Stock and Watson (2003), op cit.

[37] See Robert G. Valletta (2005), "Rising Unemployment Duration in the United States: Causes and Consequences," preliminary draft working paper (San Francisco, CA: Federal Reserve Bank of San Francisco).

[38] Alicia H. Munnell and Pamela Perun (2006), "An Update on Private Pensions." CRR Policy in Brief No. 50 (Chestnut Hill, MA: Center for Retirement Research at Boston College), Figure 9.

[39] Employee Benefit Research Institute (2007), "Retirement Trends in the United States Over the Past Quarter-Century," *Facts from EBRI* (June) (Washington, DC: Employee Benefit Research Institute) http://www.ebri.org/pdf/publications/facts/0607fact.pdf .

[40] John Bishow and Donald O. Parsons (2004), "Trends in Severance Pay Coverage in the United States, 1980-2001," Unpublished economics department working paper (Washington: George Washington University), esp. pp. 20-21.

[41] Allison Barret (2006), *Characteristics of Food Stamp Households: Fiscal Year 2005*, FSP-06-CHAR (Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service), Table A-6.

[42] David H. Autor and Mark G. Duggan (2006), "The Growth in the Social Security Disability Rolls: A Fiscal Crisis Unfolding," *Journal of Economic Perspectives*, 20(3) (Summer), pp. 71-96.

[43] Carmen DeNavas-Walt, Benadette D. Proctor, and Cheryl Hill Lee (2005), *Income, Poverty, and Health Insurance Coverage in the United States: 2004*, Current Population Reports, P-60-229 (Washington, D.C.: U.S. GPO), p. 16.

[44] Small employers are not obliged to offer continued (unsubsidized) coverage to their laid-off employees. The requirement only applies to employers with 20 or more workers.

[45] Helwig (2004), "Worker Displacement in 1999–2000." p. 61. Helwig's analysis refers to "…persons who had 3 or more years of tenure on a job they had lost or left between January 1999 and December 2000 because their plant or company closed or moved, there was insufficient work for them to do, or their positions or shifts were abolished."

[46] Kaiser Family Foundation (2005), *Employer Health Benefits: 2005 Annual Survey* (Washington, D.C.: Henry J. Kaiser Family Foundation). In 2005 an average health plan covering a single employee required combined employee and employer contributions of $4,000 a year. Fifteen percent of the premium was typically paid by employees.

[47] Note that the unemployment rate of men 20 and older is generally lower than that of the general population age 16 and older. However, because teenagers are a smaller percentage of the workforce and unemployed and because women's unemployment experience is now much closer to that of men, the male unemployment rate is now closer to that of the general population.

[48] U.S. House of Representatives, Committee on Ways and Means (1998), The 1998 Green Book: Background Material and Data on Programs within the Jurisdiction of the Committee on Ways and Means (Washington, D.C.: U.S. GPO), Table 4-4.

[49] These estimates reflect the ratio of "wage and salary disbursements" to "compensation of employees" as reported by the Bureau of Economic Analysis in Table 2.1 of the National Income and Product Accounts (http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=Y, accessed September 5, 2007).

[50] See Gary Burtless (1983), "Why Is Insured Unemployment So Low?" *Brookings Papers on Economic Activity* (Spring), pp. 225-249; Walter Corson and Walter Nicholson (1988), *An Examination of Declining UI Claims During the 1980s*. Unemployment Insurance Occasional Paper 88–3 (Washington, D.C.: U.S. Department of Labor); Rebecca Blank and David Card (1991), "Recent Trends in Insured and Uninsured Unemployment: Is There an Explanation?" *Quarterly Journal of Economics* 106, pp. 1157-1189; Wayne Vroman (1991), *The Decline in Unemployment Insurance Claims Activities in the 1980s*. Unemployment Insurance Occasional Paper 91–2 (Washington, D.C.: U.S. Department of Labor); and Wandner and Stettner (2000), "Why Are Many Jobless Workers Not Applying for Benefits?" op cit.

[51] Gary Burtless and Daniel H. Saks (1984), *The Decline in Insured Unemployment*, Brookings Economic Discussion Paper (Washington: The Brookings Institution). Burtless (1983) regressed monthly initial UI claims on the monthly BLS estimate of the number job losers unemployed five or fewer weeks. His estimates suggest that the ratio of initial claims to new job losers fell 16 percent after 1980 compared with the average rate during the period from 1968 through 1979. See Burtless (1983), "Why Is Insured Unemployment So Low?", op cit., pp. 236-37.

[52] This estimate is the ratio of employer health insurance payments (less contributions for Medicare) as reported in Table 7.8 of the National Income and Product Accounts to "wage and salary disbursements" as reported in Table 2.1 of the National Income and Product Accounts (http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=Y, accessed September 5, 2007).

[53] So far as I know, the idea of earnings insurance was first proposed in Alice M. Rivlin, ed. (1984), *Economic Choices 1984* (Washington: The Brookings Institution), p. 150. It has been elaborated and defended in a variety of papers and volumes: Martin N. Baily, Gary Burtless, and

Robert E. Litan (1993), *Growth with Equity: Economic Policymaking for the Next Century* (Washington: The Brookings Institution), pp. 194-97; Gary Burtless, Robert Z. Lawrence, Robert E. Litan, and Robert J. Shapiro (1998), *Globaphobia: Confronting Fears about Open Trade* (Washington: The Brookings Institution), pp. 143-49; and Kim Kaivanto (2007), "Trade-related Job Loss, Wage Insurance and Externalities: An *Ex Ante* Efficiency Rationale for Wage Insurance," *The World Economy* 30 (6) (June), pp. 962–971.

[54] The relationship between a worker's age and the size of post-displacement wage loss arises because older worker have typically accumulated more tenure on their jobs than workers who are younger. There is a well-documented relationship between the percentage reduction in a displaced worker's wage loss and the length of the worker's tenure in the lost job. See Charles L. Schultze (1999), "Downsized and Out? Job Security and American Workers," *The Brookings Review* (Fall), pp. 9-13, especially Table 1.